CAFB 99

DEPARTMENT OF THE AIR FORCE

27TH CIVIL ENGINEER SQUADRON (ACC)
CANNON AIR FORCE BASE NEW MEXICO

04 NOV 1999

Mr. Robert S. Pyeatt
Deputy Base Civil Engineer
506 N DL Ingram Blvd
Cannon AFB NM 88103-5136

Mr. James Bearzi, Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo Street
P O Box 261110
Santa Fe NM 87502

Dear Mr. Bearzi

In the absence of Lt Col Eric J.Wilbur, 27th Civil Engineer Squadron Commander, I am forwarding this correspondence on behalf of the 27th Fighter Wing. Enclosed for your information and files are the sampling results for sampling at the sewage lagoons and Landfill 5. Although, there were traces of volatile compounds and occurrences of metals, no results exceeded maximum contaminant levels (MCLs) for drinking water.

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

Sincerely

ROBERT S. PYEATT, GS-13

Attachment:
Sampling Results

CC:
NMED W/O ATCH (C. WILD)
NMED GW BUREAU (J. JACOBS)
EPA Region VI (D. Neleigh)
EPA Region VI (B. STURGIVANT)

CAFB-99-010

LIBRARY COPY

Cannon Air Force Base, New Mexico

RCRA Ground-Water Monitoring at Sewage Lagoons and at Landfill 5

Analytical Results of Samples Collected March 2-5, 1999

Prepared for

United States Air Force Air Combat Command
Cannon Air Force Base

July 1999

Cannon Air Force Base, New Mexico

RCRA Ground-Water Monitoring at Sewage Lagoons and at Landfill 5

Analytical Results of Samples Collected March 2-5, 1999

Prepared for

United States Air Force Air Combat Command
Cannon Air Force Base

July 1999

CONTENTS

Page

Executive summary 1

Figure 1. Location of Cannon Air Force Base, New Mexico 4

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

Figure 3. Location of monitoring wells around the sewage lagoons 6

Figure 4. Location of monitoring wells around Landfill 5 7

Table 1. Summary of concentrations of analytes in ground water from monitoring wells E, F, G, and H for samples collected March 2, 1999, at the sewage lagoons, Cannon Air Force Base, New Mexico 8

Table 2. Summary of concentrations of analytes in ground water from monitoring wells B, C, D, I, Q, S, T, and U for samples collected March 2-5, 1999, at Landfill 5, Cannon Air Force Base, New Mexico 9

Monitoring well identification reports 11

Monitoring well semi-annual sampling reports 23

APPENDIX I

Analytical Results from Quanterra Environmental Services Laboratory for Ground-Water Samples Collected March 2-5, 1999

Quanterra No. D9C030169 (sewage lagoons) I-1

Volatile organics I-9

Pesticides and PCB's I-24

Page

APPENDIX I--Continued

Analytical Results from Quanterra Environmental Services Laboratory for Ground-Water Samples Collected March 2-5, 1999

Total metals I-32

General chemistry I-40

Quanterra No. D9C030208 (Landfill 5) I-44

Volatile organics I-56

Semivolatile organics I-95

Pesticides and PCB's I-135

Herbicides I-155

Polynuclear aromatic hydrocarbons I-168

Total metals I-178

General chemistry I-198

Dioxins and furans I-208

APPENDIX II

Laboratory Quality Assurance / Quality Control Results

Laboratory data validation checklist for D9C030169 (sewage lagoon) II-1

DODEC laboratory data review worksheet for D9C030169 ..... II-26

Quanterra No. D9C030169 quality control summary II-30

Page

APPENDIX II--Continued

Laboratory Quality Assurance / Quality Control Results

U.S. Geological Survey, Water Resources Division, New Mexico District analytical request / chain of custody..... II-72

Quanterra sample receiving checklist..... II-74

Laboratory data validation checklist for D9C030208 (Landfill 5)..... II-75

DODEC laboratory data review worksheet for D9C030208.....II-112

Quanterra No. D9C030208 quality control summary.....II-116

U.S. Geological Survey, Water Resources Division, New Mexico District analytical request / chain of custody.....II-196

Quanterra sample receiving checklists.....II-208

Quanterra condition upon receipt anomaly reports.....II-212

APPENDIX III

Field Data

Sample container and preservation requirements..... III-1

Field notes..... III-3

EXECUTIVE SUMMARY

The U.S. Geological Survey (USGS), Water Resources Division, and the U.S. Air Force Air Combat Command (ACC) have a memorandum of understanding that addresses the USGS assisting any ACC base in their hydrology or environmental programs. The USGS has agreed to assist Cannon Air Force Base (CAFB), an ACC base, in their Resource Conservation and Recovery Act (RCRA) ground-water sampling program. Cannon AFB is located in east-central New Mexico about 6 miles west of Clovis, as shown in figure 1. The ground-water sampling is at the sewage lagoons and at Landfill 5 on the east side and southeast corner of the base, as shown in figure 2. Annual sampling is conducted at the sewage lagoons (fig. 3). Detection sampling is conducted semiannually at Landfill 5 (fig. 4) as part of the July 13, 1990, Compliance Agreement between CAFB and the New Mexico Environment Department (NMED).

This report presents the water-quality data for samples collected from four wells around the sewage lagoons and eight wells around Landfill 5, CAFB, on March 2-5, 1999. The monitoring wells sampled at the sewage lagoons are well E (upgradient) and downgradient wells F, G, and H. These wells were sampled for the following Appendix IX parameters: volatile organic compounds (VOC's) by method SW8260B; pesticides by methods SW8081A and SW8082; total metals (aluminum, barium, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, molybdenum, nickel, potassium, sodium, tin, vanadium, and zinc by method SW6010B; antimony, arsenic, cadmium, chromium, lead, selenium, silver, and thallium by method SW6020; and mercury by method SW7470A); sulfate by method MCAWW300.0A; sulfide by method SW9030B/9034; nitrate/nitrite by method MCAWW353.2/ 354.1; and total dissolved solids by method MCAWW160.1.

The monitoring wells sampled at Landfill 5 are downgradient wells B, C, D, I, S, T, and U, and upgradient well Q, as shown in figure 4. These wells were sampled for the following Appendix IX parameters: VOC's by method SW8260B; semivolatile organic compounds by method SW8270C; dioxins and furans by method SW8280; polynuclear aromatic hydrocarbons by method SW8310; pesticides and PCB's by methods SW8081A and SW8082; herbicides by method SW8151A; total metals (aluminum, barium, beryllium, calcium, cobalt, copper, iron, magnesium, manganese, molybdenum, nickel, potassium, sodium, tin, vanadium, and zinc by SW6010B; antimony, arsenic, cadmium, chromium, lead, selenium, silver, and thallium by SW6020; and mercury by SW7470A); and general

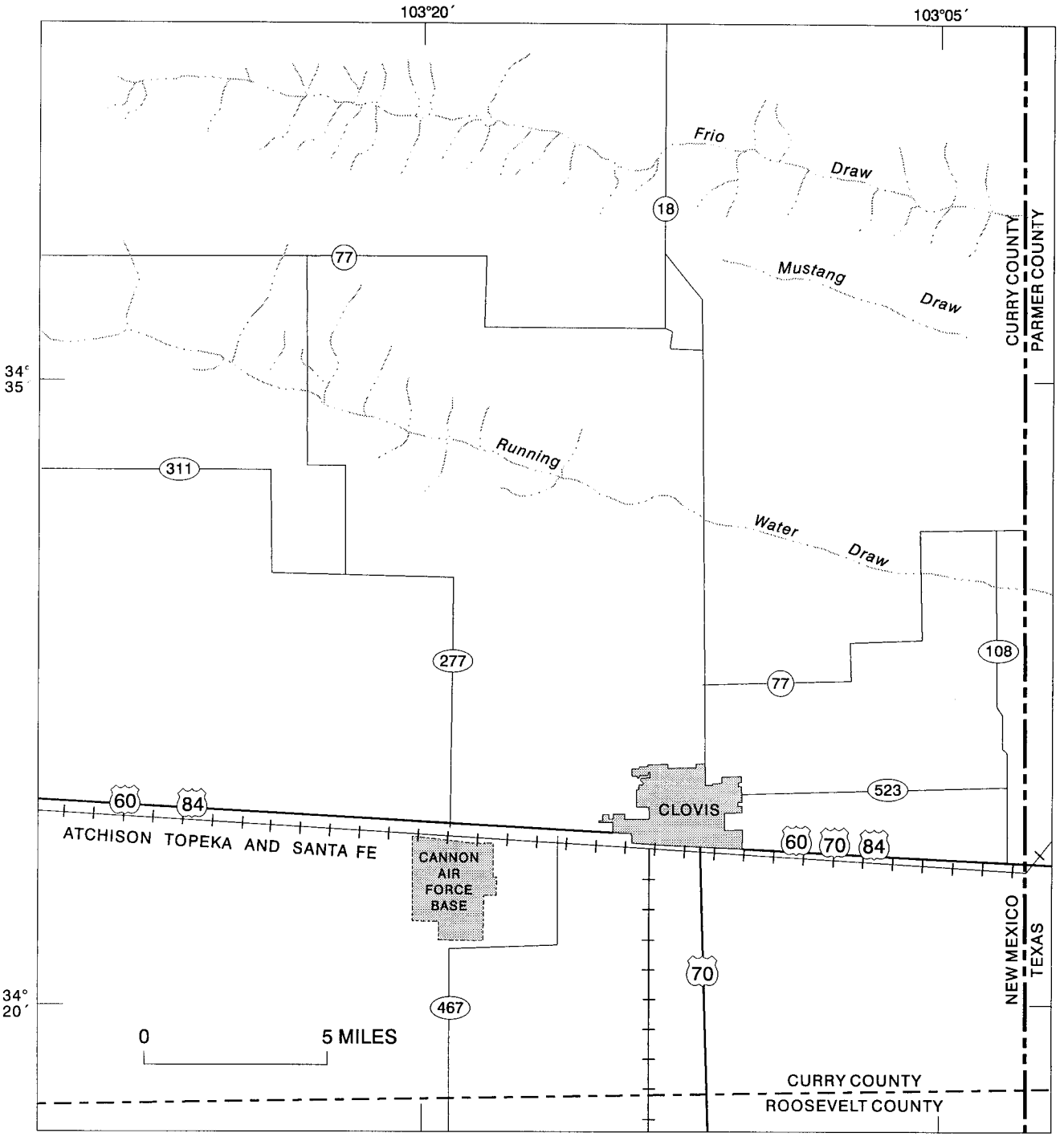
chemistry (cyanide by SW9012A, sulfide by SW9030B/9034, total organic carbon (TOC) by SW9060, and total organic halogens (TOX) by SW9020B).

Concentrations of analytes detected in ground water from wells at the sewage lagoons are presented in table 1. Only those concentrations detected above the reporting limits are discussed in this summary. A volatile organic compound, tetrachloroethene, was detected in a water sample from well E at a concentration of 2.1 μg/L. The U.S. Environmental Protection Agency (USEPA) maximum contaminant level (MCL) drinking-water standard for tetrachloroethene is 5 μg/L. Barium was detected in water samples from wells E, G, and H at concentrations of 48.2, 31.4, and 33.6 μg/L, respectively. The USEPA MCL standard for barium is 2,000 μg/L. Chromium was detected in water samples from all four wells at concentrations ranging from 1.5 μg/L (well F) to 7.6 μg/L (well G). The USEPA MCL drinking-water standard for chromium is 100 μg/L. Iron was detected in a water sample from well H at a concentration of 284 μg/L. The USEPA secondary maximum contaminant level (SMCL) standard for iron is 300 μg/L. Lead was detected in a water sample from well H at a concentration of 2.1 μg/L. The USEPA maximum contaminant level goal (SMCLG) standard for lead is zero. Selenium was detected in water samples from wells E, F, and H at concentrations of 5.7, 5.8, and 7.2 μg/L, respectively. The USEPA MCL standard for selenium is 50 μg/L. Zinc was detected in a water sample from well H at a concentration of 138 μg/L. The USEPA SMCL standard for zinc is 5,000 μg/L. Sulfate was detected in all four wells at concentrations ranging from 60.3 μg/L (well E) to 182 μg/L (well G). The USEPA MCL standard for sulfate is 500,000 μg/L.

Concentrations of analytes detected in ground water from wells at Landfill 5 are presented in table 2. Trichloroethene was detected in a water sample from well D at a concentration of 2.4 μg/L. The USEPA MCL drinking-water standard for trichloroethene is 5 μg/L. Barium was detected in water samples from all eight wells at concentrations ranging from 27.9 μg/L (well B) to 61.3 μg/L (well D). Chromium was detected in water samples from wells I, Q, S, T, and U at concentrations ranging from 1.0 μg/L (wells T and U), which is the reporting limit, to 36.8 μg/L (well I). Iron was detected in water samples from wells C, D, I, and S at concentrations ranging from 108 μg/L (well C) to 445 μg/L (well D). Lead was detected in a water sample from well I at a concentration of 2.2 μg/L. Manganese was detected in water samples from wells I, S, and T, at concentrations of 57.6, 33.5, and 15.4 μg/L, respectively. The USEPA SMCL standard for manganese is 50 μg/L. Selenium was detected in water samples from wells B, I, S, T, and U at concentrations ranging from 6.8 μg/L (well S) to 10 μg/L (well I). Zinc was

detected in a water sample from well S, the duplicate sample from S, and well T at concentrations of 63.0, 66.5, and 29.9 μg/L, respectively.

As part of the quality assurance and quality control (QA/QC) procedures for the sewage lagoons and Landfill 5 sites, four trip blanks, one equipment blank, one field duplicate sample, one pair of matrix spike, and matrix spike duplicate samples were collected. No target parameters were detected above reporting limits in the trip blanks. A common laboratory contaminant, methylene chloride, was detected in the equipment blank at a concentration of 780 μg/L. All the sample cooler temperatures (for Landfill 5) upon receipt by the laboratory were greater than the EPA recommendation of 6.0 degrees Celsius. Analytical results of water samples from the sewage lagoon wells for metals (antimony, arsenic, silver, and thallium), nitrate, and sulfide and results from the Landfill 5 wells for metals (antimony, arsenic, silver, and thallium) should be used with caution because the associated matrix spike or matrix spike duplicate analytical results did not meet quality control acceptance criteria. The percent recoveries of these spiked analytes were either above or below the acceptance criteria, thus indicating potential matrix effect.



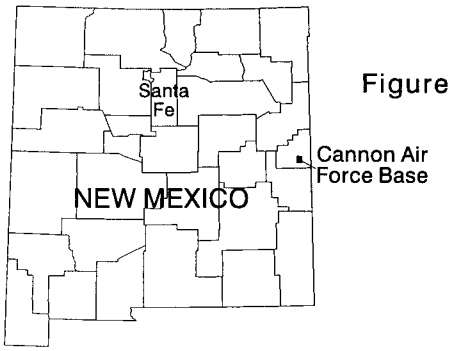


Figure 1.--Location of Cannon Air Force Base, New Mexico.

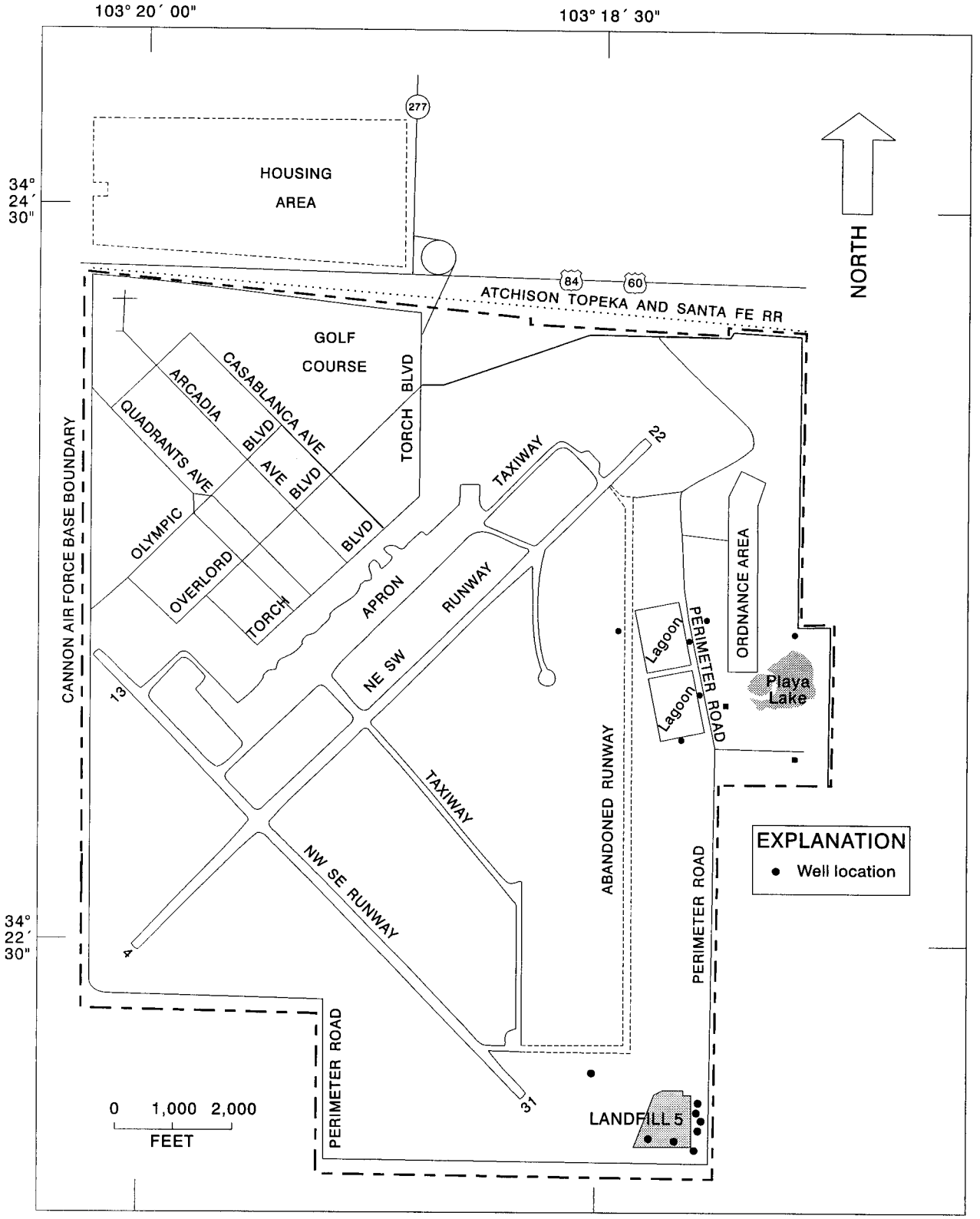


Figure 2.--Cannon Air Force Base and location of sewage lagoons and Landfill 5.

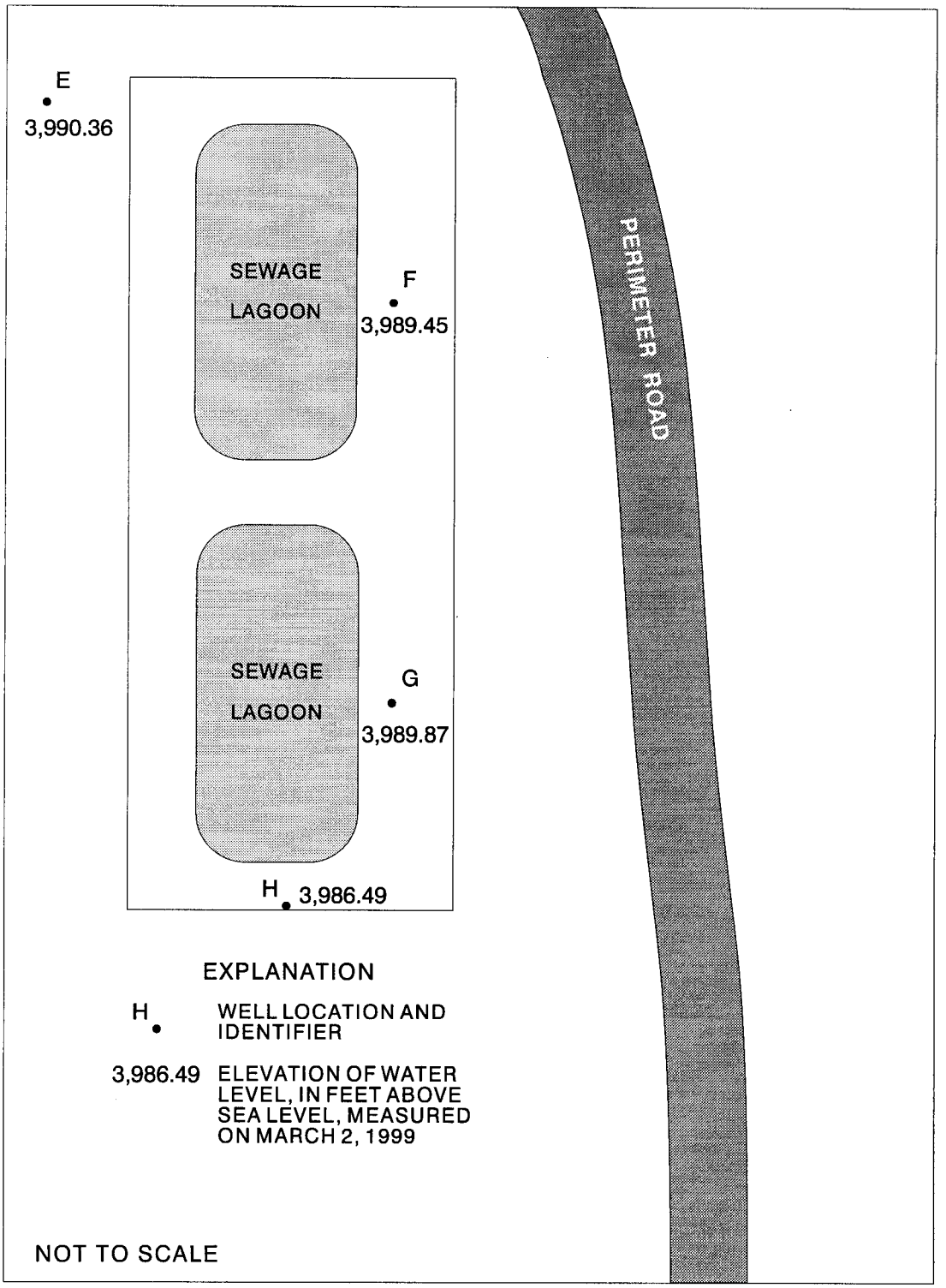


Figure 3.--Location of monitoring wells around the sewage lagoons.

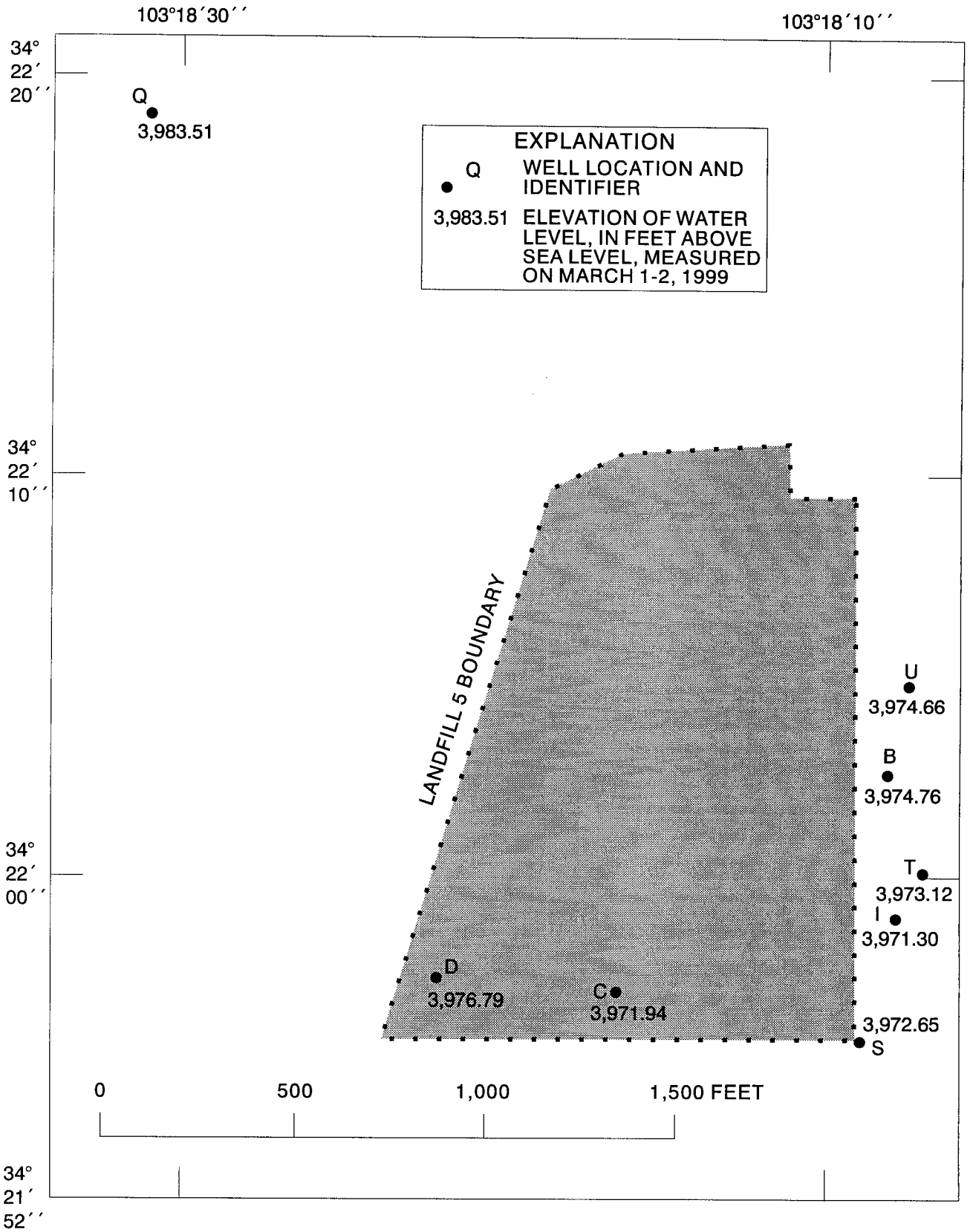


Figure 4.--Location of monitoring wells around Landfill 5.

Table 1.--Summary of concentrations of analytes in ground water from monitoring wells E, F, G, and H for samples collected March 2, 1999, at the sewage lagoons, Cannon Air Force Base, New Mexico

[RL, reporting limit; µg/L, micrograms per liter; ND, not detected; J, result is detected below the reporting limit or is an estimated concentration; mg/L, milligrams per liter; MCAWW, methods for chemical analysis of water and wastes; Q, reporting limit is elevated due to high analyte levels]

Well/sample ID: Date sampled:		E/CAFB-E 3-2-1999		F/CAFB-F 3-2-1999		G/CAFB-G 3-2-1999		H/CAFB-H 3-2-1999	
Analytes and Methods		Result	RL	Result	RL	Result	RL	Result	RL
Appendix-IX Volatile organics, SW8260B, (µg/L)									
Tetrachloroethene		2.1	1.0	ND	1.0	ND	1.0	ND	1.0
Metals, Total (µg/L)									
Barium	SW6010B	48.2	10.0	ND	10.0	31.4	10.0	33.6	10.0
Calcium	SW6010B	36,900	200	ND	200	71,900	200	40,200	200
Chromium	SW6020	5.1	1.0	1.5	1.0	7.6	1.0	5.4	1.0
Iron	SW6010B	ND	100	ND	100	ND	100	284	100
Lead	SW6020	0.47 J	1.0	ND	1.0	0.88 J	1.0	2.1	1.0
Magnesium	SW6010B	34,500	200	ND	200	70,200	200	38,000	200
Potassium	SW6010B	6,200	5,000	ND	5,000	8,690	5,000	6,400	5,000
Selenium	SW6020	5.7	5.0	5.8	5.0	4.2 J	5.0	7.2	5.0
Sodium	SW6010B	53,200	5,000	643 J	5,000	60,300	5,000	52,500	5,000
Vanadium	SW6010B	20.0	10.0	ND	10.0	15.8	10.0	18.0	10.0
Zinc	SW6010B	ND	20.0	ND	20.0	19.9 J	20.0	138	20.0
General Inorganics (mg/L)									
Sulfate	MCAWW300.0A	60.3 Q	25.0	139 Q	25.0	182 Q	25.0	132 Q	25.0
Total Dissolved Solids, MCAWW160.1		414	10.0	506	10.0	781	10.0	492	10.0

Table 2.--Summary of concentrations of analytes in ground water from monitoring wells CAFB-B, C, D, I, Q, S, T, and U for samples collected March 2-5, 1999, at Landfill 5, Cannon Air Force Base, New Mexico

[RL, reporting limit; µg/L, micrograms per liter; ND, not detected; J, result was detected below the reporting limit or is an estimated concentration. All samples were prepared or analyzed after the EPA-recommended temperature had been exceeded]

Well/sample ID: Date sampled:	B/CAFB-B 3-3-1999		C/CAFB-C 3-4-1999		D/CAFB-D 3-4-1999		I/CAFB-I 3-5-1999		Q/CAFB-Q 3-2-1999	
Analytes and Methods	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Appendix-IX Volatiles, SW8260B (µg/L)										
Trichloroethene	ND	1.0	0.86 J	1.0	2.4	1.0	ND	1.0	ND	1.0
Metals, Total (µg/L)										
Aluminum, SW6010B	ND	100	ND	100	ND	100	179	100	ND	100
Barium, SW6010B	27.9	10.0	30.4	10.0	61.3	10.0	47.5	10.0	36.7	10.0
Calcium, SW6010B	42,000	200	32,600	200	30,500	200	53,700	200	47,800	200
Chromium, SW6020	0.74 J	1.0	0.87 J	1.0	0.59 J	1.0	36.8	1.0	1.1	1.0
Iron, SW6010B	ND	100	108	100	445	100	363	100	ND	100
Lead, SW6020	ND	1.0	0.29 J	1.0	0.35 J	1.0	2.2	1.0	ND	1.0
Magnesium, SW6010B	40,300	200	32,800	200	30,600	200	47,400	200	47,100	200
Manganese, SW6010B	ND	10.0	4.4 J	10.0	8.0 J	10.0	57.6	10.0	ND	10.0
Potassium, SW6010B	6,760	5,000	5,950	5,000	5,880	5,000	6,850	5,000	7,420	5,000
Selenium, SW6020	7.3	5.0	3.8 J	5.0	0.68 J	5.0	10	5.0	4.8 J	5.0
Sodium, SW6010B	58,500	5,000	50,300	5,000	47,800	5,000	44,800	5,000	43,800	5,000
Vanadium, SW6010B	27.3	10.0	39.3	10.0	39.0	10.0	26.4	10.0	18.1	10.0
Zinc, SW6010B	ND	20.0	ND	20.0	ND	20.0	ND	20.0	ND	20.0

Table 2.--Summary of concentrations of analytes in ground water from monitoring wells CAFB-B, C, D, I, Q, S, T, and U for samples collected March 2-5, 1999, at Landfill 5, Cannon Air Force Base, New Mexico -- Concluded

Well/sample ID: Date sampled:	S/CAFB-S 3-3-1999		S/CAFB-X 3-3-1999 Duplicate		T/CAFB-T 3-4-1999		U/CAFB-U 3-4-1999	
Analytes and Methods	Result	RL	Result	RL	Result	RL	Result	RL
Appendix-IX Volatiles, SW8260B (µg/L)								
Trichloroethene	ND	1.0	ND	1.0	ND	1.0	ND	1.0
Metals, Total (µg/L)								
Aluminum, SW6010B	126	100	130	100	47.5 J	100	98.0 J	100
Barium, SW6010B	45.2	10.0	44.0	10.0	35.2	10.0	46.0	10.0
Calcium, SW6010B	45,000	200	45,100	200	44,600	200	46,000	200
Chromium, SW6020	2.7	1.0	7.9	1.0	1.0	1.0	1.0	1.0
Iron, SW6010B	124	100	113	100	ND	100	ND	100
Lead, SW6020	ND	1.0	0.28 J	1.0	ND	1.0	ND	1.0
Magnesium, SW6010B	40,500	200	40,600	200	40,100	200	39,800	200
Manganese, SW6010B	33.0	10.0	33.5	10.0	15.4	10.0	6.7 J	10.0
Potassium, SW6010B	6,870	5,000	66,630	5,000	6,590	5,000	7,230	5,000
Selenium, SW6020	6.8	5.0	6.9	5.0	8.5	5.0	7.6	5.0
Sodium, SW6010B	53,500	5,000	53,500	5,000	55,400	5,000	57,300	5,000
Vanadium, SW6010B	25.4	10.0	24.8	10.0	25.5	10.0	24.7	10.0
Zinc, SW6010B	63.0	20.0	66.5	20.0	29.9	20.0	ND	20.0

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER B -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 10 "

WELL LOCATION (LATITUDE) 34 ° 22 ' 03 "

AQUIFER NAME Ogallala

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 11-30-1984

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3903.11 feet above MSL

ELEV BOTTOM OF WELL CASING 3903.11 feet above MSL

ELEV BOTTOM OF SCREENED INT 3903.11 feet above MSL

ELEV OF TOP OF SCREENED INT 3918.11 feet above MSL

SURVEYED ELEV OF CASING TOP 4265.41 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER C -- Landfill-5

WELL LOCATION (LONGITUDE) 103° 18' 08.3"

WELL LOCATION (LATITUDE) 34° 21' 56.8"

AQUIFER NAME Ogalalla

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 01-11-1985

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3905.90 feet above MSL

ELEV BOTTOM OF WELL CASING 3905.90 feet above MSL

ELEV BOTTOM OF SCREENED INT 3905.90 feet above MSL

ELEV OF TOP OF SCREENED INT 3920.90 feet above MSL

SURVEYED ELEV OF CASING TOP 4267.90 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER D -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 17 "

WELL LOCATION (LATITUDE) 34 ° 21 ' 57 "

AQUIFER NAME Ogallula

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 12-16-1984

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3909.15 feet above MSL

ELEV BOTTOM OF WELL CASING 3909.15 feet above MSL

ELEV BOTTOM OF SCREENED INT 3909.15 feet above MSL

ELEV OF TOP OF SCREENED INT 3924.15 feet above MSL

SURVEYED ELEV OF CASING TOP 4265.90 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER E -- Sewage Lagoons

WELL LOCATION (LONGITUDE) 103° 18' 24.5"

WELL LOCATION (LATITUDE) 34° 23' 28.8"

AQUIFER NAME Ogalalla

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 11-17-1985

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3908.12 feet above MSL

ELEV BOTTOM OF WELL CASING 3911.12 feet above MSL

ELEV BOTTOM OF SCREENED INT 3911.12 feet above MSL

ELEV OF TOP OF SCREENED INT 3926.12 feet above MSL

SURVEYED ELEV OF CASING TOP 4281.12 feet above MSL

DATE OF REPORT 02-14-1989 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER F -- Sewage Lagoons

WELL LOCATION (LONGITUDE) 103° 18' 10.5"

WELL LOCATION (LATITUDE) 34° 23' 21.4"

AQUIFER NAME Ogalalla

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 11-19-1985

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3902.32 feet above MSL

ELEV BOTTOM OF WELL CASING 3907.32 feet above MSL

ELEV BOTTOM OF SCREENED INT 3907.32 feet above MSL

ELEV OF TOP OF SCREENED INT 3922.32 feet above MSL

SURVEYED ELEV OF CASING TOP 4277.32 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER G -- Sewage Lagoons

WELL LOCATION (LONGITUDE) 103° 18' 08"

WELL LOCATION (LATITUDE) 34° 23' 13.4"

AQUIFER NAME Ogalalla

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 11-10-1985

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3907.99 feet above MSL

ELEV BOTTOM OF WELL CASING 3907.90 feet above MSL

ELEV BOTTOM OF SCREENED INT 3907.99 feet above MSL

ELEV OF TOP OF SCREENED INT 3922.99 feet above MSL

SURVEYED ELEV OF CASING TOP 4279.99 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER H -- Sewage Lagoons

WELL LOCATION (LONGITUDE) 103° 18' 16.80"

WELL LOCATION (LATITUDE) 34° 23' 07"

AQUIFER NAME Ogalalla

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 11-18-1985

DRILLING METHOD HYDRT

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT AIRFT

ELEV BOTTOM OF BOREHOLE 3901.15 feet above MSL

ELEV BOTTOM OF WELL CASING 3901.15 feet above MSL

ELEV BOTTOM OF SCREENED INT 3901.15 feet above MSL

ELEV OF TOP OF SCREENED INT 3921.15 feet above MSL

SURVEYED ELEV OF CASING TOP 4276.15 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER I -- Landfill-5

WELL LOCATION (LONGITUDE) 103° 18' 06.8"

WELL LOCATION (LATITUDE) 34° 21' 58.8"

AQUIFER NAME Ogallala

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 08-19-1988

DRILLING METHOD HYDRT

INNER CASING DIAMETER 6 inches

BOREHOLE DIAMETER 9 7/8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3,959.36 feet above MSL

ELEV BOTTOM OF WELL CASING 3,969.36 feet above MSL

ELEV BOTTOM OF SCREENED INT 3,969.36 feet above MSL

ELEV OF TOP OF SCREENED INT 3,989.36 feet above MSL

SURVEYED ELEV OF CASING TOP 4,262.36 feet above MSL

DATE OF REPORT 02-24-1989 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER Q -- Landfill-5

WELL LOCATION (LONGITUDE) 103° 18' 31"

WELL LOCATION (LATITUDE) 34° 22' 19"

AQUIFER NAME Ogallala

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 02-24-1996

DRILLING METHOD Unknown

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 8 inches

CASING MATERIAL PVC

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3,969.30 feet above MSL

ELEV BOTTOM OF WELL CASING 3,970.30 feet above MSL

ELEV BOTTOM OF SCREENED INT 3,970.30 feet above MSL

ELEV OF TOP OF SCREENED INT 4,000.30 feet above MSL

SURVEYED ELEV OF CASING TOP 4,266.89 feet above MSL

DATE OF REPORT 11-27-1996 SIGNATURE

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER S -- Landfill-5

WELL LOCATION (LONGITUDE) 103° 18' 10.58"

WELL LOCATION (LATITUDE) 34° 21' 57.02"

AQUIFER NAME Ogallala

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 12-02 to 06-1998

DRILLING METHOD HYDRT (mud rotary)

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 12 inches

CASING MATERIAL PVC (Schedule-80)

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3898.83 feet above MSL

ELEV BOTTOM OF WELL CASING 3898.83 feet above MSL

ELEV BOTTOM OF SCREENED INT 3939.81 feet above MSL

ELEV OF TOP OF SCREENED INT 3979.83 feet above MSL

SURVEYED ELEV OF CASING TOP 4263.83 feet above MSL

DATE OF REPORT 05-26-1999 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER T -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 09.33 "

WELL LOCATION (LATITUDE) 34 ° 22 ' 00.10 "

AQUIFER NAME Ogallala

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 12-6 to 10-1998

DRILLING METHOD HYDRT (mud rotary)

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 12 inches

CASING MATERIAL PVC (Schedule-80)

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3898.69 feet above MSL

ELEV BOTTOM OF WELL CASING 3898.69 feet above MSL

ELEV BOTTOM OF SCREENED INT 3939.69 feet above MSL

ELEV OF TOP OF SCREENED INT 3979.69 feet above MSL

SURVEYED ELEV OF CASING TOP 4263.69 feet above MSL

DATE OF REPORT 05-26-1999 SIGNATURE _____

NAME (TYPED) John S. Pike

MONITORING WELL IDENTIFICATION REPORT

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

FACILITY NAME Cannon Air Force Base

EPA I.D. NUMBER NM 7572124454

COUNTY Curry

WELL NUMBER U -- Landfill-5

WELL LOCATION (LONGITUDE) 103 ° 18 ' 09.84 "

WELL LOCATION (LATITUDE) 34 ° 22 ' 04.88 "

AQUIFER NAME Ogallala

AQUIFER CONFINED _____ UNCONFINED X

WELL INSTALLATION DATE 12-10 to 13-1998

DRILLING METHOD HYDRT (mud rotary)

INNER CASING DIAMETER 4 inches

BOREHOLE DIAMETER 12 inches

CASING MATERIAL PVC (Schedule 80)

METHOD OF DEVELOPMENT BAILD

ELEV BOTTOM OF BOREHOLE 3900.26 feet above MSL

ELEV BOTTOM OF WELL CASING 3900.26 feet above MSL

ELEV BOTTOM OF SCREENED INT 3941.26 feet above MSL

ELEV OF TOP OF SCREENED INT 3981.26 feet above MSL

SURVEYED ELEV OF CASING TOP 4265.26 feet above MSL

DATE OF REPORT 05-26-1999 SIGNATURE

NAME (TYPED) John S. Pike

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-B

WELL DEPTH 362.30 feet WELL CASING VOLUME 48.39 gallons

DATE SAMPLED 03-03-1999 LABORATORY SAMPLE I.D.# D9C030208-006

TIME SAMPLED 1400 DATE RECEIVED BY LAB 03-04-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3977.56	03-03-1999
Flow Rate	00059	gal/min	1.4	03-03-1999
Pump Period	72004	min.	50.0	03-03-1999
Volume Evacuated	73675	gal	70.0	03-03-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.45	N/A	03-03-1999	field electrometer
Specific Conductivity	00095	umhos/cm	768	N/A	03-03-1999	field electrometer
T.O.X.	70354	ug/L	12 .9	30.0	03-16-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-C

WELL DEPTH 362.00 feet WELL CASING VOLUME 42.92 gallons

DATE SAMPLED 03-04-1999 LABORATORY SAMPLE I.D.# D9C030208-008

TIME SAMPLED 1110 DATE RECEIVED BY LAB 03-05-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3971.94	03-04-1999
Flow Rate	00059	gal/min	1.12	03-04-1999
Pump Period	72004	min.	31.0	03-04-1999
Volume Evacuated	73675	gal	35.0	03-04-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.25	N/A	03-04-1999	field electrometer
Specific Conductivity	00095	umhos/cm	624	N/A	03-04-1999	field electrometer
T.O.X.	70354	ug/L	17.0	30.0	03-16-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-D

WELL DEPTH 354.87 feet WELL CASING VOLUME 42.74 gallons

DATE SAMPLED 03-04-1999 LABORATORY SAMPLE I.D.# D9C030208-007

TIME SAMPLED 0944 DATE RECEIVED BY LAB 03-05-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3976.79	03-04-1999
Flow Rate	00059	gal/min	1.25	03-04-1999
Pump Period	72004	min.	48.0	03-04-1999
Volume Evacuated	73675	gal	60.0	03-04-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.22	N/A	03-04-1999	field electrometer
Specific Conductivity	00095	umhos/cm	563	N/A	03-04-1999	field electrometer
T.O.X.	70354	ug/L	ND	30.0	03-16-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-I

WELL DEPTH 293.00 feet WELL CASING VOLUME 1.65 gallons

DATE SAMPLED 03-05-1999 LABORATORY SAMPLE I.D.# D9C030208-015

TIME SAMPLED 0945 DATE RECEIVED BY LAB 03-06-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3970.49	03-05-1999
Flow Rate	00059	gal/min	0.53	03-05-1999
Pump Period	72004	min.	47.0	03-05-1999
Volume Evacuated	73675	gal	25.0	03-05-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.51	N/A	03-05-1999	field electrometer
Specific Conductivity	00095	umhos/cm	834	N/A	03-05-1999	field electrometer
T.O.X.	70354	ug/L	12.9	30.0	03-17-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-Q

WELL DEPTH 296.69 feet WELL CASING VOLUME 8.65 gallons

DATE SAMPLED 03-02-1999 LABORATORY SAMPLE I.D.# D9C030208-001

TIME SAMPLED 1030 DATE RECEIVED BY LAB 03-03-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3983.51	03-02-1999
Flow Rate	00059	gal/min	1.06	03-02-1999
Pump Period	72004	min.	33.0	03-02-1999
Volume Evacuated	73675	gal	35.0	03-02-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.56	N/A	03-02-1999	field electrometer
Specific Conductivity	00095	umhos/cm	708	N/A	03-02-1999	field electrometer
T.O.X.	70354	ug/L	ND	30.0	03-04-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-S

WELL DEPTH 362.77 feet WELL CASING VOLUME 46.53 gallons

DATE SAMPLED 03-03-1999 LABORATORY SAMPLE I.D.# D9C030208-004

TIME SAMPLED 1300 DATE RECEIVED BY LAB 03-04-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3972.65	03-03-1999
Flow Rate	00059	gal/min	1.04	03-03-1999
Pump Period	72004	min.	48.0	03-03-1999
Volume Evacuated	73675	gal	50.0	03-03-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.39	N/A	03-03-1999	field electrometer
Specific Conductivity	00095	umhos/cm	761	N/A	03-03-1999	field electrometer
T.O.X.	70354	ug/L	8.3	30.0	03-11-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-T

WELL DEPTH 365.00 feet WELL CASING VOLUME 48.38 gallons

DATE SAMPLED 03-04-1999 LABORATORY SAMPLE I.D.# D9C030208-012

TIME SAMPLED 1330 DATE RECEIVED BY LAB 03-05-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3973.12	03-04-1999
Flow Rate	00059	gal/min	1.23	03-04-1999
Pump Period	72004	min.	65.0	03-04-1999
Volume Evacuated	73675	gal	80.0	03-04-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.46	N/A	03-04-1999	field electrometer
Specific Conductivity	00095	umhos/cm	778	N/A	03-04-1999	field electrometer
T.O.X.	70354	ug/L	ND	30.0	03-08-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

MONITORING WELL
SEMI-ANNUAL SAMPLING REPORT

SAMPLE COLLECTED BY Jerry Larson

LABORATORY NAME Quanterra Environmental Services WELL NUMBER CAFB-U

WELL DEPTH 365.00 feet WELL CASING VOLUME 48.36 gallons

DATE SAMPLED 03-04-1999 LABORATORY SAMPLE I.D.# D9C030208-011

TIME SAMPLED 1345 DATE RECEIVED BY LAB 03-05-1999

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Elevation of G. Water	71993	ft.	3974.66	03-04-1999
Flow Rate	00059	gal/min	0.78	03-04-1999
Pump Period	72004	min.	77.0	03-04-1999
Volume Evacuated	73675	gal	60.0	03-04-1999
Well Sampling Method	84077	---	PSPMP	N/A

Sampler Material: TEFLON Well Sampling Method: BENNETT PUMP

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATE ANALYZED	METHOD USED
pH	00400	S.U.	7.78	N/A	03-04-1999	field electrometer
Specific Conductivity	00095	umhos/cm	765	N/A	03-04-1999	field electrometer
T.O.X.	70354	ug/L	21.6	30.0	03-17-1999	SW9020B
T.O.C.	00680	mg/L	ND	1.0	03-25-1999	SW9060

SIGNATURE: F. Eileen Roybal

NAME (PRINTED): F. Eileen Roybal

APPENDIX I

Analytical Results from Quanterra Environmental Services Laboratory
for Ground-Water Samples Collected March 2-5, 1999

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

ANALYTICAL REPORT

Cannon AFB – Sewage Lagoons

Lot #: D9C030169

Richard Daddow

U.S. Geological Survey

QUANTERRA INCORPORATED

Christina M. Mott
Project Manager

April 9, 1999

Table Of Contents

Standard Deliverables with Supporting Documentation

Section	Report Contents	Number of Pages
	Standard Deliverables	
A.	**Introduction-** *The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package.*	87
	• **Table of Contents**	
	• **Case Narrative**	
	• **Executive Summary – Detection**	
	• **Analytical Methods Summary**	
	• **Method/Analyst Summary**	
	• **Lot Sample Summary**	
	• **Analytical Results by Sample**	
	• **QC Data Association Summary**	
	• **Chain-of-Custody**	
	Supporting Documentation	
	[Please Note: A one-page "Description of Supporting Documentation" is provided in the Supporting Documentation section(s).]	
B.	• **Volatile GC/MS**	
C.	• **Semivolatile GC/MS**	
D.	• **Volatile GC**	
E.	• **Semivolatile GC**	
F.	• **LC/MS or HPLC**	
G.	• **Metals**	
H.	• **General Chemistry**	
I.	• **Subcontracted Data**	
	Total # Pages in this Package	

Case Narrative

Lot D9C030169

Pesticides by GC, Method 8081A

The percent recovery for gamma-BHC is reported below the acceptance limit for the laboratory control and matrix spike samples. The spiking solution was analyzed and gamma-BHC was recovered at 30.9% indicating that the spiking solution was no longer viable for that compound. If the reported percent recoveries for the LCS and MS samples are corrected for the low concentration in the spiking solution, the values would be acceptable. Therefore, the data are reported. The long term corrective action for this situation is to change the holding time (shelf life) of the spiking solution from 6 months to 3 months.

Chromium by ICP-MS, Method 6020

The percent recovery for chromium is reported slightly above the acceptance limit for one of the laboratory control samples. As the percent recovery value is reasonable and all other QC samples are in control, the data are reported.

In maintaining the use of the most current versions of analytical methods, all samples were analyzed using the current update to SW-846, which is Update III. The following is a summary of the updated method codes: Method 8260A has changed to Method 8260B, Method 6010A has changed to Method 6010B, and Method 8080 has changed to Methods 8081A and 8082.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits.

EXECUTIVE SUMMARY - Detection Highlights

D9C030169

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CAFB-H 03/02/99 12:30 001				
Arsenic	4.4 B	5.0	ug/L	SW846 6020
Chromium	5.4	1.0	ug/L	SW846 6020
Lead	2.1	1.0	ug/L	SW846 6020
Selenium	7.2	5.0	ug/L	SW846 6020
Aluminum	61.1 B	100	ug/L	SW846 6010B
Barium	33.6	10.0	ug/L	SW846 6010B
Calcium	40200	200	ug/L	SW846 6010B
Iron	284	100	ug/L	SW846 6010B
Potassium	6400	5000	ug/L	SW846 6010B
Magnesium	38000	200	ug/L	SW846 6010B
Manganese	6.0 B	10.0	ug/L	SW846 6010B
Sodium	52500	5000	ug/L	SW846 6010B
Nickel	8.6 B	40.0	ug/L	SW846 6010B
Tin	28.4 B	100	ug/L	SW846 6010B
Vanadium	18.0	10.0	ug/L	SW846 6010B
Zinc	138	20.0	ug/L	SW846 6010B
Acetone	1.5 J,B	10	ug/L	SW846 8260B
Methylene chloride	0.26 J,B	1.0	ug/L	SW846 8260B
Total Dissolved Solids	492	10.0	mg/L	MCAWW 160.1
Sulfate	132 Q	25.0	mg/L	MCAWW 300.0A
CAFB-G 03/02/99 14:20 002				
Arsenic	3.6 B	5.0	ug/L	SW846 6020
Chromium	7.6	1.0	ug/L	SW846 6020
Lead	0.88 B	1.0	ug/L	SW846 6020
Antimony	0.48 B	1.0	ug/L	SW846 6020
Selenium	4.2 B	5.0	ug/L	SW846 6020
Barium	31.4	10.0	ug/L	SW846 6010B
Calcium	71900	200	ug/L	SW846 6010B
Potassium	8690	5000	ug/L	SW846 6010B
Magnesium	70200	200	ug/L	SW846 6010B
Sodium	60300	5000	ug/L	SW846 6010B
Tin	74.0 B	100	ug/L	SW846 6010B
Vanadium	15.8	10.0	ug/L	SW846 6010B
Zinc	19.9 B	20.0	ug/L	SW846 6010B
Methylene chloride	0.25 J,B	1.0	ug/L	SW846 8260B
Total Dissolved Solids	781	10.0	mg/L	MCAWW 160.1
Sulfate	182 Q	25.0	mg/L	MCAWW 300.0A

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9C030169

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CAFB-E 03/02/99 13:00 003				
Arsenic	4.1 B	5.0	ug/L	SW846 6020
Chromium	5.1	1.0	ug/L	SW846 6020
Lead	0.47 B	1.0	ug/L	SW846 6020
Selenium	5.7	5.0	ug/L	SW846 6020
Barium	48.2	10.0	ug/L	SW846 6010B
Calcium	36900	200	ug/L	SW846 6010B
Potassium	6200	5000	ug/L	SW846 6010B
Magnesium	34500	200	ug/L	SW846 6010B
Sodium	53200	5000	ug/L	SW846 6010B
Tin	44.4 B	100	ug/L	SW846 6010B
Vanadium	20.0	10.0	ug/L	SW846 6010B
Tetrachloroethene	2.1	1.0	ug/L	SW846 8260B
Total Dissolved Solids	414	10.0	mg/L	MCAWW 160.1
Sulfate	60.3 Q	25.0	mg/L	MCAWW 300.0A
CAFB-F 03/02/99 14:30 004				
Arsenic	4.4 B	5.0	ug/L	SW846 6020
Chromium	1.5	1.0	ug/L	SW846 6020
Selenium	5.8	5.0	ug/L	SW846 6020
Sodium	643 B	5000	ug/L	SW846 6010B
Tin	29.3 B	100	ug/L	SW846 6010B
Acetone	1.4 J,B	10	ug/L	SW846 8260B
Methylene chloride	0.43 J,B	1.0	ug/L	SW846 8260B
Total Dissolved Solids	506	10.0	mg/L	MCAWW 160.1
Sulfate	139 Q	25.0	mg/L	MCAWW 300.0A
TRIP BLANK 03/02/99 005				
Acetone	2.9 J,B	10	ug/L	SW846 8260B
Methylene chloride	0.24 J,B	1.0	ug/L	SW846 8260B

METHODS SUMMARY

D9C030169

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Filterable Residue (TDS)	MCAWW 160.1	MCAWW 160.1
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
ICP-MS (6020)	SW846 6020	
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
Nitrate	MCAWW 353.2	MCAWW 353.2
Nitrite	MCAWW 354.1	
Organochlorine Pesticides	SW846 8081A	SW846 3510C
PCBs	SW846 8082	SW846 8082
Sulfate	MCAWW 300.0A	MCAWW 300.0A
Sulfides, Total 9030B/9034	SW846 9030B/903	
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9C030169

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 160.1	Andrea Sporleder	001971
MCAWW 300.0A	Patty Jungk	002008
MCAWW 353.2	Roxanne K. Sullivan	001200
MCAWW 354.1	Andrea Sporleder	001971
SW846 6010B	William G. Logan	002179
SW846 6020	Dave B. Roberts	002871
SW846 7470A	Jeff Somers	008217
SW846 8081A	Andy Burcham	001197
SW846 8082	Matthew Graves	001801
SW846 8260B	Mike G. Hoffman	001880
SW846 9030B/9034	Claire Likar	004382

References:

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9C030169

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CR9Q4	001	CAFB-H	03/02/99	12:30
CR9RP	002	CAFB-G	03/02/99	14:20
CR9RT	003	CAFB-E	03/02/99	13:00
CR9RW	004	CAFB-F	03/02/99	14:30
CR9T6	005	TRIP BLANK	03/02/99	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

GC/MS Volatiles

Lot-Sample #...: D9C030169-001 **Work Order #...:** CR9Q4101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 12:00
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**1.5 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	**0.26 J,B**	**1.0**	**ug/L**

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

GC/MS Volatiles

Lot-Sample #...: D9C030169-001 **Work Order #...:** CR9Q4101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(86 - 118)
1,2-Dichloroethane-d4	105	(76 - 115)
4-Bromofluorobenzene	99	(85 - 115)
Toluene-d8	102	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-H

GC/MS Volatiles

Lot-Sample #: D9C030169-001 **Work Order #:** CR9Q4101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None		--------		ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

GC/MS Volatiles

Lot-Sample #...: D9C030169-002 **Work Order #...:** CR9RP101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:20 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 13:11
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	**0.25 J,B**	**1.0**	**ug/L**

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

GC/MS Volatiles

Lot-Sample #...: D9C030169-002 **Work Order #...:** CR9RP101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
2-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(86 - 118)
1,2-Dichloroethane-d4	104	(76 - 115)
4-Bromofluorobenzene	100	(85 - 115)
Toluene-d8	101	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-G

GC/MS Volatiles

Lot-Sample #: D9C030169-002 **Work Order #:** CR9RP101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None		-------		ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

GC/MS Volatiles

Lot-Sample #...: D9C030169-003 **Work Order #...:** CR9RT101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 13:00 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 13:35
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
hloroform	ND	1.0	ug/L
hloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

GC/MS Volatiles

Lot-Sample #...: D9C030169-003 **Work Order #...:** CR9RT101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	**2.1**	**1.0**	**ug/L**
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
2-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	101	(86 - 118)
1,2-Dichloroethane-d4	100	(76 - 115)
4-Bromofluorobenzene	100	(85 - 115)
Toluene-d8	101	(85 - 115)

US GEOLOGICAL SURVEY

CAFB-E

GC/MS Volatiles

Lot-Sample #: D9C030169-003 **Work Order #:** CR9RT101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None		--------		ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

GC/MS Volatiles

Lot-Sample #...: D9C030169-004 **Work Order #...:** CR9RW101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:30 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 13:58
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**1.4 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
hloroform	ND	1.0	ug/L
hloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	**0.43 J,B**	**1.0**	**ug/L**

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

GC/MS Volatiles

Lot-Sample #...: D9C030169-004 **Work Order #...:** CR9RW101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
crolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	101	(86 - 118)
1,2-Dichloroethane-d4	100	(76 - 115)
4-Bromofluorobenzene	100	(85 - 115)
Toluene-d8	100	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-F

GC/MS Volatiles

Lot-Sample #: D9C030169-004 **Work Order #:** CR9RW101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None		--------		ug/L

US GEOLOGICAL SURVEY

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: D9C030169-005 **Work Order #...:** CR9T6101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 14:22
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**2.9 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	**0.24 J,B**	**1.0**	**ug/L**

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: D9C030169-005 **Work Order #...:** CR9T6101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
crolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(86 - 118)
1,2-Dichloroethane-d4	102	(76 - 115)
4-Bromofluorobenzene	100	(85 - 115)
Toluene-d8	100	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

TRIP BLANK

GC/MS Volatiles

Lot-Sample #: D9C030169-005 **Work Order #:** CR9T6101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None		---------		ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

GC Semivolatiles

Lot-Sample #...: D9C030169-001 **Work Order #...:** CR9Q4102 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 18:11
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	91	(51 - 132)
Tetrachloro-m-xylene	84	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

GC Semivolatiles

Lot-Sample #...: D9C030169-002 **Work Order #...:** CR9RP102 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:20 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 18:46
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
ndosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	102	(51 - 132)
Tetrachloro-m-xylene	88	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

GC Semivolatiles

Lot-Sample #...: D9C030169-003 **Work Order #...:** CR9RT102 **Matrix.....:** WATER
Date Sampled...: 03/02/99 13:00 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 19:20
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
ndosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	93	(51 - 132)
Tetrachloro-m-xylene	83	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

GC Semivolatiles

Lot-Sample #...: D9C030169-004 **Work Order #...:** CR9RW102 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 19:54
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
ndosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	97	(51 - 132)
Tetrachloro-m-xylene	85	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

GC Semivolatiles

Lot-Sample #...: D9C030169-001 **Work Order #...:** CR9Q4103 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9067176 **Analysis Time..:** 23:16
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	78	(65 - 137)
Decachlorobiphenyl	96	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

GC Semivolatiles

Lot-Sample #...: D9C030169-002 **Work Order #...:** CR9RP103 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:20 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9067176 **Analysis Time..:** 23:44
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(65 - 137)
Decachlorobiphenyl	93	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

GC Semivolatiles

Lot-Sample #...: D9C030169-003 **Work Order #...:** CR9RT103 **Matrix.....:** WATER
Date Sampled...: 03/02/99 13:00 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 00:12
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURRCGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	78	(65 - 137)
Decachlorobiphenyl	90	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

GC Semivolatiles

Lot-Sample #...: D9C030169-004 **Work Order #...:** CR9RW103 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 00:40
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

TOTAL Metals

Lot-Sample #...: D9C030169-001 Matrix.....: WATER
Date Sampled...: 03/02/99 12:30 Date Received..: 03/03/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9063180						
Aluminum	**61.1 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q4104**
		Dilution Factor: 1		Analysis Time..: 12:10		
Barium	**33.6**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q4105**
		Dilution Factor: 1		Analysis Time..: 12:10		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CR9Q4106
		Dilution Factor: 1		Analysis Time..: 12:10		
Calcium	**40200**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q4107**
		Dilution Factor: 1		Analysis Time..: 12:10		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9Q4108
		Dilution Factor: 1		Analysis Time..: 12:10		
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9Q4109
		Dilution Factor: 1		Analysis Time..: 12:10		
Iron	**284**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410A**
		Dilution Factor: 1		Analysis Time..: 12:10		
Potassium	**6400**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410C**
		Dilution Factor: 1		Analysis Time..: 12:10		
Magnesium	**38000**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410D**
		Dilution Factor: 1		Analysis Time..: 12:10		
Manganese	**6.0 B**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410E**
		Dilution Factor: 1		Analysis Time..: 12:10		
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9Q410F
		Dilution Factor: 1		Analysis Time..: 12:10		
Sodium	**52500**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410G**
		Dilution Factor: 1		Analysis Time..: 12:10		
Nickel	**8.6 B**	**40.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410H**
		Dilution Factor: 1		Analysis Time..: 12:10		
Tin	**28.4 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410J**
		Dilution Factor: 1		Analysis Time..: 12:10		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

TOTAL Metals

Lot-Sample #...: D9C030169-001 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**18.0**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410K**
		Dilution Factor: 1		Analysis Time..: 12:10		
Zinc	**138**	**20.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9Q410L**
		Dilution Factor: 1		Analysis Time..: 12:10		
Prep Batch #...: 9063198						
Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CR9Q410W
		Dilution Factor: 1		Analysis Time..: 12:23		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9Q410M
		Dilution Factor: 1		Analysis Time..: 14:33		
Arsenic	**4.4 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9Q410N**
		Dilution Factor: 1		Analysis Time..: 14:33		
dmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9Q410P
		Dilution Factor: 1		Analysis Time..: 14:33		
Chromium	**5.4**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9Q410Q**
		Dilution Factor: 1		Analysis Time..: 14:33		
Lead	**2.1**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9Q410R**
		Dilution Factor: 1		Analysis Time..: 14:33		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9Q410T
		Dilution Factor: 1		Analysis Time..: 14:33		
Selenium	**7.2**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9Q410U**
		Dilution Factor: 1		Analysis Time..: 14:33		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9Q410V
		Dilution Factor: 1		Analysis Time..: 14:33		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

TOTAL Metals

Lot-Sample #...: D9C030169-002 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:20 **Date Received..:** 03/03/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CR9RP104
		Dilution Factor: 1		Analysis Time..: 12:26		
Barium	**31.4**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RP105**
		Dilution Factor: 1		Analysis Time..: 12:26		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP106
		Dilution Factor: 1		Analysis Time..: 12:26		
Calcium	**71900**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RP107**
		Dilution Factor: 1		Analysis Time..: 12:26		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP108
		Dilution Factor: 1		Analysis Time..: 12:26		
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP109
		Dilution Factor: 1		Analysis Time..: 12:26		
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CR9RP10A
		Dilution Factor: 1		Analysis Time..: 12:26		
Potassium	**8690**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RP10C**
		Dilution Factor: 1		Analysis Time..: 12:26		
Magnesium	**70200**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RP10D**
		Dilution Factor: 1		Analysis Time..: 12:26		
Manganese	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP10E
		Dilution Factor: 1		Analysis Time..: 12:26		
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP10F
		Dilution Factor: 1		Analysis Time..: 12:26		
Sodium	**60300**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RP10G**
		Dilution Factor: 1		Analysis Time..: 12:26		
Nickel	ND	40.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP10H
		Dilution Factor: 1		Analysis Time..: 12:26		
Tin	**74.0 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RP10J**
		Dilution Factor: 1		Analysis Time..: 12:26		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

TOTAL Metals

Lot-Sample #...: D9C030169-002 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	15.8	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP10K
		Dilution Factor: 1		Analysis Time..: 12:26		
Zinc	19.9 B	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RP10L
		Dilution Factor: 1		Analysis Time..: 12:26		
Prep Batch #...: 9063198						
Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CR9RP10W
		Dilution Factor: 1		Analysis Time..: 12:25		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10M
		Dilution Factor: 1		Analysis Time..: 09:44		
Arsenic	3.6 B	5.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10N
		Dilution Factor: 1		Analysis Time..: 09:44		
dmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10P
		Dilution Factor: 1		Analysis Time..: 09:44		
Chromium	7.6	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10Q
		Dilution Factor: 1		Analysis Time..: 09:44		
Lead	0.88 B	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10R
		Dilution Factor: 1		Analysis Time..: 09:44		
Antimony	0.48 B	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10T
		Dilution Factor: 1		Analysis Time..: 09:44		
Selenium	4.2 B	5.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10U
		Dilution Factor: 1		Analysis Time..: 09:44		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RP10V
		Dilution Factor: 1		Analysis Time..: 09:44		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

TOTAL Metals

Lot-Sample #...: D9C030169-003 **Matrix.....:** WATER
Date Sampled...: 03/02/99 13:00 **Date Received..:** 03/03/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CR9RT104
		Dilution Factor: 1		Analysis Time..: 12:30		
Barium	**48.2**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT105**
		Dilution Factor: 1		Analysis Time..: 12:30		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT106
		Dilution Factor: 1		Analysis Time..: 12:30		
Calcium	**36900**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT107**
		Dilution Factor: 1		Analysis Time..: 12:30		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT108
		Dilution Factor: 1		Analysis Time..: 12:30		
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT109
		Dilution Factor: 1		Analysis Time..: 12:30		
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CR9RT10A
		Dilution Factor: 1		Analysis Time..: 12:30		
Potassium	**6200**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT10C**
		Dilution Factor: 1		Analysis Time..: 12:30		
Magnesium	**34500**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT10D**
		Dilution Factor: 1		Analysis Time..: 12:30		
Manganese	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT10E
		Dilution Factor: 1		Analysis Time..: 12:30		
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT10F
		Dilution Factor: 1		Analysis Time..: 12:30		
Sodium	**53200**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT10G**
		Dilution Factor: 1		Analysis Time..: 12:30		
Nickel	ND	40.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT10H
		Dilution Factor: 1		Analysis Time..: 12:30		
Tin	**44.4 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT10J**
		Dilution Factor: 1		Analysis Time..: 12:30		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

TOTAL Metals

Lot-Sample #...: D9C030169-003 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**20.0**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RT10K**
		Dilution Factor: 1		Analysis Time..: 12:30		
Zinc	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RT10L
		Dilution Factor: 1		Analysis Time..: 12:30		
Prep Batch #...: 9063198						
Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CR9RT10W
		Dilution Factor: 1		Analysis Time..: 12:27		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RT10M
		Dilution Factor: 1		Analysis Time..: 09:48		
Arsenic	**4.1 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RT10N**
		Dilution Factor: 1		Analysis Time..: 09:48		
dmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RT10P
		Dilution Factor: 1		Analysis Time..: 09:48		
Chromium	**5.1**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RT10Q**
		Dilution Factor: 1		Analysis Time..: 09:48		
Lead	**0.47 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RT10R**
		Dilution Factor: 1		Analysis Time..: 09:48		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RT10T
		Dilution Factor: 1		Analysis Time..: 09:48		
Selenium	**5.7**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RT10U**
		Dilution Factor: 1		Analysis Time..: 09:48		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RT10V
		Dilution Factor: 1		Analysis Time..: 09:48		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

TOTAL Metals

Lot-Sample #...: D9C030169-004 **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:30 **Date Received..:** 03/03/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CR9RW104
		Dilution Factor: 1		Analysis Time..: 15:39		
Barium	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW105
		Dilution Factor: 1		Analysis Time..: 15:39		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW106
		Dilution Factor: 1		Analysis Time..: 15:39		
Calcium	ND	200	ug/L	SW846 6010B	03/08-03/09/99	CR9RW107
		Dilution Factor: 1		Analysis Time..: 15:39		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW108
		Dilution Factor: 1		Analysis Time..: 15:39		
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW109
		Dilution Factor: 1		Analysis Time..: 15:39		
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10A
		Dilution Factor: 1		Analysis Time..: 15:39		
Potassium	ND	5000	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10C
		Dilution Factor: 1		Analysis Time..: 15:39		
Magnesium	ND	200	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10D
		Dilution Factor: 1		Analysis Time..: 15:39		
Manganese	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10E
		Dilution Factor: 1		Analysis Time..: 15:39		
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10F
		Dilution Factor: 1		Analysis Time..: 15:39		
Sodium	**643 B**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RW10G**
		Dilution Factor: 1		Analysis Time..: 15:39		
Nickel	ND	40.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10H
		Dilution Factor: 1		Analysis Time..: 15:39		
Tin	**29.3 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CR9RW10J**
		Dilution Factor: 1		Analysis Time..: 15:39		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

TOTAL Metals

Lot-Sample #...: D9C030169-004 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10K
		Dilution Factor: 1		Analysis Time..: 15:39		
Zinc	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CR9RW10L
		Dilution Factor: 1		Analysis Time..: 15:39		
Prep Batch #...: 9063198						
Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CR9RW10W
		Dilution Factor: 1		Analysis Time..: 12:30		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RW10M
		Dilution Factor: 1		Analysis Time..: 09:53		
Arsenic	**4.4 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RW10N**
		Dilution Factor: 1		Analysis Time..: 09:53		
dmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RW10P
		Dilution Factor: 1		Analysis Time..: 09:53		
Chromium	**1.5**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RW10Q**
		Dilution Factor: 1		Analysis Time..: 09:53		
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RW10R
		Dilution Factor: 1		Analysis Time..: 09:53		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RW10T
		Dilution Factor: 1		Analysis Time..: 09:53		
Selenium	**5.8**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CR9RW10U**
		Dilution Factor: 1		Analysis Time..: 09:53		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CR9RW10V
		Dilution Factor: 1		Analysis Time..: 09:53		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-H

General Chemistry

Lot-Sample #...: D9C030169-001 **Work Order #...:** CR9Q4 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate	ND	0.10	mg/L	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	ND	0.010	mg/L	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**132 Q**	**25.0**	**mg/L**	**MCAWW 300.0A**	**03/03-03/04/99**	**9063334**
		Dilution Factor: 5		Analysis Time..: 00:06		
Total Dissolved Solids	**492**	**10.0**	**mg/L**	**MCAWW 160.1**	**03/08-03/09/99**	**9069177**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

Reporting Limit

Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-G

General Chemistry

Lot-Sample #...: D9C030169-002 **Work Order #...:** CR9RP **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:20 **Date Received..:** 03/03/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate	ND	0.10	mg/L	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	ND	0.010	mg/L	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**182 Q**	**25.0**	**mg/L**	**MCAWW 300.0A**	**03/03-03/04/99**	**9063334**
		Dilution Factor: 5		Analysis Time..: 00:37		
Total Dissolved Solids	**781**	**10.0**	**mg/L**	**MCAWW 160.1**	**03/08-03/09/99**	**9069177**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

TE(S):

Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-E

General Chemistry

Lot-Sample #...: D9C030169-003 **Work Order #...:** CR9RT **Matrix.....:** WATER
Date Sampled...: 03/02/99 13:00 **Date Received..:** 03/03/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate	ND	0.10	mg/L	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	ND	0.010	mg/L	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**60.3 Q**	**25.0**	**mg/L**	**MCAWW 300.0A**	**03/03-03/04/99**	**9063334**
		Dilution Factor: 5		Analysis Time..: 01:54		
Total Dissolved Solids	**414**	**10.0**	**mg/L**	**MCAWW 160.1**	**03/08-03/09/99**	**9069177**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

OTE(S):

L Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-F

General Chemistry

Lot-Sample #...: D9C030169-004 **Work Order #...:** CR9RW **Matrix.....:** WATER
Date Sampled...: 03/02/99 14:30 **Date Received..:** 03/03/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate	ND	0.10	mg/L	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1		Analysis Time..: 00:00		
Nitrite	ND	0.010	mg/L	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1		Analysis Time..: 00:00		
Sulfate	**139 Q**	**25.0**	**mg/L**	**MCAWW 300.0A**	**03/03-03/04/99**	**9063334**
		Dilution Factor: 5		Analysis Time..: 02:24		
Total Dissolved Solids	**506**	**10.0**	**mg/L**	**MCAWW 160.1**	**03/08-03/09/99**	**9069177**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

TE(S):

Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

Quanterra Incorporated
4955 Yarrow Street
Arvada, Colorado 80002

303 421-6611 Telephone
303 431-7171 Fax

ANALYTICAL REPORT

Cannon AFB – Landfill 5

Lot #: D9C030208

Richard Daddow

U.S. Geological Survey

QUANTERRA INCORPORATED

Christina M. Mott
Project Manager

April 9, 1999

Table Of Contents

Standard Deliverables with Supporting Documentation

Section	Report Contents	Number of Pages
	Standard Deliverables	
A.	**Introduction-** *The **Cover Letter** and the **Report Cover** page are considered integral parts of this Standard Deliverable package.*	288
	• **Table of Contents**	
	• **Case Narrative**	
	• **Executive Summary – Detection**	
	• **Analytical Methods Summary**	
	• **Method/Analyst Summary**	
	• **Lot Sample Summary**	
	• **Analytical Results by Sample**	
	• **QC Data Association Summary**	
	• **Chain-of-Custody**	
	Supporting Documentation	
	[Please Note: A one-page "Description of Supporting Documentation" is provided in the Supporting Documentation section(s).]	
B.	• **Volatile GC/MS**	
C.	• **Semivolatile GC/MS**	
D.	• **Volatile GC**	
E.	• **Semivolatile GC**	
F.	• **LC/MS or HPLC**	
G.	• **Metals**	
H.	• **General Chemistry**	
I.	• **Subcontracted Data**	
	Total # Pages in this Package	

Case Narrative
Lot D9C030208

Pesticides by GC, Method 8081A

The percent recovery for gamma-BHC is reported below the acceptance limit for the laboratory control and matrix spike samples. The spiking solution was analyzed and gamma-BHC was recovered at 30.9% indicating that the spiking solution was no longer viable for that compound. If the reported percent recoveries for the LCS and MS samples are corrected for the low concentration in the spiking solution, the values would be acceptable. Therefore, the data are reported. The long term corrective action for this situation is to change the holding time (shelf life) of the spiking solution from 6 months to 3 months.

Herbicides by GC, Method 8151A

The percent recoveries of the surrogate compound, DCAA, are reported below the acceptance limit for the following samples:

USGS Sample ID	Quanterra Sample ID
n/a	Method Blank
CAFB-D	D9C030208-007
CAFB-U	D9C030208-011
CAFB-I	D9C030208-015

The samples are being re-extracted and re-analyzed. In order to report the data in this lot, these samples were relogged into lot D9D080151 and will be reported as soon as the results are complete.

Polynuclear Aromatic Hydrocarbons by HPLC, Method 8310

The percent recoveries for Naphthalene are reported above the acceptance limit for the laboratory control samples. As there are no samples with values above the reporting limit for Naphthalene, the data are reported.

Chromium by ICP-MS, Method 6020

The percent recovery for chromium is reported slightly above the acceptance limit for one of the laboratory control samples. As the percent recovery value is reasonable and all other QC samples are in control, the data are reported.

In maintaining the use of the most current versions of analytical methods, all samples were analyzed using the current update to SW-846, which is Update III. The following is a summary of the updated method codes: Method 8270B has changed to Method 8270C, Method 8260A has changed to Method 8260B, Method 6010A has changed to Method 6010B, Method 8150 has changed to Method 8151A, Method 8080 has changed to Methods 8081A and 8082, and Method 9012 has changed to Method 9012A.

Case Narrative (continued)
Lot D9C030208

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits.

EXECUTIVE SUMMARY - Detection Highlights

D9C030208

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CAFB-Q 03/02/99 10:30 001				
Arsenic	4.2 B	5.0	ug/L	SW846 6020
Chromium	1.1	1.0	ug/L	SW846 6020
Antimony	0.31 B	1.0	ug/L	SW846 6020
Selenium	4.8 B	5.0	ug/L	SW846 6020
Barium	36.7	10.0	ug/L	SW846 6010B
Calcium	47800	200	ug/L	SW846 6010B
Potassium	7420	5000	ug/L	SW846 6010B
Magnesium	47100	200	ug/L	SW846 6010B
Molybdenum	4.3 B	20.0	ug/L	SW846 6010B
Sodium	43800	5000	ug/L	SW846 6010B
Tin	40.7 B	100	ug/L	SW846 6010B
Vanadium	18.1	10.0	ug/L	SW846 6010B
CAFB-B-EB 03/02/99 08:00 002				
Lead	0.22 B	1.0	ug/L	SW846 6020
Barium	26.5	10.0	ug/L	SW846 6010B
Calcium	40700	200	ug/L	SW846 6010B
Potassium	6050	5000	ug/L	SW846 6010B
Magnesium	38800	200	ug/L	SW846 6010B
Manganese	4.7 B	10.0	ug/L	SW846 6010B
Sodium	49900	5000	ug/L	SW846 6010B
Nickel	31.4 B	40.0	ug/L	SW846 6010B
Tin	40.6 B	100	ug/L	SW846 6010B
Vanadium	25.6	10.0	ug/L	SW846 6010B
Acetone	39 J,B	250	ug/L	SW846 8260B
Methylene chloride	780 B	25	ug/L	SW846 8260B
Total Organic Halogens	548 Q	60.0	ug/L	SW846 9020B
CAFB-B-TB 03/02/99 07:30 003				
Acetone	3.5 J,B	10	ug/L	SW846 8260B
Methylene chloride	0.27 J,B	1.0	ug/L	SW846 8260B
CAFB-S 03/03/99 13:00 004				
Arsenic	5.4	5.0	ug/L	SW846 6020
Chromium	2.7	1.0	ug/L	SW846 6020
Selenium	6.8	5.0	ug/L	SW846 6020
Mercury	0.14 B	0.20	ug/L	SW846 7470A
Aluminum	126	100	ug/L	SW846 6010B
Barium	45.2	10.0	ug/L	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9C030208

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CAFB-S 03/03/99 13:00 004				
Calcium	45000	200	ug/L	SW846 6010B
Iron	124	100	ug/L	SW846 6010B
Potassium	6870	5000	ug/L	SW846 6010B
Magnesium	40500	200	ug/L	SW846 6010B
Manganese	33.0	10.0	ug/L	SW846 6010B
Molybdenum	8.0 B	20.0	ug/L	SW846 6010B
Sodium	53500	5000	ug/L	SW846 6010B
Tin	25.6 B	100	ug/L	SW846 6010B
Vanadium	25.4	10.0	ug/L	SW846 6010B
Zinc	63.0	20.0	ug/L	SW846 6010B
Acetone	0.96 J,B	10	ug/L	SW846 8260B
Total Organic Halogens	8.3 B	30.0	ug/L	SW846 9020B
CAFB-X 03/03/99 12:00 005				
Arsenic	5.4	5.0	ug/L	SW846 6020
Chromium	7.9	1.0	ug/L	SW846 6020
Lead	0.28 B	1.0	ug/L	SW846 6020
Selenium	6.9	5.0	ug/L	SW846 6020
Mercury	0.14 B	0.20	ug/L	SW846 7470A
Aluminum	130	100	ug/L	SW846 6010B
Barium	44.0	10.0	ug/L	SW846 6010B
Calcium	45100	200	ug/L	SW846 6010B
Iron	113	100	ug/L	SW846 6010B
Potassium	6630	5000	ug/L	SW846 6010B
Magnesium	40600	200	ug/L	SW846 6010B
Manganese	33.5	10.0	ug/L	SW846 6010B
Molybdenum	13.2 B	20.0	ug/L	SW846 6010B
Sodium	53500	5000	ug/L	SW846 6010B
Vanadium	24.8	10.0	ug/L	SW846 6010B
Zinc	66.5	20.0	ug/L	SW846 6010B
Acetone	0.96 J,B	10	ug/L	SW846 8260B
CAFB-B 03/03/99 14:00 006				
Arsenic	5.7	5.0	ug/L	SW846 6020
Chromium	0.74 B	1.0	ug/L	SW846 6020
Selenium	7.3	5.0	ug/L	SW846 6020
Mercury	0.14 B	0.20	ug/L	SW846 7470A
Barium	27.9	10.0	ug/L	SW846 6010B
Calcium	42000	200	ug/L	SW846 6010B
Potassium	6760	5000	ug/L	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9C030208

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CAFB-B 03/03/99 14:00 006				
Magnesium	40300	200	ug/L	SW846 6010B
Molybdenum	7.0 B	20.0	ug/L	SW846 6010B
Sodium	58500	5000	ug/L	SW846 6010B
Tin	52.4 B	100	ug/L	SW846 6010B
Vanadium	27.3	10.0	ug/L	SW846 6010B
Total Organic Halogens	12.9 B	30.0	ug/L	SW846 9020B
Cyanide, Total	0.0040 B	0.010	mg/L	SW846 9012A
CAFB-D 03/04/99 09:44 007				
Arsenic	6.0	5.0	ug/L	SW846 6020
Chromium	0.59 B	1.0	ug/L	SW846 6020
Lead	0.35 B	1.0	ug/L	SW846 6020
Selenium	0.68 B	5.0	ug/L	SW846 6020
Barium	61.3	10.0	ug/L	SW846 6010B
Calcium	30500	200	ug/L	SW846 6010B
Iron	445	100	ug/L	SW846 6010B
Potassium	5880	5000	ug/L	SW846 6010B
Magnesium	30600	200	ug/L	SW846 6010B
Manganese	8.0 B	10.0	ug/L	SW846 6010B
Sodium	47800	5000	ug/L	SW846 6010B
Tin	36.2 B	100	ug/L	SW846 6010B
Vanadium	39.0	10.0	ug/L	SW846 6010B
Trichloroethene	2.4	1.0	ug/L	SW846 8260B
CAFB-C 03/04/99 11:10 008				
Arsenic	6.9	5.0	ug/L	SW846 6020
Chromium	0.87 B	1.0	ug/L	SW846 6020
Lead	0.29 B	1.0	ug/L	SW846 6020
Selenium	3.8 B	5.0	ug/L	SW846 6020
Mercury	0.18 B	0.20	ug/L	SW846 7470A
Barium	30.4	10.0	ug/L	SW846 6010B
Calcium	32600	200	ug/L	SW846 6010B
Iron	108	100	ug/L	SW846 6010B
Potassium	5950	5000	ug/L	SW846 6010B
Magnesium	32800	200	ug/L	SW846 6010B
Manganese	4.4 B	10.0	ug/L	SW846 6010B
Molybdenum	5.7 B	20.0	ug/L	SW846 6010B
Sodium	50300	5000	ug/L	SW846 6010B
Vanadium	39.3	10.0	ug/L	SW846 6010B
Acetone	0.81 J,B	10	ug/L	SW846 8260B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9C030208

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CAFB-C 03/04/99 11:10 008				
Trichloroethene	0.86 J	1.0	ug/L	SW846 8260B
Total Organic Halogens	17.0 B	30.0	ug/L	SW846 9020B
CAFB-U 03/04/99 13:45 011				
Arsenic	5.7	5.0	ug/L	SW846 6020
Chromium	1.0	1.0	ug/L	SW846 6020
Selenium	7.6	5.0	ug/L	SW846 6020
Mercury	0.16 B	0.20	ug/L	SW846 7470A
Aluminum	98.0 B	100	ug/L	SW846 6010B
Barium	46.0	10.0	ug/L	SW846 6010B
Beryllium	1.0 B	2.0	ug/L	SW846 6010B
Calcium	46000	200	ug/L	SW846 6010B
Potassium	7230	5000	ug/L	SW846 6010B
Magnesium	39800	200	ug/L	SW846 6010B
Manganese	6.7 B	10.0	ug/L	SW846 6010B
Molybdenum	3.0 B	20.0	ug/L	SW846 6010B
Sodium	57300	5000	ug/L	SW846 6010B
Vanadium	24.7	10.0	ug/L	SW846 6010B
Total Organic Halogens	21.6 B	30.0	ug/L	SW846 9020B
CAFB-T 03/04/99 13:30 012				
Arsenic	5.8	5.0	ug/L	SW846 6020
Chromium	1.0	1.0	ug/L	SW846 6020
Selenium	8.5	5.0	ug/L	SW846 6020
Mercury	0.19 B	0.20	ug/L	SW846 7470A
Aluminum	47.5 B	100	ug/L	SW846 6010B
Barium	35.2	10.0	ug/L	SW846 6010B
Calcium	44600	200	ug/L	SW846 6010B
Potassium	6590	5000	ug/L	SW846 6010B
Magnesium	40100	200	ug/L	SW846 6010B
Manganese	15.4	10.0	ug/L	SW846 6010B
Molybdenum	6.6 B	20.0	ug/L	SW846 6010B
Sodium	55400	5000	ug/L	SW846 6010B
Vanadium	25.5	10.0	ug/L	SW846 6010B
Zinc	29.9	20.0	ug/L	SW846 6010B

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D9C030208

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
TRIP BLANK 03/04/99 13:30 013				
Acetone	2.1 J,B	10	ug/L	SW846 8260B
CAFB-I 03/05/99 09:45 015				
Arsenic	5.8	5.0	ug/L	SW846 6020
Cadmium	0.059 B	1.0	ug/L	SW846 6020
Chromium	36.8	1.0	ug/L	SW846 6020
Lead	2.2	1.0	ug/L	SW846 6020
Selenium	10	5.0	ug/L	SW846 6020
Aluminum	179	100	ug/L	SW846 6010B
Barium	47.5	10.0	ug/L	SW846 6010B
Calcium	53700	200	ug/L	SW846 6010B
Copper	2.3 B	20.0	ug/L	SW846 6010B
Iron	363	100	ug/L	SW846 6010B
Potassium	6850	5000	ug/L	SW846 6010B
Magnesium	47400	200	ug/L	SW846 6010B
Manganese	57.6	10.0	ug/L	SW846 6010B
Molybdenum	6.5 B	20.0	ug/L	SW846 6010B
Sodium	44800	5000	ug/L	SW846 6010B
Nickel	9.3 B	40.0	ug/L	SW846 6010B
Tin	31.1 B	100	ug/L	SW846 6010B
Vanadium	26.4	10.0	ug/L	SW846 6010B
Acetone	0.94 J,B	10	ug/L	SW846 8260B
Total Organic Halogens	12.9 B	30.0	ug/L	SW846 9020B
TRIP BLANK 03/05/99 016				
Acetone	2.3 J,B	10	ug/L	SW846 8260B

METHODS SUMMARY

D9C030208

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Chlorinated Herbicides by GC	SW846 8151A	SW846 8151A
Cyanide, Total	SW846 9012A	SW846 9012A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
ICP-MS (6020)	SW846 6020	
Mercury in Liquid Waste (Manual Cold-Vapor)	SW846 7470A	SW846 7470A
Organochlorine Pesticides	SW846 8081A	SW846 3510C
Polynuclear Aromatic Hydrocarbons by HPLC	SW846 8310	SW846 3510
PCBs	SW846 8082	SW846 8082
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Sulfides, Total 9030B/9034	SW846 9030B/903	
Total Organic Carbon	SW846 9060	SW846 9060
Total Organic Halogens	SW846 9020B	SW846 9020B
Volatile Organics by GC/MS	SW846 8260B	SW846 5030B/826

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D9C030208

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 6010B	William G. Logan	002179
SW846 6020	Dave B. Roberts	002871
SW846 7470A	Jeff Somers	008217
SW846 8081A	Andy Burcham	001197
SW846 8082	Matthew Graves	001801
SW846 8151A	Dane Rodgers	007407
SW846 8260B	Mike G. Hoffman	001880
SW846 8270C	Deborah Coyle	001425
SW846 8270C	Paula Lopez	000616
SW846 8310	Dane Rodgers	007407
SW846 9012A	Ewa Kudla	001167
SW846 9020B	Duane Allee	001470
SW846 9030B/9034	Claire Likar	004382
SW846 9060	Duane Allee	001470

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D9C030208

WO #	SAMPLE#	CLIENT SAMPLE ID	DATE	TIME
CRA45	001	CAFB-Q	03/02/99	10:30
CRA46	002	CAFB-B-EB	03/02/99	08:00
CRA47	003	CAFB-B-TB	03/02/99	07:30
CRAME	004	CAFB-S	03/03/99	13:00
CRAMH	005	CAFB-X	03/03/99	12:00
CRAMJ	006	CAFB-B	03/03/99	14:00
CRDFR	007	CAFB-D	03/04/99	09:44
CRDFW	008	CAFB-C	03/04/99	11:10
CRDG1	011	CAFB-U	03/04/99	13:45
CRDG4	012	CAFB-T	03/04/99	13:30
CRDJV	013	TRIP BLANK	03/04/99	13:30
CRDXE	015	CAFB-I	03/05/99	09:45
CRDXF	016	TRIP BLANK	03/05/99	

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, int filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC/MS Volatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 14:34
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC/MS Volatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
crolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	94	(86 - 118)
1,2-Dichloroethane-d4	87	(76 - 115)
4-Bromofluorobenzene	94	(85 - 115)
Toluene-d8	103	(85 - 115)

US GEOLOGICAL SURVEY

CAFB-Q

GC/MS Volatiles

Lot-Sample #: D9C030208-001 **Work Order #:** CRA45101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC/MS Volatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 08:00 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 13:00
Dilution Factor: 25

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**39 J,B**	**250**	**ug/L**
Acetonitrile	ND	500	ug/L
Acrylonitrile	ND	500	ug/L
Benzene	ND	25	ug/L
Bromodichloromethane	ND	25	ug/L
Bromoform	ND	25	ug/L
Bromomethane	ND	50	ug/L
Carbon disulfide	ND	25	ug/L
Carbon tetrachloride	ND	25	ug/L
Chlorobenzene	ND	25	ug/L
Chloroprene	ND	25	ug/L
Dibromochloromethane	ND	25	ug/L
Chloroethane	ND	50	ug/L
Chloroform	ND	25	ug/L
Chloromethane	ND	50	ug/L
Allyl chloride	ND	50	ug/L
Dibromomethane	ND	25	ug/L
trans-1,4-Dichloro-2-butene	ND	25	ug/L
Dichlorodifluoromethane	ND	50	ug/L
1,1-Dichloroethane	ND	25	ug/L
1,2-Dichloroethane	ND	25	ug/L
1,1-Dichloroethene	ND	25	ug/L
cis-1,2-Dichloroethene	ND	25	ug/L
trans-1,2-Dichloroethene	ND	12	ug/L
1,2-Dichloroethene (total)	ND	25	ug/L
1,2-Dichloropropane	ND	25	ug/L
cis-1,3-Dichloropropene	ND	25	ug/L
trans-1,3-Dichloropropene	ND	25	ug/L
1,4-Dioxane	ND	5000	ug/L
Ethylbenzene	ND	25	ug/L
Trichlorofluoromethane	ND	50	ug/L
2-Hexanone	ND	120	ug/L
Iodomethane	ND	25	ug/L
Isobutyl alcohol	ND	1200	ug/L
Methacrylonitrile	ND	250	ug/L
Methylene chloride	**780 B**	**25**	**ug/L**

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC/MS Volatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	25	ug/L
4-Methyl-2-pentanone	ND	120	ug/L
Propionitrile	ND	100	ug/L
Styrene	ND	25	ug/L
1,1,1,2-Tetrachloroethane	ND	25	ug/L
1,1,2,2-Tetrachloroethane	ND	25	ug/L
Tetrachloroethene	ND	25	ug/L
Toluene	ND	25	ug/L
1,1,1-Trichloroethane	ND	25	ug/L
1,1,2-Trichloroethane	ND	25	ug/L
Trichloroethene	ND	25	ug/L
1,2,3-Trichloropropane	ND	25	ug/L
Vinyl acetate	ND	50	ug/L
Vinyl chloride	ND	50	ug/L
Xylenes (total)	ND	25	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	ug/L
1,2-Dibromoethane (EDB)	ND	25	ug/L
·Butanone (MEK)	ND	120	ug/L
.crolein	ND	500	ug/L
Ethyl methacrylate	ND	25	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(86 - 118)
1,2-Dichloroethane-d4	97	(76 - 115)
4-Bromofluorobenzene	98	(85 - 115)
Toluene-d8	101	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

Elevated reporting limits. The reporting limits are elevated due to matrix interference.

US GEOLOGICAL SURVEY

CAFB-B-EB

GC/MS Volatiles

Lot-Sample #: D9C030208-002 **Work Order #:** CRA46101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-TB

GC/MS Volatiles

Lot-Sample #...: D9C030208-003 **Work Order #...:** CRA47101 **Matrix.....:** WATER
Date Sampled...: 03/02/99 07:30 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 14:57
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**3.5 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	**0.27 J,B**	**1.0**	**ug/L**

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-TB

GC/MS Volatiles

Lot-Sample #...: D9C030208-003 **Work Order #...:** CRA47101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(86 - 118)
1,2-Dichloroethane-d4	89	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	101	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-B-TB

GC/MS Volatiles

Lot-Sample #: D9C030208-003 **Work Order #:** CRA47101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC/MS Volatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME101 **Matrix.....:** WATER
Date Sampled...: 03/03/99 13:00 **Date Received..:** 03/04/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 15:20
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**0.96 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC/MS Volatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
',2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(86 - 118)
1,2-Dichloroethane-d4	90	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	101	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-S

GC/MS Volatiles

Lot-Sample #: D9C030208-004 **Work Order #:** CRAME101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC/MS Volatiles

Lot-Sample #...: D9C030208-005 Work Order #...: CRAMH101 Matrix.....: WATER
Date Sampled...: 03/03/99 12:00 Date Received..: 03/04/99
Prep Date.....: 03/12/99 Analysis Date..: 03/12/99
Prep Batch #...: 9075249 Analysis Time..: 15:43
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**0.96 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC/MS Volatiles

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(86 - 118)
1,2-Dichloroethane-d4	90	(76 - 115)
4-Bromofluorobenzene	97	(85 - 115)
Toluene-d8	103	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-X

GC/MS Volatiles

Lot-Sample #: D9C030208-005 **Work Order #:** CRAMH101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC/MS Volatiles

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ101 **Matrix.....:** WATER
Date Sampled...: 03/03/99 14:00 **Date Received..:** 03/04/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 16:06
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC/MS Volatiles

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(86 - 118)
1,2-Dichloroethane-d4	91	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	101	(85 - 115)

US GEOLOGICAL SURVEY

CAFB-B

GC/MS Volatiles

Lot-Sample #: D9C030208-006 **Work Order #:** CRAMJ101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC/MS Volatiles

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 09:44 **Date Received..:** 03/05/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 16:29
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC/MS Volatiles

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**2.4**	**1.0**	**ug/L**
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
2-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(86 - 118)
1,2-Dichloroethane-d4	95	(76 - 115)
4-Bromofluorobenzene	96	(85 - 115)
Toluene-d8	100	(85 - 115)

US GEOLOGICAL SURVEY

CAFB-D

GC/MS Volatiles

Lot-Sample #: D9C030208-007 **Work Order #:** CRDFR101 **Matrix:** WATER

MASS SPECTROMETER DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC/MS Volatiles

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 11:10 **Date Received..:** 03/05/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 18:03
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**0.81 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC/MS Volatiles

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	**0.86 J**	**1.0**	**ug/L**
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(86 - 118)
1,2-Dichloroethane-d4	93	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	100	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-C

GC/MS Volatiles

Lot-Sample #: D9C030208-008 **Work Order #:** CRDFW101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC/MS Volatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 18:26
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC/MS Volatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(86 - 118)
1,2-Dichloroethane-d4	94	(76 - 115)
4-Bromofluorobenzene	97	(85 - 115)
Toluene-d8	100	(85 - 115)

US GEOLOGICAL SURVEY

CAFB-U

GC/MS Volatiles

Lot-Sample #: D9C030208-011 **Work Order #:** CRDG1101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC/MS Volatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 16:52
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	ND	10	ug/L
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC/MS Volatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(86 - 118)
1,2-Dichloroethane-d4	97	(76 - 115)
4-Bromofluorobenzene	98	(85 - 115)
Toluene-d8	100	(85 - 115)

US GEOLOGICAL SURVEY

CAFB-T

GC/MS Volatiles

Lot-Sample #: D9C030208-012 **Work Order #:** CRDG4101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: D9C030208-013 **Work Order #...:** CRDJV101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 18:49
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**2.1 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
Chloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: D9C030208-013 Work Order #...: CRDJV101 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(86 - 118)
1,2-Dichloroethane-d4	93	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	100	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

TRIP BLANK

GC/MS Volatiles

Lot-Sample #: D9C030208-013 **Work Order #:** CRDJV101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC/MS Volatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE101 **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 19:35
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**0.94 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
Chloroethane	ND	2.0	ug/L
hloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
Methylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC/MS Volatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(86 - 118)
1,2-Dichloroethane-d4	91	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	100	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

CAFB-I

GC/MS Volatiles

Lot-Sample #: D9C030208-015 **Work Order #:** CRDXE101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: D9C030208-016 **Work Order #...:** CRDXF101 **Matrix.....:** WATER
Date Sampled...: 03/05/99 **Date Received..:** 03/06/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 19:58
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acetone	**2.3 J,B**	**10**	**ug/L**
Acetonitrile	ND	20	ug/L
Acrylonitrile	ND	20	ug/L
Benzene	ND	1.0	ug/L
Bromodichloromethane	ND	1.0	ug/L
Bromoform	ND	1.0	ug/L
Bromomethane	ND	2.0	ug/L
Carbon disulfide	ND	1.0	ug/L
Carbon tetrachloride	ND	1.0	ug/L
Chlorobenzene	ND	1.0	ug/L
Chloroprene	ND	1.0	ug/L
Dibromochloromethane	ND	1.0	ug/L
'hloroethane	ND	2.0	ug/L
ıloroform	ND	1.0	ug/L
Chloromethane	ND	2.0	ug/L
Allyl chloride	ND	2.0	ug/L
Dibromomethane	ND	1.0	ug/L
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L
Dichlorodifluoromethane	ND	2.0	ug/L
1,1-Dichloroethane	ND	1.0	ug/L
1,2-Dichloroethane	ND	1.0	ug/L
1,1-Dichloroethene	ND	1.0	ug/L
cis-1,2-Dichloroethene	ND	1.0	ug/L
trans-1,2-Dichloroethene	ND	0.50	ug/L
1,2-Dichloroethene (total)	ND	1.0	ug/L
1,2-Dichloropropane	ND	1.0	ug/L
cis-1,3-Dichloropropene	ND	1.0	ug/L
trans-1,3-Dichloropropene	ND	1.0	ug/L
1,4-Dioxane	ND	200	ug/L
Ethylbenzene	ND	1.0	ug/L
Trichlorofluoromethane	ND	2.0	ug/L
2-Hexanone	ND	5.0	ug/L
Iodomethane	ND	1.0	ug/L
Isobutyl alcohol	ND	50	ug/L
Methacrylonitrile	ND	10	ug/L
'ethylene chloride	ND	1.0	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: TRIP BLANK

GC/MS Volatiles

Lot-Sample #...: D9C030208-016 **Work Order #...:** CRDXF101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Methyl methacrylate	ND	1.0	ug/L
4-Methyl-2-pentanone	ND	5.0	ug/L
Propionitrile	ND	4.0	ug/L
Styrene	ND	1.0	ug/L
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L
Tetrachloroethene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
1,1,1-Trichloroethane	ND	1.0	ug/L
1,1,2-Trichloroethane	ND	1.0	ug/L
Trichloroethene	ND	1.0	ug/L
1,2,3-Trichloropropane	ND	1.0	ug/L
Vinyl acetate	ND	2.0	ug/L
Vinyl chloride	ND	2.0	ug/L
Xylenes (total)	ND	1.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L
1,2-Dibromoethane (EDB)	ND	1.0	ug/L
2-Butanone (MEK)	ND	5.0	ug/L
Acrolein	ND	20	ug/L
Ethyl methacrylate	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(86 - 118)
1,2-Dichloroethane-d4	89	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
Toluene-d8	103	(85 - 115)

NOTE(S):

J Estimated result. Result is less than RL.

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

US GEOLOGICAL SURVEY

TRIP BLANK

GC/MS Volatiles

Lot-Sample #: D9C030208-016 **Work Order #:** CRDXF101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None				ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45102 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/15/99
Prep Batch #...: 9068270 **Analysis Time..:** 18:19
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
`,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
ıtyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
N-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	74	(46 - 98)
Phenol-d5	78	(45 - 103)
Nitrobenzene-d5	76	(51 - 101)
2-Fluorobiphenyl	71	(49 - 106)
,4,6-Tribromophenol	76	(54 - 107)
erphenyl-d14	85	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-Q

GC/MS Semivolatiles

Lot-Sample #: D9C030208-001 **Work Order #:** CRA45102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Ethyl acetate	141-78-6	4.5 T2	M		ug/L
Unknown #1	57-20-0	9.2	M		ug/L
Unknown #2	57-20-0	8.3	M		ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	28 T2	M		ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46102 **Matrix.....:** WATER
Date Sampled...: 03/02/99 08:00 **Date Received..:** 03/03/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/15/99
Prep Batch #...: 9068270 **Analysis Time..:** 18:54
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrcbenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
`,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
',3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	58	(46 - 98)
Phenol-d5	64	(45 - 103)
Nitrobenzene-d5	60	(51 - 101)
2-Fluorobiphenyl	58	(49 - 106)
,4,6-Tribromophenol	69	(54 - 107)
erphenyl-d14	84	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-B-EB

GC/MS Semivolatiles

Lot-Sample #: D9C030208-002 **Work Order #:** CRA46102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown #1	57-20-0	4.7	M		ug/L
Unknown #2	57-20-0	4.4	M		ug/L
Unknown #3	57-20-0	6.8	M		ug/L
Unknown #4	57-20-0	9.4	M		ug/L
Unknown #5	57-20-0	4.8	M		ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	17 T2	M		ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-004 Work Order #...: CRAME102 Matrix.....: WATER
Date Sampled...: 03/03/99 13:00 Date Received..: 03/04/99
Prep Date.....: 03/09/99 Analysis Date..: 03/15/99
Prep Batch #...: 9068270 Analysis Time..: 19:29
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
`utyl benzyl phthalate	ND	10	ug/L
.,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
`,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
N-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	84	(46 - 98)
Phenol-d5	87	(45 - 103)
Nitrobenzene-d5	82	(51 - 101)
2-Fluorobiphenyl	74	(49 - 106)
2,4,6-Tribromophenol	81	(54 - 107)
Terphenyl-d14	87	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-S

GC/MS Semivolatiles

Lot-Sample #: D9C030208-004 **Work Order #:** CRAME102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown #1	57-20-0	5.5	M		ug/L
Unknown #2	57-20-0	8.6	M		ug/L
Unknown #3	57-20-0	8.0	M		ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	29 T2	M		ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH102 **Matrix.....:** WATER
Date Sampled...: 03/03/99 12:00 **Date Received..:** 03/04/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/15/99
Prep Batch #...: 9068270 **Analysis Time..:** 20:04
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
.,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
?,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-005 Work Order #...: CRAMH102 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
N-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	87	(46 - 98)
Phenol-d5	90	(45 - 103)
Nitrobenzene-d5	86	(51 - 101)
2-Fluorobiphenyl	78	(49 - 106)
2,4,6-Tribromophenol	85	(54 - 107)
Terphenyl-d14	92	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-X

GC/MS Semivolatiles

Lot-Sample #: D9C030208-005 **Work Order #:** CRAMH102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown #1	57-20-0	9.1	M		ug/L
Unknown #2	57-20-0	8.6	M		ug/L
Unknown #3	57-20-0	30	M		ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ102 **Matrix.....:** WATER
Date Sampled...: 03/03/99 14:00 **Date Received..:** 03/04/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/15/99
Prep Batch #...: 9068270 **Analysis Time..:** 20:39
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-006 Work Order #...: CRAMJ102 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
N-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80	(46 - 98)
Phenol-d5	79	(45 - 103)
Nitrobenzene-d5	79	(51 - 101)
2-Fluorobiphenyl	75	(49 - 106)
2,4,6-Tribromophenol	77	(54 - 107)
Terphenyl-d14	85	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-B

GC/MS Semivolatiles

Lot-Sample #: D9C030208-006 **Work Order #:** CRAMJ102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown #1	57-20-0	5.4	M		ug/L
Unknown #2	57-20-0	7.0	M		ug/L
Unknown #3	57-20-0	8.9	M		ug/L
Unknown #4	57-20-0	13	M		ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	44 T2	M		ug/L
Unknown #5	57-20-0	6.0	M		ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-007 Work Order #...: CRDFR102 Matrix.....: WATER
Date Sampled...: 03/04/99 09:44 Date Received..: 03/05/99
Prep Date.....: 03/11/99 Analysis Date..: 03/18/99
Prep Batch #...: 9070332 Analysis Time..: 11:59
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
3,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	87	(46 - 98)
Phenol-d5	88	(45 - 103)
Nitrobenzene-d5	85	(51 - 101)
2-Fluorobiphenyl	83	(49 - 106)
2,4,6-Tribromophenol	84	(54 - 107)
erphenyl-d14	92	(49 - 117)

NOTE(S):

T2 - Confident identification - major ions and ratios largely agree.

US GEOLOGICAL SURVEY

CAFB-D

GC/MS Semivolatiles

Lot-Sample #: D9C030208-007 **Work Order #:** CRDFR102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown	57-20-0	10 B	M	4.748	ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	6.9 T2B	M	6.174	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW102 **Matrix.....:** WATER
Date Sampled...: 03/04/99 11:10 **Date Received..:** 03/05/99
Prep Date.....: 03/11/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9070332 **Analysis Time..:** 12:34
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-008 Work Order #...: CRDFW102 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitrophenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
3,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-008 Work Order #...: CRDFW102 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	85	(46 - 98)
Phenol-d5	85	(45 - 103)
Nitrobenzene-d5	84	(51 - 101)
2-Fluorobiphenyl	83	(49 - 106)
?,4,6-Tribromophenol	83	(54 - 107)
erphenyl-d14	92	(49 - 117)

NOTE(S):

T2 - Confident identification - major ions and ratios largely agree.

US GEOLOGICAL SURVEY

CAFB-C

GC/MS Semivolatiles

Lot-Sample #: D9C030208-008 **Work Order #:** CRDFW102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown	57-20-0	8.3 B	M	4.793	ug/L
Unknown	57-20-0	4.4	M	5.332	ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	6.8 T2B	M	6.214	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1102 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99
Prep Date.....: 03/11/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9070332 **Analysis Time..:** 13:08
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
?,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	68	(46 - 98)
Phenol-d5	70	(45 - 103)
Nitrobenzene-d5	70	(51 - 101)
2-Fluorobiphenyl	66	(49 - 106)
?,4,6-Tribromophenol	67	(54 - 107)
erphenyl-d14	73	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-U

GC/MS Semivolatiles

Lot-Sample #: D9C030208-011 **Work Order #:** CRDG1102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown	57-20-0	6.6 B	M	4.749	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-012 Work Order #...: CRDG4102 Matrix.....: WATER
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/11/99 Analysis Date..: 03/18/99
Prep Batch #...: 9070332 Analysis Time..: 13:43
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
Butyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	83	(46 - 98)
Phenol-d5	86	(45 - 103)
Nitrobenzene-d5	84	(51 - 101)
2-Fluorobiphenyl	78	(49 - 106)
?,4,6-Tribromophenol	83	(54 - 107)
erphenyl-d14	91	(49 - 117)

US GEOLOGICAL SURVEY

CAFB-T

GC/MS Semivolatiles

Lot-Sample #: D9C030208-012 **Work Order #:** CRDG4102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown	57-20-0	5.7	M	4.018	ug/L
Unknown	57-20-0	8.5 B	M	4.782	ug/L
Unknown	57-20-0	6.3 B	M	6.203	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE102 **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99
Prep Date.....: 03/11/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9070332 **Analysis Time..:** 15:27
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Di-n-butyl phthalate	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Phenol	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
bis(2-Chloroethyl) ether	ND	10	ug/L
bis(2-Chloroethoxy) methane	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
bis(2-Ethylhexyl) phthalate	ND	10	ug/L
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L
4-Methylphenol	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
Hexachloroethane	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Isophorone	ND	10	ug/L
2-Nitrophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
1,2,4-Trichlorobenzene	ND	10	ug/L
Naphthalene	ND	10	ug/L
4-Chloroaniline	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	50	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
Dimethyl phthalate	ND	10	ug/L
Acenaphthene	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
2,4-Dinitrophenol	ND	50	ug/L
4-Nitrophenol	ND	50	ug/L
Dibenzofuran	ND	10	ug/L
2,4-Dinitrotoluene	ND	10	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,6-Dinitrotoluene	ND	10	ug/L
Diethyl phthalate	ND	10	ug/L
4-Chlorophenyl phenyl ether	ND	10	ug/L
Fluorene	ND	10	ug/L
4-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
4-Bromophenyl phenyl ether	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Pyrene	ND	10	ug/L
`utyl benzyl phthalate	ND	10	ug/L
,3'-Dichlorobenzidine	ND	50	ug/L
Benzo(a)anthracene	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-octyl phthalate	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Benzo(ghi)perylene	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
Acetophenone	ND	10	ug/L
2-Acetylaminofluorene	ND	100	ug/L
4-Aminobiphenyl	ND	50	ug/L
Aniline	ND	10	ug/L
Aramite	ND	20	ug/L
Benzyl alcohol	ND	10	ug/L
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L
2,6-Dichlorophenol	ND	10	ug/L
4-Dimethylaminoazobenzene	ND	20	ug/L
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L
`,3'-Dimethylbenzidine	ND	20	ug/L

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC/MS Semivolatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE102 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS
alpha,alpha-Dimethylphenethylamine	ND	50	ug/L
1,3-Dinitrobenzene	ND	10	ug/L
Diphenylamine	ND	10	ug/L
Ethyl methanesulfonate	ND	10	ug/L
Hexachloropropene	ND	100	ug/L
Isosafrole	ND	20	ug/L
Methapyrilene	ND	50	ug/L
3-Methylcholanthrene	ND	20	ug/L
Methyl methanesulfonate	ND	10	ug/L
3-Methylphenol	ND	10	ug/L
1,4-Naphthoquinone	ND	50	ug/L
1-Naphthylamine	ND	10	ug/L
2-Naphthylamine	ND	10	ug/L
N-Nitrosodi-n-butylamine	ND	10	ug/L
N-Nitrosodiethylamine	ND	10	ug/L
N-Nitrosodimethylamine	ND	10	ug/L
N-Nitrosomethylethylamine	ND	10	ug/L
-Nitrosomorpholine	ND	10	ug/L
N-Nitrosopiperidine	ND	10	ug/L
N-Nitrosopyrrolidine	ND	10	ug/L
5-Nitro-o-toluidine	ND	20	ug/L
Pentachlorobenzene	ND	10	ug/L
Pentachloroethane	ND	50	ug/L
Pentachloronitrobenzene	ND	50	ug/L
Phenacetin	ND	20	ug/L
2-Picoline	ND	20	ug/L
Pronamide	ND	20	ug/L
Pyridine	ND	20	ug/L
Safrole	ND	20	ug/L
1,2,4,5-Tetrachlorobenzene	ND	10	ug/L
2,3,4,6-Tetrachlorophenol	ND	50	ug/L
2-Toluidine	ND	10	ug/L
1,3,5-Trinitrobenzene	ND	50	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	57	(46 - 98)
Phenol-d5	59	(45 - 103)
Nitrobenzene-d5	61	(51 - 101)
2-Fluorobiphenyl	63	(49 - 106)
,4,6-Tribromophenol	63	(54 - 107)
erphenyl-d14	71	(49 - 117)

NOTE(S):

T2 - Confident identification - major ions and ratios largely agree.

US GEOLOGICAL SURVEY

CAFB-I

GC/MS Semivolatiles

Lot-Sample #: D9C030208-015 **Work Order #:** CRDXE102 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown	57-20-0	8.4	M	4.333	ug/L
Unknown	57-20-0	6.4	M	4.413	ug/L
Unknown	57-20-0	5.3 B	M	4.771	ug/L
Unknown	57-20-0	11	M	6.074	ug/L
1-Propene, 1,1,2-trichloro-	21400-25-9	44 T2B	M	6.192	ug/L
Unknown	57-20-0	4.7	M	11.486	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC Semivolatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45103 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 09:05
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	95	(51 - 132)
Tetrachloro-m-xylene	85	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC Semivolatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46103 **Matrix.....:** WATER
Date Sampled...: 03/02/99 08:00 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 09:39
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	84	(51 - 132)
Tetrachloro-m-xylene	89	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC Semivolatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME103 **Matrix.....:** WATER
Date Sampled...: 03/03/99 13:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 10:13
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	86	(51 - 132)
Tetrachloro-m-xylene	85	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC Semivolatiles

Lot-Sample #...:	D9C030208-005	**Work Order #...:**	CRAMH103	**Matrix.....:**	WATER
Date Sampled...:	03/03/99 12:00	**Date Received..:**	03/04/99		
Prep Date.....:	03/08/99	**Analysis Date..:**	03/27/99		
Prep Batch #...:	9067174	**Analysis Time..:**	10:47		
Dilution Factor:	1				
		Method.....:	SW846 8081A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	85	(51 - 132)
Tetrachloro-m-xylene	84	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC Semivolatiles

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ103 **Matrix.....:** WATER
Date Sampled...: 03/03/99 14:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 11:21
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	103	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC Semivolatiles

Lot-Sample #...: D9C030208-007 Work Order #...: CRDFR103 Matrix.....: WATER
Date Sampled...: 03/04/99 09:44 Date Received..: 03/05/99
Prep Date.....: 03/08/99 Analysis Date..: 03/27/99
Prep Batch #...: 9067174 Analysis Time..: 11:55
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	94	(51 - 132)
Tetrachloro-m-xylene	90	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC Semivolatiles

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW103 **Matrix.....:** WATER
Date Sampled...: 03/04/99 11:10 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 14:46
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
',4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	91	(51 - 132)
Tetrachloro-m-xylene	83	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC Semivolatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1103 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 15:21
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	88	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC Semivolatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4103 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 15:55
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
,4'-DDT	ND	0.050	ug/L
ieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	93	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC Semivolatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE103 **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 17:37
Dilution Factor: 1

Method.....: SW846 8081A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Diallate	ND	1.0	ug/L
Isodrin	ND	0.10	ug/L
Kepone	ND	1.0	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
delta-BHC	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L
4,4'-DDD	ND	0.050	ug/L
4,4'-DDE	ND	0.050	ug/L
4,4'-DDT	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Heptachlor	ND	0.050	ug/L
Heptachlor epoxide	ND	0.050	ug/L
Methoxychlor	ND	0.10	ug/L
Toxaphene	ND	2.0	ug/L
Endrin ketone	ND	0.050	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	94	(51 - 132)
Tetrachloro-m-xylene	87	(56 - 107)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC Semivolatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45104 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 02:35
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(65 - 137)
Decachlorobiphenyl	92	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC Semivolatiles

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46104 **Matrix.....:** WATER
Date Sampled...: 03/02/99 08:00 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 02:33
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	82	(65 - 137)
Decachlorobiphenyl	76	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC Semivolatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME104 **Matrix.....:** WATER
Date Sampled...: 03/03/99 13:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 03:01
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	79	(65 - 137)
Decachlorobiphenyl	88	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC Semivolatiles

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH104 **Matrix.....:** WATER
Date Sampled...: 03/03/99 12:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 03:29
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(65 - 137)
Decachlorobiphenyl	89	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC Semivolatiles

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ104 **Matrix.....:** WATER
Date Sampled...: 03/03/99 14:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 03:57
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	79	(65 - 137)
Decachlorobiphenyl	91	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC Semivolatiles

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR104 **Matrix.....:** WATER
Date Sampled...: 03/04/99 09:44 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 04:25
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(65 - 137)
Decachlorobiphenyl	97	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC Semivolatiles

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW104 **Matrix.....:** WATER
Date Sampled...: 03/04/99 11:10 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 04:53
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	76	(65 - 137)
Decachlorobiphenyl	92	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC Semivolatiles

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1104 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/19/99
Prep Batch #...: 9067176 **Analysis Time..:** 05:22
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURRCGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(65 - 137)
Decachlorobiphenyl	92	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC Semivolatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4104 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/25/99
Prep Batch #...: 9067176 **Analysis Time..:** 07:48
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	81	(65 - 137)
Decachlorobiphenyl	89	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC Semivolatiles

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE104 **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/25/99
Prep Batch #...: 9067176 **Analysis Time..:** 09:12
Dilution Factor: 1

Method.....: SW846 8082

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Aroclor 1016	ND	1.0	ug/L
Aroclor 1221	ND	1.0	ug/L
Aroclor 1232	ND	1.0	ug/L
Aroclor 1242	ND	1.0	ug/L
Aroclor 1248	ND	1.0	ug/L
Aroclor 1254	ND	1.0	ug/L
Aroclor 1260	ND	1.0	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	82	(65 - 137)
Decachlorobiphenyl	83	(66 - 151)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

GC Semivolatiles

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45105 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 03:09
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	22	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

GC Semivolatiles

Lot-Sample #...:	D9C030208-002	**Work Order #...:**	CRA46105	**Matrix.....:**	WATER
Date Sampled...:	03/02/99 08:00	**Date Received..:**	03/03/99		
Prep Date.....:	03/09/99	**Analysis Date..:**	03/26/99		
Prep Batch #...:	9068143	**Analysis Time..:**	04:52		
Dilution Factor:	1				
		Method.....:	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	44	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

GC Semivolatiles

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME105 **Matrix.....:** WATER
Date Sampled...: 03/03/99 13:00 **Date Received..:** 03/04/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 05:27
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	35	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

GC Semivolatiles

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH105 **Matrix.....:** WATER
Date Sampled...: 03/03/99 12:00 **Date Received..:** 03/04/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 06:01
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	25	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

GC Semivolatiles

Lot-Sample #...:	D9C030208-006	**Work Order #...:**	CRAMJ105	**Matrix.....:**	WATER
Date Sampled...:	03/03/99 14:00	**Date Received..:**	03/04/99		
Prep Date.....:	03/09/99	**Analysis Date..:**	03/26/99		
Prep Batch #...:	9068143	**Analysis Time..:**	06:35		
Dilution Factor:	1				
		Method.....:	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	37	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

GC Semivolatiles

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR105 **Matrix.....:** WATER
Date Sampled...: 03/04/99 09:44 **Date Received..:** 03/05/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 07:10
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	12 *	(16 - 123)

NOTE(S):

* Surrogate recovery is outside stated control limits.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D (D9C030208-007)

GC Semivolatiles
Reanalysis

Lot-Sample #...: D9D080151-001 **Work Order #...:** CTEA0101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 09:44 **Date Received..:** 03/05/99
Prep Date.....: 04/12/99 **Analysis Date..:** 04/20/99
Prep Batch #...: 9102206 **Analysis Time..:** 02:07
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	35	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

GC Semivolatiles

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW105 **Matrix.....:** WATER
Date Sampled...: 03/04/99 11:10 **Date Received..:** 03/05/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 07:44
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	34	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

GC Semivolatiles

Lot-Sample #...:	D9C030208-011	**Work Order #...:**	CRDG1105	**Matrix.....:**	WATER
Date Sampled...:	03/04/99 13:45	**Date Received..:**	03/05/99		
Prep Date.....:	03/09/99	**Analysis Date..:**	03/26/99		
Prep Batch #...:	9068143	**Analysis Time..:**	08:19		
Dilution Factor:	1				
		Method.....:	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	12 *	(16 - 123)

NOTE(S):

* Surrogate recovery is outside stated control limits.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U (D9C030208-011)

GC Semivolatiles
Reanalysis

Lot-Sample #...: D9D080151-002 **Work Order #...:** CTEAF101 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99
Prep Date.....: 04/12/99 **Analysis Date..:** 04/20/99
Prep Batch #...: 9102206 **Analysis Time..:** 00:58
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	38	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

GC Semivolatiles

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4105 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 08:53
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	25	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

GC Semivolatiles

Lot-Sample #...:	D9C030208-015	**Work Order #...:**	CRDXE105	**Matrix.....:**	WATER
Date Sampled...:	03/05/99 09:45	**Date Received..:**	03/06/99		
Prep Date.....:	03/09/99	**Analysis Date..:**	03/26/99		
Prep Batch #...:	9068143	**Analysis Time..:**	11:45		
Dilution Factor:	1				
		Method.....:	SW846 8151A		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	10 *	(16 - 123)

NOTE(S):

* Surrogate recovery is outside stated control limits.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I (D9C030208-015)

GC Semivolatiles
Reanalysis

Lot-Sample #...: D9D080151-003 **Work Order #...:** CTEAK101 **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99
Prep Date.....: 04/12/99 **Analysis Date..:** 04/20/99
Prep Batch #...: 9102206 **Analysis Time..:** 01:32
Dilution Factor: 1

Method.....: SW846 8151A

PARAMETER	RESULT	REPORTING LIMIT	UNITS
2,4-D	ND	4.0	ug/L
2,4,5-T	ND	1.0	ug/L
2,4,5-TP (Silvex)	ND	1.0	ug/L
Dinoseb	ND	0.60	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	68	(16 - 123)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

HPLC

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45106 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/10/99
Prep Batch #...: 9067180 **Analysis Time..:** 10:55
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
.-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURRCGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	57	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

HPLC

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46106 **Matrix.....:** WATER
Date Sampled...: 03/02/99 08:00 **Date Received..:** 03/03/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/10/99
Prep Batch #...: 9067180 **Analysis Time..:** 11:25
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
'-Methylnaphthalene	ND	1.0	ug/L
-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	58	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

HPLC

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME106 **Matrix.....:** WATER
Date Sampled...: 03/03/99 13:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/10/99
Prep Batch #...: 9067180 **Analysis Time..:** 11:55
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	59	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

HPLC

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH106 **Matrix.....:** WATER
Date Sampled...: 03/03/99 12:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/10/99
Prep Batch #...: 9067180 **Analysis Time..:** 12:24
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
2-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	57	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

HPLC

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ106 **Matrix.....:** WATER
Date Sampled...: 03/03/99 14:00 **Date Received..:** 03/04/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/10/99
Prep Batch #...: 9067180 **Analysis Time..:** 12:54
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzc(a)anthracene	ND	0.10	ug/L
Benzc(a)pyrene	ND	0.10	ug/L
Benzc(b)fluoranthene	ND	0.10	ug/L
Benzc(ghi)perylene	ND	0.20	ug/L
Benzc(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	57	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

HPLC

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR106 **Matrix.....:** WATER
Date Sampled...: 03/04/99 09:44 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/10/99
Prep Batch #...: 9067180 **Analysis Time..:** 13:24
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	59	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

HPLC

Lot-Sample #...:	D9C030208-008	**Work Order #...:**	CRDFW106	**Matrix.....:**	WATER
Date Sampled...:	03/04/99 11:10	**Date Received..:**	03/05/99		
Prep Date.....:	03/08/99	**Analysis Date..:**	03/10/99		
Prep Batch #...:	9067180	**Analysis Time..:**	13:54		
Dilution Factor:	1				
		Method.....:	SW846 8310		

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
2-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	59	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

HPLC

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1106 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/16/99
Prep Batch #...: 9067180 **Analysis Time..:** 10:36
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
2-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	58	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

HPLC

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4106 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/16/99
Prep Batch #...: 9067180 **Analysis Time..:** 11:06
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
1-Methylnaphthalene	ND	1.0	ug/L
2-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	58	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

HPLC

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE106 **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/16/99
Prep Batch #...: 9067180 **Analysis Time..:** 12:35
Dilution Factor: 1

Method.....: SW846 8310

PARAMETER	RESULT	REPORTING LIMIT	UNITS
Acenaphthene	ND	1.0	ug/L
Acenaphthylene	ND	1.0	ug/L
Anthracene	ND	0.10	ug/L
Benzo(a)anthracene	ND	0.10	ug/L
Benzo(a)pyrene	ND	0.10	ug/L
Benzo(b)fluoranthene	ND	0.10	ug/L
Benzo(ghi)perylene	ND	0.20	ug/L
Benzo(k)fluoranthene	ND	0.10	ug/L
Chrysene	ND	0.20	ug/L
Dibenzo(a,h)anthracene	ND	0.20	ug/L
Fluoranthene	ND	0.20	ug/L
Fluorene	ND	0.20	ug/L
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L
-Methylnaphthalene	ND	1.0	ug/L
2-Methylnaphthalene	ND	1.0	ug/L
Naphthalene	ND	1.0	ug/L
Phenanthrene	ND	0.20	ug/L
Pyrene	ND	0.20	ug/L

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	58	(57 - 128)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

TOTAL Metals

Lot-Sample #...: D9C030208-001 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRA45108
		Dilution Factor: 1		Analysis Time..: 15:43		
Barium	**36.7**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA45109**
		Dilution Factor: 1		Analysis Time..: 15:43		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4510A
		Dilution Factor: 1		Analysis Time..: 15:43		
Calcium	**47800**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510C**
		Dilution Factor: 1		Analysis Time..: 15:43		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4510D
		Dilution Factor: 1		Analysis Time..: 15:43		
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4510E
		Dilution Factor: 1		Analysis Time..: 15:43		
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRA4510F
		Dilution Factor: 1		Analysis Time..: 15:43		
Potassium	**7420**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510G**
		Dilution Factor: 1		Analysis Time..: 15:43		
Magnesium	**47100**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510H**
		Dilution Factor: 1		Analysis Time..: 15:43		
Manganese	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4510J
		Dilution Factor: 1		Analysis Time..: 15:43		
Molybdenum	**4.3 B**	**20.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510K**
		Dilution Factor: 1		Analysis Time..: 15:43		
Sodium	**43800**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510L**
		Dilution Factor: 1		Analysis Time..: 15:43		
Nickel	ND	40.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4510M
		Dilution Factor: 1		Analysis Time..: 15:43		
Tin	**40.7 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510N**
		Dilution Factor: 1		Analysis Time..: 15:43		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

TOTAL Metals

Lot-Sample #...: D9C030208-001 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**18.1**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4510P**
		Dilution Factor: 1		Analysis Time..: 15:43		
Zinc	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4510Q
		Dilution Factor: 1		Analysis Time..: 15:43		
Prep Batch #...: 9063198						
Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CRA45112
		Dilution Factor: 1		Analysis Time..: 12:32		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4510R
		Dilution Factor: 1		Analysis Time..: 12:56		
Arsenic	**4.2 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRA4510T**
		Dilution Factor: 1		Analysis Time..: 12:56		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4510U
		Dilution Factor: 1		Analysis Time..: 12:56		
Chromium	**1.1**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRA4510V**
		Dilution Factor: 1		Analysis Time..: 12:56		
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4510W
		Dilution Factor: 1		Analysis Time..: 12:56		
Antimony	**0.31 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRA4510X**
		Dilution Factor: 1		Analysis Time..: 12:56		
Selenium	**4.8 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRA45110**
		Dilution Factor: 1		Analysis Time..: 12:56		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA45111
		Dilution Factor: 1		Analysis Time..: 12:56		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

TOTAL Metals

Lot-Sample #...: D9C030208-002 Matrix.....: WATER
Date Sampled...: 03/02/99 08:00 Date Received..: 03/03/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRA46108
		Dilution Factor: 1		Analysis Time..: 15:47		
Barium	**26.5**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA46109**
		Dilution Factor: 1		Analysis Time..: 15:47		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4610A
		Dilution Factor: 1		Analysis Time..: 15:47		
Calcium	**40700**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610C**
		Dilution Factor: 1		Analysis Time..: 15:47		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4610D
		Dilution Factor: 1		Analysis Time..: 15:47		
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4610E
		Dilution Factor: 1		Analysis Time..: 15:47		
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRA4610F
		Dilution Factor: 1		Analysis Time..: 15:47		
Potassium	**6050**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610G**
		Dilution Factor: 1		Analysis Time..: 15:47		
Magnesium	**38800**	**200**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610H**
		Dilution Factor: 1		Analysis Time..: 15:47		
Manganese	**4.7 B**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610J**
		Dilution Factor: 1		Analysis Time..: 15:47		
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4610K
		Dilution Factor: 1		Analysis Time..: 15:47		
Sodium	**49900**	**5000**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610L**
		Dilution Factor: 1		Analysis Time..: 15:47		
Nickel	**31.4 B**	**40.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610M**
		Dilution Factor: 1		Analysis Time..: 15:47		
Tin	**40.6 B**	**100**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610N**
		Dilution Factor: 1		Analysis Time..: 15:47		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

TOTAL Metals

Lot-Sample #...: D9C030208-002 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium	**25.6**	**10.0**	**ug/L**	**SW846 6010B**	**03/08-03/09/99**	**CRA4610P**
		Dilution Factor: 1		Analysis Time..: 15:47		
Zinc	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRA4610Q
		Dilution Factor: 1		Analysis Time..: 15:47		
Prep Batch #...: 9063198						
Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CRA46112
		Dilution Factor: 1		Analysis Time..: 12:34		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4610R
		Dilution Factor: 1		Analysis Time..: 13:01		
Arsenic	ND	5.0	ug/L	SW846 6020	03/10-03/18/99	CRA4610T
		Dilution Factor: 1		Analysis Time..: 13:01		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4610U
		Dilution Factor: 1		Analysis Time..: 13:01		
Chromium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4610V
		Dilution Factor: 1		Analysis Time..: 13:01		
Lead	**0.22 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRA4610W**
		Dilution Factor: 1		Analysis Time..: 13:01		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA4610X
		Dilution Factor: 1		Analysis Time..: 13:01		
Selenium	ND	5.0	ug/L	SW846 6020	03/10-03/18/99	CRA46110
		Dilution Factor: 1		Analysis Time..: 13:01		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRA46111
		Dilution Factor: 1		Analysis Time..: 13:01		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

TOTAL Metals

Lot-Sample #...: D9C030208-004 Matrix.....: WATER
Date Sampled...: 03/03/99 13:00 Date Received..: 03/04/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	0.14 B	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRAME112
		Dilution Factor: 1		Analysis Time..: 14:30		
Prep Batch #...: 9067229						
Aluminum	126	100	ug/L	SW846 6010B	03/10-03/11/99	CRAME108
		Dilution Factor: 1		Analysis Time..: 09:36		
Barium	45.2	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME109
		Dilution Factor: 1		Analysis Time..: 09:36		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME10A
		Dilution Factor: 1		Analysis Time..: 09:36		
Calcium	45000	200	ug/L	SW846 6010B	03/10-03/11/99	CRAME10C
		Dilution Factor: 1		Analysis Time..: 09:36		
obalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME10D
		Dilution Factor: 1		Analysis Time..: 09:36		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME10E
		Dilution Factor: 1		Analysis Time..: 09:36		
Iron	124	100	ug/L	SW846 6010B	03/10-03/11/99	CRAME10F
		Dilution Factor: 1		Analysis Time..: 09:36		
Potassium	6870	5000	ug/L	SW846 6010B	03/10-03/11/99	CRAME10G
		Dilution Factor: 1		Analysis Time..: 09:36		
Magnesium	40500	200	ug/L	SW846 6010B	03/10-03/11/99	CRAME10H
		Dilution Factor: 1		Analysis Time..: 09:36		
Manganese	33.0	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME10J
		Dilution Factor: 1		Analysis Time..: 09:36		
Molybdenum	8.0 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME10K
		Dilution Factor: 1		Analysis Time..: 09:36		
Sodium	53500	5000	ug/L	SW846 6010B	03/10-03/11/99	CRAME10L
		Dilution Factor: 1		Analysis Time..: 09:36		
ckel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRAME10M
		Dilution Factor: 1		Analysis Time..: 09:36		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

TOTAL Metals

Lot-Sample #...: D9C030208-004 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	**25.6 B**	**100**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAME10N**
		Dilution Factor: 1		Analysis Time..: 09:36		
Vanadium	**25.4**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAME10P**
		Dilution Factor: 1		Analysis Time..: 09:36		
Zinc	**63.0**	**20.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAME10Q**
		Dilution Factor: 1		Analysis Time..: 09:36		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAME10R
		Dilution Factor: 1		Analysis Time..: 13:05		
Arsenic	**5.4**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAME10T**
		Dilution Factor: 1		Analysis Time..: 13:05		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAME10U
		Dilution Factor: 1		Analysis Time..: 13:05		
Chromium	**2.7**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAME10V**
		Dilution Factor: 1		Analysis Time..: 13:05		
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAME10W
		Dilution Factor: 1		Analysis Time..: 13:05		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAME10X
		Dilution Factor: 1		Analysis Time..: 13:05		
Selenium	**6.8**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAME110**
		Dilution Factor: 1		Analysis Time..: 13:05		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAME111
		Dilution Factor: 1		Analysis Time..: 13:05		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

TOTAL Metals

Lot-Sample #...: D9C030208-005 Matrix.....: WATER
Date Sampled...: 03/03/99 12:00 Date Received..: 03/04/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	0.14 B	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRAMH112
		Dilution Factor: 1		Analysis Time..: 14:32		
Prep Batch #...: 9067229						
Aluminum	130	100	ug/L	SW846 6010B	03/10-03/11/99	CRAMH108
		Dilution Factor: 1		Analysis Time..: 09:41		
Barium	44.0	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH109
		Dilution Factor: 1		Analysis Time..: 09:41		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10A
		Dilution Factor: 1		Analysis Time..: 09:41		
Calcium	45100	200	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10C
		Dilution Factor: 1		Analysis Time..: 09:41		
balt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10D
		Dilution Factor: 1		Analysis Time..: 09:41		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10E
		Dilution Factor: 1		Analysis Time..: 09:41		
Iron	113	100	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10F
		Dilution Factor: 1		Analysis Time..: 09:41		
Potassium	6630	5000	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10G
		Dilution Factor: 1		Analysis Time..: 09:41		
Magnesium	40600	200	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10H
		Dilution Factor: 1		Analysis Time..: 09:41		
Manganese	33.5	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10J
		Dilution Factor: 1		Analysis Time..: 09:41		
Molybdenum	13.2 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10K
		Dilution Factor: 1		Analysis Time..: 09:41		
Sodium	53500	5000	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10L
		Dilution Factor: 1		Analysis Time..: 09:41		
ckel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10M
		Dilution Factor: 1		Analysis Time..: 09:41		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

TOTAL Metals

Lot-Sample #...: D9C030208-005 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRAMH10N
		Dilution Factor: 1		Analysis Time..: 09:41		
Vanadium	**24.8**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAMH10P**
		Dilution Factor: 1		Analysis Time..: 09:41		
Zinc	**66.5**	**20.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAMH10Q**
		Dilution Factor: 1		Analysis Time..: 09:41		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMH10R
		Dilution Factor: 1		Analysis Time..: 13:10		
Arsenic	**5.4**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMH10T**
		Dilution Factor: 1		Analysis Time..: 13:10		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMH10U
		Dilution Factor: 1		Analysis Time..: 13:10		
Chromium	**7.9**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMH10V**
		Dilution Factor: 1		Analysis Time..: 13:10		
Lead	**0.28 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMH10W**
		Dilution Factor: 1		Analysis Time..: 13:10		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMH10X
		Dilution Factor: 1		Analysis Time..: 13:10		
Selenium	**6.9**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMH110**
		Dilution Factor: 1		Analysis Time..: 13:10		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMH111
		Dilution Factor: 1		Analysis Time..: 13:10		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

TOTAL Metals

Lot-Sample #...: D9C030208-006 Matrix.....: WATER
Date Sampled...: 03/03/99 14:00 Date Received..: 03/04/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	0.14 B	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRAMJ112
		Dilution Factor: 1		Analysis Time..: 14:40		
Prep Batch #...: 9067229						
Aluminum	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ108
		Dilution Factor: 1		Analysis Time..: 09:45		
Barium	27.9	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ109
		Dilution Factor: 1		Analysis Time..: 09:45		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10A
		Dilution Factor: 1		Analysis Time..: 09:45		
Calcium	42000	200	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10C
		Dilution Factor: 1		Analysis Time..: 09:45		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10D
		Dilution Factor: 1		Analysis Time..: 09:45		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10E
		Dilution Factor: 1		Analysis Time..: 09:45		
Iron	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10F
		Dilution Factor: 1		Analysis Time..: 09:45		
Potassium	6760	5000	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10G
		Dilution Factor: 1		Analysis Time..: 09:45		
Magnesium	40300	200	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10H
		Dilution Factor: 1		Analysis Time..: 09:45		
Manganese	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10J
		Dilution Factor: 1		Analysis Time..: 09:45		
Molybdenum	7.0 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10K
		Dilution Factor: 1		Analysis Time..: 09:45		
Sodium	58500	5000	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10L
		Dilution Factor: 1		Analysis Time..: 09:45		
Nickel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10M
		Dilution Factor: 1		Analysis Time..: 09:45		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

TOTAL Metals

Lot-Sample #...: D9C030208-006 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	**52.4 B**	**100**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAMJ10N**
		Dilution Factor: 1		Analysis Time..: 09:45		
Vanadium	**27.3**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRAMJ10P**
		Dilution Factor: 1		Analysis Time..: 09:45		
Zinc	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRAMJ10Q
		Dilution Factor: 1		Analysis Time..: 09:45		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMJ10R
		Dilution Factor: 1		Analysis Time..: 13:14		
Arsenic	**5.7**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMJ10T**
		Dilution Factor: 1		Analysis Time..: 13:14		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMJ10U
		Dilution Factor: 1		Analysis Time..: 13:14		
Chromium	**0.74 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMJ10V**
		Dilution Factor: 1		Analysis Time..: 13:14		
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMJ10W
		Dilution Factor: 1		Analysis Time..: 13:14		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMJ10X
		Dilution Factor: 1		Analysis Time..: 13:14		
Selenium	**7.3**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRAMJ110**
		Dilution Factor: 1		Analysis Time..: 13:14		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRAMJ111
		Dilution Factor: 1		Analysis Time..: 13:14		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

TOTAL Metals

Lot-Sample #...: D9C030208-007 Matrix.....: WATER
Date Sampled...: 03/04/99 09:44 Date Received..: 03/05/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	ND	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRDFR112
		Dilution Factor: 1		Analysis Time..: 14:42		
Prep Batch #...: 9067229						
Aluminum	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDFR108
		Dilution Factor: 1		Analysis Time..: 09:49		
Barium	**61.3**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR109**
		Dilution Factor: 1		Analysis Time..: 09:49		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFR10A
		Dilution Factor: 1		Analysis Time..: 09:49		
Calcium	**30500**	**200**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10C**
		Dilution Factor: 1		Analysis Time..: 09:49		
›balt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFR10D
		Dilution Factor: 1		Analysis Time..: 09:49		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFR10E
		Dilution Factor: 1		Analysis Time..: 09:49		
Iron	**445**	**100**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10F**
		Dilution Factor: 1		Analysis Time..: 09:49		
Potassium	**5880**	**5000**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10G**
		Dilution Factor: 1		Analysis Time..: 09:49		
Magnesium	**30600**	**200**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10H**
		Dilution Factor: 1		Analysis Time..: 09:49		
Manganese	**8.0 B**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10J**
		Dilution Factor: 1		Analysis Time..: 09:49		
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFR10K
		Dilution Factor: 1		Analysis Time..: 09:49		
Sodium	**47800**	**5000**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10L**
		Dilution Factor: 1		Analysis Time..: 09:49		
·ckel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFR10M
		Dilution Factor: 1		Analysis Time..: 09:49		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

TOTAL Metals

Lot-Sample #...: D9C030208-007 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	**36.2 B**	**100**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10N**
		Dilution Factor: 1		Analysis Time..: 09:49		
Vanadium	**39.0**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFR10P**
		Dilution Factor: 1		Analysis Time..: 09:49		
Zinc	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFR10Q
		Dilution Factor: 1		Analysis Time..: 09:49		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFR10R
		Dilution Factor: 1		Analysis Time..: 13:19		
Arsenic	**6.0**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFR10T**
		Dilution Factor: 1		Analysis Time..: 13:19		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFR10U
		Dilution Factor: 1		Analysis Time..: 13:19		
Chromium	**0.59 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFR10V**
		Dilution Factor: 1		Analysis Time..: 13:19		
Lead	**0.35 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFR10W**
		Dilution Factor: 1		Analysis Time..: 13:19		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFR10X
		Dilution Factor: 1		Analysis Time..: 13:19		
Selenium	**0.68 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFR110**
		Dilution Factor: 1		Analysis Time..: 13:19		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFR111
		Dilution Factor: 1		Analysis Time..: 13:19		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

TOTAL Metals

Lot-Sample #...: D9C030208-008 Matrix.....: WATER
Date Sampled...: 03/04/99 11:10 Date Received..: 03/05/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	0.18 B	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRDFW112
		Dilution Factor: 1		Analysis Time..: 14:44		
Prep Batch #...: 9067229						
Aluminum	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDFW108
		Dilution Factor: 1		Analysis Time..: 09:53		
Barium	30.4	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW109
		Dilution Factor: 1		Analysis Time..: 09:53		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10A
		Dilution Factor: 1		Analysis Time..: 09:53		
Calcium	32600	200	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10C
		Dilution Factor: 1		Analysis Time..: 09:53		
obalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10D
		Dilution Factor: 1		Analysis Time..: 09:53		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10E
		Dilution Factor: 1		Analysis Time..: 09:53		
Iron	108	100	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10F
		Dilution Factor: 1		Analysis Time..: 09:53		
Potassium	5950	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10G
		Dilution Factor: 1		Analysis Time..: 09:53		
Magnesium	32800	200	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10H
		Dilution Factor: 1		Analysis Time..: 09:53		
Manganese	4.4 B	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10J
		Dilution Factor: 1		Analysis Time..: 09:53		
Molybdenum	5.7 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10K
		Dilution Factor: 1		Analysis Time..: 09:53		
Sodium	50300	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10L
		Dilution Factor: 1		Analysis Time..: 09:53		
ckel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10M
		Dilution Factor: 1		Analysis Time..: 09:53		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

TOTAL Metals

Lot-Sample #...: D9C030208-008 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10N
		Dilution Factor: 1		Analysis Time..: 09:53		
Vanadium	**39.3**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDFW10P**
		Dilution Factor: 1		Analysis Time..: 09:53		
Zinc	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDFW10Q
		Dilution Factor: 1		Analysis Time..: 09:53		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFW10R
		Dilution Factor: 1		Analysis Time..: 13:23		
Arsenic	**6.9**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFW10T**
		Dilution Factor: 1		Analysis Time..: 13:23		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFW10U
		Dilution Factor: 1		Analysis Time..: 13:23		
Chromium	**0.87 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFW10V**
		Dilution Factor: 1		Analysis Time..: 13:23		
Lead	**0.29 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFW10W**
		Dilution Factor: 1		Analysis Time..: 13:23		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFW10X
		Dilution Factor: 1		Analysis Time..: 13:23		
Selenium	**3.8 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDFW110**
		Dilution Factor: 1		Analysis Time..: 13:23		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDFW111
		Dilution Factor: 1		Analysis Time..: 13:23		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

TOTAL Metals

Lot-Sample #...: D9C030208-011 Matrix.....: WATER
Date Sampled...: 03/04/99 13:45 Date Received..: 03/05/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	0.16 B	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRDG1112
		Dilution Factor: 1		Analysis Time..: 14:46		
Prep Batch #...: 9067229						
Aluminum	98.0 B	100	ug/L	SW846 6010B	03/10-03/11/99	CRDG1108
		Dilution Factor: 1		Analysis Time..: 09:57		
Barium	46.0	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG1109
		Dilution Factor: 1		Analysis Time..: 09:57		
Beryllium	1.0 B	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110A
		Dilution Factor: 1		Analysis Time..: 09:57		
Calcium	46000	200	ug/L	SW846 6010B	03/10-03/11/99	CRDG110C
		Dilution Factor: 1		Analysis Time..: 09:57		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110D
		Dilution Factor: 1		Analysis Time..: 09:57		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110E
		Dilution Factor: 1		Analysis Time..: 09:57		
Iron	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDG110F
		Dilution Factor: 1		Analysis Time..: 09:57		
Potassium	7230	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDG110G
		Dilution Factor: 1		Analysis Time..: 09:57		
Magnesium	39800	200	ug/L	SW846 6010B	03/10-03/11/99	CRDG110H
		Dilution Factor: 1		Analysis Time..: 09:57		
Manganese	6.7 B	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110J
		Dilution Factor: 1		Analysis Time..: 09:57		
Molybdenum	3.0 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110K
		Dilution Factor: 1		Analysis Time..: 09:57		
Sodium	57300	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDG110L
		Dilution Factor: 1		Analysis Time..: 09:57		
ckel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110M
		Dilution Factor: 1		Analysis Time..: 09:57		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

TOTAL Metals

Lot-Sample #...: D9C030208-011 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDG110N
		Dilution Factor: 1		Analysis Time..: 09:57		
Vanadium	**24.7**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDG110P**
		Dilution Factor: 1		Analysis Time..: 09:57		
Zinc	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG110Q
		Dilution Factor: 1		Analysis Time..: 09:57		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG110R
		Dilution Factor: 1		Analysis Time..: 13:28		
Arsenic	**5.7**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDG110T**
		Dilution Factor: 1		Analysis Time..: 13:28		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG110U
		Dilution Factor: 1		Analysis Time..: 13:28		
Chromium	**1.0**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDG110V**
		Dilution Factor: 1		Analysis Time..: 13:28		
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG110W
		Dilution Factor: 1		Analysis Time..: 13:28		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG110X
		Dilution Factor: 1		Analysis Time..: 13:28		
Selenium	**7.6**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDG1110**
		Dilution Factor: 1		Analysis Time..: 13:28		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG1111
		Dilution Factor: 1		Analysis Time..: 13:28		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

TOTAL Metals

Lot-Sample #...: D9C030208-012 Matrix.....: WATER
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	0.19 B	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRDG4112
		Dilution Factor: 1		Analysis Time..: 14:48		
Prep Batch #...: 9067229						
Aluminum	47.5 B	100	ug/L	SW846 6010B	03/10-03/11/99	CRDG4108
		Dilution Factor: 1		Analysis Time..: 10:09		
Barium	35.2	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG4109
		Dilution Factor: 1		Analysis Time..: 10:09		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG410A
		Dilution Factor: 1		Analysis Time..: 10:09		
Calcium	44600	200	ug/L	SW846 6010B	03/10-03/11/99	CRDG410C
		Dilution Factor: 1		Analysis Time..: 10:09		
Cobalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG410D
		Dilution Factor: 1		Analysis Time..: 10:09		
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG410E
		Dilution Factor: 1		Analysis Time..: 10:09		
Iron	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDG410F
		Dilution Factor: 1		Analysis Time..: 10:09		
Potassium	6590	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDG410G
		Dilution Factor: 1		Analysis Time..: 10:09		
Magnesium	40100	200	ug/L	SW846 6010B	03/10-03/11/99	CRDG410H
		Dilution Factor: 1		Analysis Time..: 10:09		
Manganese	15.4	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG410J
		Dilution Factor: 1		Analysis Time..: 10:09		
Molybdenum	6.6 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG410K
		Dilution Factor: 1		Analysis Time..: 10:09		
Sodium	55400	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDG410L
		Dilution Factor: 1		Analysis Time..: 10:09		
Nickel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRDG410M
		Dilution Factor: 1		Analysis Time..: 10:09		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

TOTAL Metals

Lot-Sample #...: D9C030208-012 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CRDG410N
		Dilution Factor: 1		Analysis Time..: 10:09		
Vanadium	**25.5**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDG410P**
		Dilution Factor: 1		Analysis Time..: 10:09		
Zinc	**29.9**	**20.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDG410Q**
		Dilution Factor: 1		Analysis Time..: 10:09		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG410R
		Dilution Factor: 1		Analysis Time..: 13:47		
Arsenic	**5.8**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDG410T**
		Dilution Factor: 1		Analysis Time..: 13:47		
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG410U
		Dilution Factor: 1		Analysis Time..: 13:47		
Chromium	**1.0**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDG410V**
		Dilution Factor: 1		Analysis Time..: 13:47		
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG410W
		Dilution Factor: 1		Analysis Time..: 13:47		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG410X
		Dilution Factor: 1		Analysis Time..: 13:47		
Selenium	**8.5**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDG4110**
		Dilution Factor: 1		Analysis Time..: 13:47		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDG4111
		Dilution Factor: 1		Analysis Time..: 13:47		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

TOTAL Metals

Lot-Sample #...: D9C030208-015 Matrix.....: WATER
Date Sampled...: 03/05/99 09:45 Date Received..: 03/06/99

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 9067161						
Mercury	ND	0.20	ug/L	SW846 7470A	03/08-03/09/99	CRDXE112
		Dilution Factor: 1		Analysis Time..: 15:10		
Prep Batch #...: 9067229						
Aluminum	179	100	ug/L	SW846 6010B	03/10-03/11/99	CRDXE108
		Dilution Factor: 1		Analysis Time..: 10:26		
Barium	47.5	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE109
		Dilution Factor: 1		Analysis Time..: 10:26		
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10A
		Dilution Factor: 1		Analysis Time..: 10:26		
Calcium	53700	200	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10C
		Dilution Factor: 1		Analysis Time..: 10:26		
ɔbalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10D
		Dilution Factor: 1		Analysis Time..: 10:26		
Copper	2.3 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10E
		Dilution Factor: 1		Analysis Time..: 10:26		
Iron	363	100	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10F
		Dilution Factor: 1		Analysis Time..: 10:26		
Potassium	6850	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10G
		Dilution Factor: 1		Analysis Time..: 10:26		
Magnesium	47400	200	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10H
		Dilution Factor: 1		Analysis Time..: 10:26		
Manganese	57.6	10.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10J
		Dilution Factor: 1		Analysis Time..: 10:26		
Molybdenum	6.5 B	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10K
		Dilution Factor: 1		Analysis Time..: 10:26		
Sodium	44800	5000	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10L
		Dilution Factor: 1		Analysis Time..: 10:26		
ckel	9.3 B	40.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10M
		Dilution Factor: 1		Analysis Time..: 10:26		

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

TOTAL Metals

Lot-Sample #...: D9C030208-015 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Tin	**31.1 B**	**100**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDXE10N**
		Dilution Factor: 1		Analysis Time..: 10:26		
Vanadium	**26.4**	**10.0**	**ug/L**	**SW846 6010B**	**03/10-03/11/99**	**CRDXE10P**
		Dilution Factor: 1		Analysis Time..: 10:26		
Zinc	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CRDXE10Q
		Dilution Factor: 1		Analysis Time..: 10:26		
Prep Batch #...: 9067241						
Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDXE10R
		Dilution Factor: 1		Analysis Time..: 14:28		
Arsenic	**5.8**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDXE10T**
		Dilution Factor: 1		Analysis Time..: 14:28		
Cadmium	**0.059 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDXE10U**
		Dilution Factor: 1		Analysis Time..: 14:28		
Chromium	**36.8**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDXE10V**
		Dilution Factor: 1		Analysis Time..: 14:28		
Lead	**2.2**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDXE10W**
		Dilution Factor: 1		Analysis Time..: 14:28		
Antimony	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDXE10X
		Dilution Factor: 1		Analysis Time..: 14:28		
Selenium	**10**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CRDXE110**
		Dilution Factor: 1		Analysis Time..: 14:28		
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CRDXE111
		Dilution Factor: 1		Analysis Time..: 14:28		

NOTE(S):

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-Q

General Chemistry

Lot-Sample #...: D9C030208-001 **Work Order #...:** CRA45 **Matrix.....:** WATER
Date Sampled...: 03/02/99 10:30 **Date Received..:** 03/03/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	ND	30.0	ug/L	SW846 9020B	03/04/99	9064251
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B-EB

General Chemistry

Lot-Sample #...: D9C030208-002 **Work Order #...:** CRA46 **Matrix.....:** WATER
Date Sampled...: 03/02/99 08:00 **Date Received..:** 03/03/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	**548 Q**	**60.0**	**ug/L**	**SW846 9020B**	**03/04/99**	**9064251**
		Dilution Factor: 2		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

RL Reporting Limit

Q Elevated reporting limit. The reporting limit is elevated due to high analyte levels.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-S

General Chemistry

Lot-Sample #...: D9C030208-004 **Work Order #...:** CRAME **Matrix.....:** WATER
Date Sampled...: 03/03/99 13:00 **Date Received..:** 03/04/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	**8.3 B**	**30.0**	**ug/L**	**SW846 9020B**	**03/04-03/11/99**	**9064251**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-X

General Chemistry

Lot-Sample #...: D9C030208-005 **Work Order #...:** CRAMH **Matrix.....:** WATER
Date Sampled...: 03/03/99 12:00 **Date Received..:** 03/04/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	ND	30.0	ug/L	SW846 9020B	03/04-03/16/99	9064251
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-B

General Chemistry

Lot-Sample #...: D9C030208-006 **Work Order #...:** CRAMJ **Matrix.....:** WATER
Date Sampled...: 03/03/99 14:00 **Date Received..:** 03/04/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	**0.0040 B**	**0.010**	**mg/L**	**SW846 9012A**	**03/12/99**	**9074329**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	**12.9 B**	**30.0**	**ug/L**	**SW846 9020B**	**03/04-03/16/99**	**9064251**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

RL Reporting Limit

Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-D

General Chemistry

Lot-Sample #...: D9C030208-007 **Work Order #...:** CRDFR **Matrix.....:** WATER
Date Sampled...: 03/04/99 09:44 **Date Received..:** 03/05/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	ND	30.0	ug/L	SW846 9020B	03/04-03/16/99	9064251
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-C

General Chemistry

Lot-Sample #...: D9C030208-008 **Work Order #...:** CRDFW **Matrix.....:** WATER
Date Sampled...: 03/04/99 11:10 **Date Received..:** 03/05/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	**17.0 B**	**30.0**	**ug/L**	**SW846 9020B**	**03/04-03/16/99**	**9077228**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

RL Reporting Limit

Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-U

General Chemistry

Lot-Sample #...: D9C030208-011 **Work Order #...:** CRDG1 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:45 **Date Received..:** 03/05/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	**21.6 B**	**30.0**	**ug/L**	**SW846 9020B**	**03/04-03/17/99**	**9077228**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

RL Reporting Limit

Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-T

General Chemistry

Lot-Sample #...: D9C030208-012 **Work Order #...:** CRDG4 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	ND	30.0	ug/L	SW846 9020B	03/04-03/08/99	9064251
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

US GEOLOGICAL SURVEY

Client Sample ID: CAFB-I

General Chemistry

Lot-Sample #...: D9C030208-015 **Work Order #...:** CRDXE **Matrix.....:** WATER
Date Sampled...: 03/05/99 09:45 **Date Received..:** 03/06/99

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Carbon	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Organic Halogens	**12.9 B**	**30.0**	**ug/L**	**SW846 9020B**	**03/06-03/17/99**	**9077228**
		Dilution Factor: 1		Analysis Time..: 00:00		
Total Sulfide	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1		Analysis Time..: 20:00		

NOTE(S):

RL Reporting Limit

Estimated result. Result is less than RL.

Quanterra

Quanterra Incorporated
880 Riverside Parkway
West Sacramento, California 95605

916 373-5600 Telephone
916 372-1059 Fax

April 1, 1999
QUANTERRA INCORPORATED PROJECT NUMBER: **304473**
PO/CONTRACT: **D9C030208**

Christina Mott
Quanterra Incorporated
4955 Yarrow Street
Arvada, CO 80002

Dear Ms. Mott:

This report contains the analytical results for the ten aqueous samples, which were received under chain of custody by Quanterra Incorporated on 04-06 and 09 March 1999.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call.

Sincerely,

Robert Hrabak
Project Manager
Advanced Technology

Quanterra

TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 304473

Case Narrative

Quanterra's Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

Summary Report

Appendix IX Dioxins/Furans - Method 8280
Includes Sample(s): 1 through 10
Sample Data
Initial Calibration
Sample Extraction/Preparation Log Copies

Quanterra

CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 304473

Detection limits for dioxins and furans are reported on a sample specific basis and all results are recovery corrected per the isotope dilution technique.

Some internal standard recoveries were above the method recommended goal of 120%. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated internal standard recoveries.

There were no other anomalies associated with this report.

Quanterra

QUANTERRA INCORPORATED QUALITY CONTROL PROGRAM

Quanterra has implemented an extensive Quality Control (QC) program to ensure the production of scientifically sound, legally defensible data of known documentable quality. This QC program is based upon requirements in "Test Methods for Evaluating Solid Waste", USEPA SW-846, Third Edition. It applies whenever SW-846 analytical methods are used. It also applies in whole or in part whenever project requirements fail to specify some aspect of QC practices described here. It does not apply when other well-defined QC programs (e.g. CLP or CLP-like) are specified. This is Quanterra's base QC program for environmental analysis.

Definitions:

Quality Control Batch. The quality control (QC) batch is a set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.

Surrogate. A surrogate (or internal standard) is an organic compound similar in chemical behavior to the target analyte, but not normally found in environmental samples. Surrogates (or IS) are added to all samples in a batch to monitor the effects of both the matrix and the analytical process on accuracy.

Method Blank. A method blank (MB) is a control sample prepared using the same reagents used for the samples. As part of the QC batch, it accompanies the samples through all steps of the sample extraction and cleanup procedure. The method blank is used to monitor the level of contamination introduced to a batch of samples as a result of processing in the laboratory.

Laboratory Control Sample. A laboratory control sample (LCS) is prepared using a well-characterized matrix (e.g., reagent water or Ottawa sand) that is spiked with known amounts of representative analytes. Alternate matrices (e.g., glass beads) may be used for soil analyses when Ottawa sand is not appropriate. As part of a QC batch, it accompanies the samples through all steps of the sample extraction and cleanup process. The LCS is used to monitor the accuracy of the analytical process independent of possible interference effects due to sample matrix.

Duplicate Control Sample. A duplicate laboratory control sample (DCS) consists of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects.

Quanterra

SAMPLE DESCRIPTION INFORMATION
for
U.S. Geological Survey

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
304473-0001-MB	Method Blank	AQUEOUS			04 MAR 99
304473-0001-SA	CAFB-Q	AQUEOUS	02 MAR 99	10:30	04 MAR 99
304473-0002-SA	CAFB-B-EB	AQUEOUS	02 MAR 99	08:00	04 MAR 99
304473-0003-SA	CAFB-S	AQUEOUS	03 MAR 99	13:00	05 MAR 99
304473-0004-SA	CAFB-X	AQUEOUS	03 MAR 99	12:00	05 MAR 99
304473-0005-SA	CAFB-B	AQUEOUS	03 MAR 99	14:00	05 MAR 99
304473-0006-SA	CAFB-D	AQUEOUS	04 MAR 99	09:44	06 MAR 99
304473-0007-SA	CAFB-C	AQUEOUS	04 MAR 99	11:10	06 MAR 99
304473-0008-SA	CAFB-U	AQUEOUS	04 MAR 99	13:45	06 MAR 99
304473-0009-SA	CAFB-T	AQUEOUS	04 MAR 99	13:30	06 MAR 99
304473-0009-MS	CAFB-T-MS	AQUEOUS	04 MAR 99	13:30	06 MAR 99
304473-0009-SD	CAFB-T-MSD	AQUEOUS	04 MAR 99	13:30	06 MAR 99
304473-0010-SA	CAFB-I	AQUEOUS	05 MAR 99	09:45	09 MAR 99

Quanterra Incorporated
SAMPLE ANALYSIS REQUISITION

LABORATORY: Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,SOM ME

NEED ANALYTICAL REPORT BY
3/28/99

ATTN:

LAB PURCHASE ORDER: SR014909

CLIENT CODE: 108169 PROJECT MANAGER: Christina Mott

NUMBER OF SAMPLES IN LOT: 0000

SAMPLE I.D.	SAMPLING DATE	ANALYSIS REQUIRED		
D9C030208-001	3/02/99	Archive		
CRA45-1-07		(ARCHIVE)	METHOD:	NONE
CAFBQ				
D9C030208-002	3/02/99	Archive		
CRA46-1-07		(ARCHIVE)	METHOD:	NONE

Received in good condition @ 4°C RH 030499

) DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT.

SHIPPING METHOD: AIRBORNE DATE: 3/03/99

SEND REPORT TO: CHRISTINA MOTT

SAMPLE RECEIVED BY: _____ DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS.

THANK YOU.

Quanterra - Denver
INT: _____ 3/03/99 15:35:00
Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,SOM ME

RELINQUISHED BY: [signature] DATE/TIME: 1800 3/3/99

RELINQUISHED BY: [signature] DATE/TIME: 1600 3/3

RECEIVED FOR LAB BY: [signature] DATE/TIME: 030499/1130

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Quanterra Incorporated
SAMPLE ANALYSIS REQUISITION

LABORATORY: Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,SOM ME

NEED ANALYTICAL REPORT BY
3/28/99

ATTN:

LAB PURCHASE ORDER: SR014909

CLIENT CODE: 108169 PROJECT MANAGER: Christina Mott

NUMBER OF SAMPLES IN LOT: 0006

SAMPLE I.D.	SAMPLING DATE	ANALYSIS REQUIRED		
D9C030208-001	3/02/99	Archive		
CRA45-1-07		(ARCHIVE)	METHOD:	NONE
D9C030208-002	3/02/99	Archive		
CRA46-1-07		(ARCHIVE)	METHOD:	NONE
D9C030208-004	3/03/99	Archive		
CRAME-1-07		(ARCHIVE)	METHOD:	NONE
CAFB-S	1300			Dioxins/Furans
D9C030208-005	3/03/99	Archive		
CRAMH-1-07 -X	1200	(ARCHIVE)	METHOD:	NONE
D9C030208-006	3/03/99	Archive		
MJ-1-07		(ARCHIVE)	METHOD:	NONE
-B	1400			

sent 3/3/99 ns

Received in good condition.
@ 6°C. RH 030599

.D DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT.

SHIPPING METHOD: AIRBORNE DATE: 3/04/99

SEND REPORT TO: CHRISTINA MOTT

SAMPLE RECEIVED BY: _____ DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS.

THANK YOU.

Quanterra - Denver
INT: _____ 3/04/99 11:01:48
Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,SOM ME

RELINQUISHED BY: Michelle Summers DATE/TIME: 0830 3/4/99

RELINQUISHED BY: [illegible] DATE/TIME: 3/4/1600

'IVED FOR LAB BY: [illegible] DATE/TIME: 030599/1445

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Quanterra Incorporated
SAMPLE ANALYSIS REQUISITION

LABORATORY: Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,MOT TC

NEED ANALYTICAL REPORT BY
3/28/99

ATTN:

LAB PURCHASE ORDER: SR014909

CLIENT CODE: 108169 PROJECT MANAGER: Christina Mott

NUMBER OF SAMPLES IN LOT: 0013

SAMPLE I.D.	SAMPLING DATE	ANALYSIS REQUIRED		
D9C030208-001 CRA45-1-07	3/02/99	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-002 CRA46-1-07	3/02/99	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-004 CRAME-1-07	3/03/99	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-005 CRAMH-1-07	3/03/99	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-006 J-1-07	3/03/99	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-007 CRDFR-1-07 CAFB-D	3/04/99 0944	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-008 CRDFW-1-07 -C	3/04/99 1110	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-011 CRDG1-1-07 -U	3/04/99 1345	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-012 CRDG4-1-07 -T	3/04/99 1330	Archive (ARCHIVE)	METHOD:	NONE
D9C030208-012-D CRDG4-1-1M	3/04/99	Archive (ARCHIVE)	METHOD:	NONE

Did not receive as 3-6-99
labeled for 8250

****
* CONTINUED *
****

Quanterra Incorporated
SAMPLE ANALYSIS REQUISITION

LABORATORY: Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,MOT TC

NEED ANALYTICAL REPORT BY
3/28/99
ROUTINE

ATTN:

LAB PURCHASE ORDER: SR014909

CLIENT CODE: 108169 PROJECT MANAGER: Christina Mott

NUMBER OF SAMPLES IN LOT: 0013

SAMPLE I.D.	SAMPLING DATE	ANALYSIS REQUIRED
D9C030208-012-S	3/04/99	Archive
CRDG4-1-1L		(ARCHIVE) METHOD: NONE

rec'd in good cond.
3-6-99

DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT.

SHIPPING METHOD: AIRBORNE DATE: 3/05/99

SEND REPORT TO: CHRISTINA MOTT

SAMPLE RECEIVED BY: _____ DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS.

THANK YOU.

Quanterra - Denver
INT: _____ 3/05/99 16:38:46
Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,MOT TC

RELINQUISHED BY: _____ DATE/TIME: 3/5 1700

RELINQUISHED BY: _____ DATE/TIME: _____

RECEIVED FOR LAB BY: _____ DATE/TIME: 3-6-99 1220

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Quanterra Incorporated
SAMPLE ANALYSIS REQUISITION

LABORATORY: Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,SOM ME

NEED ANALYTICAL REPORT BY
3/28/99
ROUTINE

ATTN:

LAB PURCHASE ORDER: SR014909

CLIENT CODE: 108169 PROJECT MANAGER: Christina Mott

NUMBER OF SAMPLES IN LOT: 0014

SAMPLE I.D.	SAMPLING DATE	ANALYSIS REQUIRED
D9C030208-012-S CRDG4-1-1L	3/04/99	Archive (ARCHIVE) METHOD: NONE } already sent
D9C030208-015 CRDXE-1-07	3/05/99	Archive (ARCHIVE) METHOD: NONE X Dioxins/Furans

CAFB-I 0945

rec'd in good cond.
as 3-9-99

) DETECTION LIMIT AND ANALYSIS DATE INCLUDED IN REPORT.

SHIPPING METHOD: AIRBORNE DATE: 3/06/99

SEND REPORT TO: CHRISTINA MOTT

SAMPLE RECEIVED BY: _____ DATE: _____

PLEASE SEND A SIGNED COPY OF THIS FORM WITH REPORT AT COMPLETION OF ANALYSIS.

THANK YOU.

Quanterra - Denver
INT: _____ 3/06/99 11:35:55
Quanterra Inc - Sacramento CA Lab
880 Riverside Parkway
West Sacramento CA 95605,SOM ME

RELINQUISHED BY: Nicole Simmons DATE/TIME: 1030 3/6/99.

RELINQUISHED BY: [signature] DATE/TIME: 1600 3/6

RECEIVED FOR LAB BY: [signature] DATE/TIME: 3-9-99 1400

PLEASE RETURN ORIGINAL SAMPLE ANALYSIS REQUISITION

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-Q
Lab ID: 304473-0001-SA
Matrix: AQUEOUS Sampled: 02 MAR 99 Received: 04 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.987 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.59	
PeCDFs (total)	ND	ng/L	1.1	
HxCDFs (total)	ND	ng/L	0.59	
Dioxins				
TCDDs (total)	ND	ng/L	0.31	
2,3,7,8-TCDD	ND	ng/L	0.31	
[illegible]Ds (total)	ND	ng/L	11	
[illegible]Ds (total)	ND	ng/L	0.77	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	83	40-120
13C-2,3,7,8-TCDD	78	40-120
13C-1,2,3,6,7,8-HxCDD	117	40-120
13C-1,2,3,4,6,7,8-HpCDF	91	40-120

ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-B-EB
Lab ID: 304473-0002-SA
Matrix: AQUEOUS Sampled: 02 MAR 99 Received: 04 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.989 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.64	
PeCDFs (total)	ND	ng/L	0.96	
HxCDFs (total)	ND	ng/L	0.62	
Dioxins				
TCDDs (total)	ND	ng/L	0.36	
2,3,7,8-TCDD	ND	ng/L	0.36	
PeCDDs (total)	ND	ng/L	7.6	
HxCDDs (total)	ND	ng/L	1.1	

Internal Standards	% Recovery	Limits	
13C-2,3,7,8-TCDF	84	40-120	
13C-2,3,7,8-TCDD	80	40-120	
13C-1,2,3,6,7,8-HxCDD	122	40-120	m
13C-1,2,3,4,6,7,8-HpCDF	99	40-120	

m = Internal Standard recovery is outside method recovery goal.
ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-S
Lab ID: 304473-0003-SA
Matrix: AQUEOUS Sampled: 03 MAR 99 Received: 05 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.929 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.66	
PeCDFs (total)	ND	ng/L	2.2	
HxCDFs (total)	ND	ng/L	0.70	
Dioxins				
TCDDs (total)	ND	ng/L	0.46	
2,3,7,8-TCDD	ND	ng/L	0.46	
CDDs (total)	ND	ng/L	12	
DDs (total)	ND	ng/L	1.0	

Internal Standards	% Recovery	Limits	
13C-2,3,7,8-TCDF	86	40-120	
13C-2,3,7,8-TCDD	80	40-120	
13C-1,2,3,6,7,8-HxCDD	122	40-120	m
13C-1,2,3,4,6,7,8-HpCDF	101	40-120	

m = Internal Standard recovery is outside method recovery goal.
ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-X
Lab ID: 304473-0004-SA
Matrix: AQUEOUS Sampled: 03 MAR 99 Received: 05 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.929 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.71	
PeCDFs (total)	ND	ng/L	1.2	
HxCDFs (total)	ND	ng/L	0.67	
Dioxins				
TCDDs (total)	ND	ng/L	0.35	
2,3,7,8-TCDD	ND	ng/L	0.35	
PeCDDs (total)	ND	ng/L	7.9	
HxCDDs (total)	ND	ng/L	0.94	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	89	40-120
13C-2,3,7,8-TCDD	82	40-120
13C-1,2,3,6,7,8-HxCDD	114	40-120
13C-1,2,3,4,6,7,8-HpCDF	92	40-120

ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-B
Lab ID: 304473-0005-SA
Matrix: AQUEOUS Sampled: 03 MAR 99 Received: 05 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.976 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.68	
PeCDFs (total)	ND	ng/L	1.8	
HxCDFs (total)	ND	ng/L	0.78	
Dioxins				
TCDDs (total)	ND	ng/L	0.52	
2,3,7,8-TCDD	ND	ng/L	0.52	
PeCDDs (total)	ND	ng/L	10	
HxCDDs (total)	ND	ng/L	1.1	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	84	40-120
13C-2,3,7,8-TCDD	76	40-120
13C-1,2,3,6,7,8-HxCDD	107	40-120
13C-1,2,3,4,6,7,8-HpCDF	87	40-120

ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-D
Lab ID: 304473-0006-SA
Matrix: AQUEOUS Sampled: 04 MAR 99 Received: 06 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.965 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.73	
PeCDFs (total)	ND	ng/L	3.8	
HxCDFs (total)	ND	ng/L	0.73	
Dioxins				
TCDDs (total)	ND	ng/L	0.47	
2,3,7,8-TCDD	ND	ng/L	0.47	
PeCDDs (total)	ND	ng/L	28	
HxCDDs (total)	ND	ng/L	1.1	

Internal Standards	% Recovery	Limits	
13C-2,3,7,8-TCDF	90	40-120	
13C-2,3,7,8-TCDD	80	40-120	
13C-1,2,3,6,7,8-HxCDD	127	40-120	m
13C-1,2,3,4,6,7,8-HpCDF	100	40-120	

m = Internal Standard recovery is outside method recovery goal.
ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-C
Lab ID: 304473-0007-SA
Matrix: AQUEOUS Sampled: 04 MAR 99 Received: 06 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.978 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.61	
PeCDFs (total)	ND	ng/L	1.6	
HxCDFs (total)	ND	ng/L	0.75	
Dioxins				
TCDDs (total)	ND	ng/L	0.44	
2,3,7,8-TCDD	ND	ng/L	0.44	
PeCDDs (total)	ND	ng/L	6.7	
HxCDDs (total)	ND	ng/L	1.1	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	89	40-120
13C-2,3,7,8-TCDD	81	40-120
13C-1,2,3,6,7,8-HxCDD	118	40-120
13C-1,2,3,4,6,7,8-HpCDF	99	40-120

ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-U
Lab ID: 304473-0008-SA
Matrix: AQUEOUS Sampled: 04 MAR 99 Received: 06 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.983 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.69	
PeCDFs (total)	ND	ng/L	1.8	
HxCDFs (total)	ND	ng/L	0.73	
Dioxins				
TCDDs (total)	ND	ng/L	0.62	
2,3,7,8-TCDD	ND	ng/L	0.62	
PeCDDs (total)	ND	ng/L	9.6	
HxCDDs (total)	ND	ng/L	1.2	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	91	40-120
13C-2,3,7,8-TCDD	84	40-120
13C-1,2,3,6,7,8-HxCDD	118	40-120
13C-1,2,3,4,6,7,8-HpCDF	99	40-120

ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-T
Lab ID: 304473-0009-SA
Matrix: AQUEOUS Sampled: 04 MAR 99 Received: 06 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 0.991 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.71	
PeCDFs (total)	ND	ng/L	1.6	
HxCDFs (total)	ND	ng/L	0.64	
Dioxins				
TCDDs (total)	ND	ng/L	0.41	
2,3,7,8-TCDD	ND	ng/L	0.41	
PeCDDs (total)	ND	ng/L	6.9	
HxCDDs (total)	ND	ng/L	1.1	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	89	40-120
13C-2,3,7,8-TCDD	81	40-120
13C-1,2,3,6,7,8-HxCDD	114	40-120
13C-1,2,3,4,6,7,8-HpCDF	97	40-120

ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: CAFB-I
Lab ID: 304473-0010-SA
Matrix: AQUEOUS Sampled: 05 MAR 99 Received: 09 MAR 99
Authorized: 04 MAR 99 Prepared: 22 MAR 99 Analyzed: 01 APR 99
Dilution Factor: 1.0

Sample Amount 0.974 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.93	
PeCDFs (total)	ND	ng/L	4.3	
HxCDFs (total)	ND	ng/L	1.2	
Dioxins				
TCDDs (total)	ND	ng/L	1.8	
2,3,7,8-TCDD	ND	ng/L	1.8	
PeCDDs (total)	ND	ng/L	7.1	
HxCDDs (total)	ND	ng/L	2.2	

Internal Standards	% Recovery	Limits	
13C-2,3,7,8-TCDF	94	40-120	
13C-2,3,7,8-TCDD	82	40-120	
13C-1,2,3,6,7,8-HxCDD	122	40-120	m
13C-1,2,3,4,6,7,8-HpCDF	101	40-120	

m = Internal Standard recovery is outside method recovery goal.
ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

APPENDIX II

Laboratory Quality Assurance / Quality Control Results

LABORATORY DATA VALIDATION CHECKLIST

SECTION 1.0: GENERAL INFORMATION (*also see Appendix A*)

Data reviewer(s) name, affiliation, title, signature, and date of review:

F. Eileen Roybal, USGS-WRD, Hydrologist F. Eileen Roybal 7JUL1999

DATA INVENTORY

1.1 Sample project number: Quanterra Environmental Services D9C030169

1.2 Operable unit and site: Sewage Lagoon

Sample collection date: 2MAR1999

1.3 Sample locations (location IDs): Wells CAFB-E, CAFB-F, CAFB-G, and CAFB-H.

1.4 Sample matrix (ground water, soil, other): ground water

1.5 Type and number of field samples (environmental and quality control) in sample project:

Type	number	Type	number
environmental	4	MS/MSD	1 pair
field duplicate	0	trip blank	1
equipment blank	0	ambient blank	0

Data validation level: **(circle one)** note--see appendix A for description of different levels

LEVEL 1 **LEVEL 2**

OTHER CHECKLIST SECTIONS COMPLETED FOR SAMPLE PROJECT:

√ 2.0 Data Reports and Completeness

√ 3.0 Appendix-IX, Volatile organic compounds (VOC)--Method SW5030/SW8260B

√ 4.0 Appendix-IX, Pesticides and PCB's--Method SW3520/SW8081A AND SW8082

√ 5.0 Appendix-IX, Metals (Total)--Methods SW3005/SW6010B (Aluminum, Barium, Beryllium, Calcium, Cobalt, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Tin, Vanadium, and Zinc), SW3005/SW6020 (Antimony, Arsenic, Cadmium, Chromium, Lead, Selenium, Silver, and Thallium), and SW3020/SW7470A (Mercury).

√ 6.0 Sulfate--Method MCAWW300.0A

__√__ 7.0 Nitrate/Nitrite--Method MCAWW353.2/MCAWW354.1
__√__ 8.0 Sulfide--Method SW9030B/9034
__√__ 9.0 Total Dissolved Solids (TDS)--Method MCAWW160.1

SECTION 2.0: DATA REPORTS AND COMPLETENESS

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LABORATORY DATA REPORTS

2.1 Analytical Results Report--report date: 9APR1999

2.2 Raw Data Report--number of volumes: N/A

2.3 Was completeness of lab reports acceptable? yes __√__ no ____

(overview, analytical results, quality-control report)

Lab reports were complete and acceptable.

DATA COMPLETENESS

2.4 Were all samples requested on chain of custody form analyzed by lab? yes __√__ no ____

All appendix IX parameters:

	VOC SW8260B	Pesticides SW8081A, SW8082	Total Metals: 16-SW6010B 8-SW6020 Mercury-SW7470A	Sulfate MCAWW 300.0A	Nitrate & Nitrite by MCAWW 353.2/354.1
requested:	7	6	6	6	6
analyzed:	7	6	6	6	6

	TDS MCAWW 160.1
requested:	6
analyzed:	4

2.5 List cancelled analyses on cancelled-data worksheet: None.

2.6 Was sample cooler seal intact upon receipt by lab? Yes

2.7 What was the sample cooler temperature upon receipt by lab?

Temperature was 5.8 °C.

2.8 Additional comments:

Equipment blank was not collected because dedicated pumps were installed in each well at various times by contractors.

SECTION 3.0: APPENDIX-IX, VOLATILE ORGANIC COMPOUNDS-- METHOD SW5030/SW8260B

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

3.1 Were project-required analytical holding times met? yes √ no ____

(14-day limit from sample date to analysis date for water samples)

[FG-ORG, p. 6-8]

sample date: 2MAR1999 analysis date limit: 16MAR1999

Samples were analyzed by 12MAR1999, and met required holding times.

SURROGATE SPIKE RECOVERY

3.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes √ no ____

(all samples and blanks: %R varies)

[FG-ORG, p. 26-29]

All surrogate spike recovery results met QC acceptance criteria.

PROJECT REPORTING LIMIT (PRL)

3.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in Sampling and Analysis Plan (SAP). Reporting limits were not raised for any of the sample.

FIELD DUPLICATES

3.4 Did field duplicate results meet frequency and QC acceptance criteria?yes ____ no ____

(1 set per sampling period; RPD < 30 %)

Field duplicate was not collected for this sampling round.

EQUIPMENT BLANKS

3.5 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for non-dedicated pump; analytes <3 x RL)

[FG-ORG, p. 20-25]

N/A - See Comment 2.8.

AMBIENT and TRIP BLANKS (water samples only)

3.6 Did blank results meet frequency and QC acceptance criteria? yes √ no ____

(ambient and trip blank frequency varies per sampling period)

[FG-ORG, p. 20-25]

Trip blank results were ND or j value (below reporting limit) and met QC acceptance criteria. Ambient condition blank was not collected for this sampling period.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

3.7 List number and level of TICs for each sample analyzed on TIC data sheet.

[FG-ORG, p. 41-44]

No TIC's were detected in any of the samples.

DUPLICATE CONTROL SAMPLES (DCSs)

3.8 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 32-33]

All DCS results met QC acceptance criteria.

SINGLE CONTROL SAMPLES (SCSs)

3.9 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per sample lot; %R limits established by laboratory)

[FG-ORG, p. 32-33]

All SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

3.10 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; analyte concentration ≤ RL except for common lab contaminants ≤ 5 times RL)

[FG-ORG, p. 20-25]

All method blank results were ND or below reporting limits and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

3.11 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter: %R and RPD varies)

[FG-ORG, p. 30-31]

All MS/MSD results met QC acceptance criteria.

LEVEL I and II -- Data Validation

ANALYTE RESULTS WITH DATA QUALIFIERS

3.12 Summarize analyte results with data qualifiers. List pertinent information on qualified-data worksheet: For samples H, G, F, and trip blank, acetone and / or methylene chloride had qualifier J and B.

J = Result is estimated and is less than reporting limit.

B = Method blank contamination.

3.13 Additional comments: None.

SECTION 4.0: APPENDIX-IX, PESTICIDES AND PCB'S-- METHOD SW3520/SW8081A AND SW8082

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

4.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to extraction date and 40-day limit from extraction date to analysis date)

[FG-ORG, p. 49-50]

sample date: 2MAR1999 extraction date limit: 9MAR1999

extraction date: 8MAR1999 analysis date limit: 17APR1999

Samples were extracted by 8MAR1999 and were analyzed by 27MAR1999. All samples met required extraction and analysis holding times.

SURROGATE SPIKE RECOVERY

4.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes √ no ____

(frequency: all samples and blanks: %R varies)

[FG-ORG, p. 66-68]

All surrogate spike recovery results met QC acceptance criteria. Surrogate spike recovery for CAFB-F by method SW8082 was not reported.

PROJECT REPORTING LIMIT

4.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

4.4 Did field duplicate results meet frequency and QC acceptance criteria?yes ____ no ____

(1 set per sampling period; RPD ≤ 30%)

Field duplicate was not collected for this sampling round.

EQUIPMENT BLANKS

4.5 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 62-65]

N/A - See Comment 2.8.

DUPLICATE CONTROL SAMPLES (DCSs)

4.6 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 71-72]

All DCS results were within control limits except for gamma-BH (lindane) by method SW8081A. Percent recoveries for gamma-BHC were below control limits.

SINGLE CONTROL SAMPLES (SCSs)

4.7 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per quarter; %R limits established by laboratory)

[FG-ORG, p. 71-72]

SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

4.8 Did method blank results meet frequency and QC acceptance criteria?yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-ORG, p. 62-65]

All method blank results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

4.9 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD limits varies)

[FG-ORG, p. 69-70]

MS/MSD results met QC acceptance criteria except for gamma-BHC (lindane) by method SW8081A. Percent recoveries for gamma-BHC were below control limits.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

4.10 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

[FG-ORG, p. 55-58]

Not reviewed

SAMPLE RESULT VERIFICATION

4.11 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes ____ no ____

Not reviewed

4.12 Additional comments: None.

SECTION 5.0: APPENDIX-IX, METALS (TOTAL)-- METHODS SW3005/SW6010B (ALUMINUM, BARIUM, BERYLLIUM, CALCIUM, COBALT, COPPER, IRON, MAGNESIUM, MANGANESE, MOLYBDENUM, NICKEL, POTASSIUM, SODIUM, TIN, VANADIUM, AND ZINC), SW3005/SW6020 (ANTIMONY, ARSENIC, CADMIUM, CHROMIUM, LEAD, SELENIUM, SILVER, AND THALLIUM), AND SW3020/SW7470A (MERCURY).

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

5.1 Were project-required analytical holding times met? yes √ no ____

(180-day limit from sample date to analysis, except mercury-28 days)
[FG-INORG, p. 6-7]

Mercury sample date: 2MAR1999 analysis date limit: 30MAR1999
All rest sample date: 2MAR1999 analysis date limit: 29AUG1999

Mercury was analyzed by 8MAR1999 and rest of the samples were analyzed by 18MAR1999 and met required holding times.

PROJECT REPORTING LIMIT (PRL)

5.2 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Quanterra reporting limits were not raised for any of the samples.

FIELD DUPLICATES

5.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for each sampling period; RPD < 30 %)

[FG-INORG, p. 35]

Field duplicate was not collected for this sampling round.

EQUIPMENT BLANKS

5.4 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for non-dedicated pump; analytes < 3 x RL)

[FG-INORG, p. 16-18]

N/A - See Comment 2.8.

DUPLICATE CONTROL SAMPLES (DCSs)

5.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; % R and RPD within 3 SD of historical results of lab performance)

[FG-INORG, p. 25-26]

All DCS results met QC acceptance criteria except for chromium. Percent recovery for chromium was slightly above control limit.

LABORATORY METHOD BLANKS

5.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; analyte concentration ≤ RL except for common lab contaminants ≤ 2 times RL)

[FG-INORG, p. 16-18]

All method blank results were ND or below reporting limit and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

5.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes ____ no √

(1 set per quarter; %R and RPD varies)

[FG-INORG, p. 27-29]

The percent recoveries for antimony, arsenic, silver, and thallium were outside the control limits. A matrix effect is indicated.

LEVEL II -- Data Validation

CALIBRATION

5.8 Did initial (ICV) and continuing (CCV) calibrations meet QC acceptance criteria?
[FG-INORG, p. 8-15] yes _____ no _____

Not reviewed.

INTERELEMENT CHECK SAMPLES (method SW6010 only)

5.9 Did interelement check results meet frequency and QC criteria? yes _____ no _____

(within 20% of known value)
[FG-INORG, p. 19-21]

Not reviewed.

ANALYTICAL SPIKE RECOVERY (all methods except SW6010 and mercury)

5.10 Did analytical spike results meet frequency and QC acceptance criteria? yes _____ no _____

(every sample; %R within 80-120% except when sample results are ND, the %R within 40-120%)
[FG-INORG, p. 27-29]

Not reviewed.

SAMPLE RESULT VERIFICATION

5.11 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes _____ no _____

Not reviewed.

LEVEL I AND II -- Data Validation

ANALYTE RESULTS WITH DATA QUALIFIERS

5.12 Summarize analyte results with data qualifiers. List pertinent information on qualified-data worksheet: _____

5.13 Additional comments: None.

SECTION 6.0: SULFATE--METHOD MCAWW300.0A

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

6.1 Were project-required analytical holding times met? yes √ no ____

(28-day limit from sample date to analysis date for water samples)
[FG-INORG, p. 6-7]

sample date: 2MAR1999 analysis date limit: 30MAR1999

All samples were analyzed by 4MAR1999 and met required holding times.

PROJECT REPORTING LIMIT

6.2 Did sample results meet project reporting limits? yes ____ no √

PRL's were not provided in SAP. Reporting limits were raised for all samples due to high analyte levels.

FIELD DUPLICATES

6.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set per each sampling period; RPD < 30%)
[FG-INORG, p. 35]

Field duplicate was not collected for this sampling round.

EQUIPMENT BLANKS

6.4 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for non-dedicated pump; target compound concentration ≤ 3 times RL)
[FG-INORG, p. 16-18]

N/A - See Comment 2.8.

DUPLICATE CONTROL SAMPLES (DCSs)

6.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R and RPD within 3 SD of historical results of lab performance)

[FG-INORG, p. 25-26]

All DCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

6.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-INORG, p. 16-18]

Laboratory method blank result was ND and met QC acceptance criteria

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

6.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD varies)

[FG-INORG, p. 27-29]

The MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

6.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

(%R within 90-110%)

[FG-INORG, p. 8-15]

Not reviewed

SAMPLE RESULT VERIFICATION

6.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes ____ no ____

Not reviewed

6.10 Additional comments: All samples had qualifier Q (reporting limit is elevated due to high analyte levels).

SECTION 7.0: NITRATE AND NITRITE--METHOD MCAWW353.2/354.1

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

7.1 Were project-required analytical holding times met? yes √ no ____

(48-hour limit from sample date to analysis date for Nitrite -MCAWW354.1)
(28-day limit from sample date to analysis date for Nitrate -MCAWW353.2)

[FG-INORG, p. 6-7]

Nitrite sample date: 2MAR1999 analysis date limit: 4MAR1999
Nitrate sample date: 2MAR1999 analysis date limit: 30MAR1999

Nitrite samples were analyzed by 3MAR1999 and nitrate samples were analyzed by 4MAR1999. All samples met required holding times.

PROJECT REPORTING LIMIT

7.2 Did sample results meet project reporting limits? yes √ no ____

The reporting limits were not raised for any of the samples and met project reporting limits.

FIELD DUPLICATES

7.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set per each sampling period; RPD < 30%)

[FG-INORG, p. 35]

Field duplicate sample was not collected for this sampling round.

EQUIPMENT BLANKS

7.4 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for non-dedicated pump; target compound concentration < 3 times RL)

[FG-INORG, p. 16-18]

N/A - See Comment 2.8.

DUPLICATE CONTROL SAMPLES (DCSs)

7.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R and RPD within 3 SD of historical results of lab performance)

[FG-INORG, p. 25-26]

All DCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

7.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-INORG, p. 16-18]

Laboratory method blank results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

7.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes ____ no √

(1 set per quarter; %R and RPD varies)

[FG-INORG, p. 27-29]

MS/MSD results for nitrate did not meet QC acceptance criteria.
Percent recovery for nitrate was slightly above control limits.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

7.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

(%R within 90-110%)

[FG-INORG, p. 8-15]

Not reviewed

SAMPLE RESULT VERIFICATION

7.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes ____ no ____

Not reviewed

7.10 Additional comments: None.

SECTION 8.0: SULFIDE--METHOD SW9030B/9034

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

8.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to analysis date for water samples)
[FG-INORG, p. 6-7]

sample date: 2MAR1999 analysis date limit: 9MAR1999

All samples were analyzed by 9MAR1999 and met required holding times.

PROJECT REPORTING LIMIT

8.2 Did sample results meet project reporting limits? yes √ no ____
(Quanterra RL: 0.05 mg/L)

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

8.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no ____
(1 set per each sampling period; RPD ≤ 30%)
[FG-INORG, p. 35]

Field duplicate sample was not collected for this sampling round.

EQUIPMENT BLANKS

8.4 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____
(1 set for non-dedicated pump; target compound concentration ≤ 3 times RL)
[FG-INORG, p. 16-18]

N/A - See Comment 2.8.

DUPLICATE CONTROL SAMPLES (DCSs)

8.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R and RPD within 3 SD of historical results of lab performance)

[FG-INORG, p. 25-26]

All DCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

8.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-INORG, p. 16-18]

Laboratory method blank result was ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

8.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes ____ no √

(1 set per quarter; %R and RPD varies)

[FG-INORG, p. 27-29]

MS/MSD results did not meet QC acceptance criteria. The percent recovery was slightly below control limit.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

8.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

(%R within 90-110%)

[FG-INORG, p. 8-15]

Not reviewed

SAMPLE RESULT VERIFICATION

8.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes ____ no ____

Not reviewed

8.10 Additional comments: None.

SECTION 9.0: TOTAL DISSOLVED SOLIDS (TDS)-- METHOD MCAWW160.1

Name of reviewer(s) and review date: F. Eileen Roybal 7JUL1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

9.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to analysis date for water samples)

[FG-INORG, p. 6-7]

sample date: 2MAR1999 analysis date limit: 9MAR1999

Samples were analyzed by 9MAR1999 and met required holding times.

PROJECT REPORTING LIMIT (PRL)

9.2 Did sample results meet project reporting limits? yes √ no ____

(Quanterra RL: 10 mg/L)

PRL was not provided in SAP. Reporting limit was not raised on any of the samples.

FIELD DUPLICATES

9.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set per each sampling period; RPD <30 %)

[FG-INORG, p. 35]

Field duplicate sample was not collected for this sampling round.

EQUIPMENT BLANKS

9.4 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set for non-dedicated pump; target compound concentration ≤ 3XRL)

[FG-INORG, p. 16-18]

N/A - See Comment 2.8.

DUPLICATE CONTROL SAMPLES (DCSs)

9.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R 86-106% and RPD ≤ 10 %)

[FG-INORG, p. 25-26]

All DCS results were within acceptance criteria.

LABORATORY METHOD BLANK

9.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 X RL)

[FG-INORG, p. 16-18]

Laboratory method blank result was ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

9.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes ____ no ____

(1 set per quarter; %R 86-106% and RPD ≤ 10%)

[FG-INORG, p. 27-29]

MS/MSD results were not reported.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

9.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

(%R within 90-110%)

[FG-INORG, p. 8-15]

Not reviewed.

SAMPLE RESULT VERIFICATION

9.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes ____ no ____

Not reviewed.

9.10 Additional comments: None.

Appendix A -- Laboratory Data Validation Checklist

Instruction Notes for the Data Validation Checklist

This data validation checklist will be used when validating the chemical analytical results. Data validation is a systematic and independent verification of data quality and consists of checking, verifying, evaluating, and qualifying the chemical analytical results.

Two different levels of data validation are used with level I being not as detailed or as rigorous as level II. Level I data validation includes: (1) checking holding times limits, (2) evaluating the results of field and laboratory quality-control (QC) samples such as field replicates, matrix spikes, surrogate samples, and duplicate control samples, and (3) checking that contamination during sample processing has not occurred in QC blanks such as equipment, method, ambient, and trip blanks. Most of the information and data used to conduct a level I data validation is contained in the summary-data reports prepared by the reporting laboratory. Level II data validation includes all the level I guidelines plus using the raw-data reports prepared by the reporting laboratory to: (1) check that the laboratory instruments have been properly tuned and calibrated, and (2) verify that selected sample results do not have any omissions, problems, discrepancies, transcription errors, and reduction (dilution, conversion) errors.

Field samples (environmental and QC) are processed and analyzed by the reporting laboratory in specific groups of samples called sample projects (also called sample cases). A sample project usually consists of 20 or fewer samples that are collected from one or more sampling locations (monitoring well) in a given sampling period. Numerous laboratory QC samples also are analyzed with the field samples for each sample project.

This data validation checklist is designed to be used when validating the analytical results for a given sample project and it has a multi-level organization. The first part of the checklist contains general information (section 1.0) about the scope (who, when, how, and what) of the data validation and data reports and completeness (section 2.0) for each sample project. Sections 1.0 and 2.0 will be completed and included with all data validation checklists. The data validation checklist also contains numerous supplemental sections which are listed at the bottom of the first page of this document. These supplemental checklist sections are used for specific analytical methods and will be marked with a checkmark (√) when they are completed for a given sample project. Specific project-required frequency and QC acceptance criteria, and pertinent reference page numbers are listed with most of the checklist items. The major data-validation references are the USEPA guidance documents (USEPA 1994).

Checklist Abbreviations, Acronyms, and Notes

Abbreviations:

Al	aluminum
Ag	silver
As	arsenic
CAP	Chromic Acid Pit
CCV	continuing calibration verification
Cr	chromium
DCS	duplicate control sample
Ba	barium
Be	beryllium
Ca	calcium
Cd	cadmium
Cl	chloride
Co	cobalt
Conc.	concentration
Cu	copper
Diss.	dissolved
DRO	diesel range organics with GC/FID analysis C10-C28
DU	duplicate environmental sample
EB	equipment blank
Fe	iron
FG-INORG	Functional guidelines (EPA) for evaluating inorganic analyses
FG-ORG	Functional guidelines (EPA) for evaluating organic analyses
Fl	fluoride
GFAA	graphite furnace atomic absorption
Hg	mercury
ICP	inductively coupled plasma
ID	identification
IS	internal standards
J	estimated value qualifier
K	potassium
MCAWW	"Methods for Chemical Analysis of Water and Wastes"', EPA-600/4-79-020, March 1983 subsequent revisions.
Mg	magnesium
mg/L	milligrams per liter
Mn	manganese
Mo	molybdenum
MS/MSD	matrix spike/matrix spike duplicate

Checklist Abbreviations, Acronyms, and Notes -- *continued*

Abbreviations:

MW	monitoring well
Na	sodium
Ni	nickel
NO_2	nitrate
NO_3	nitrite
PAC	Chromic Acid Pit duplicate sample identification
Pb	lead
PO_4	orthophosphate
PRL	project reporting limit
QC	quality control
RCLs	Recovery Control Limits
RL	reporting limits
RMAL	Rocky Mountain Analytical Laboratory
RPD	relative percent difference
SA	environmental sample
SAP	Sampling and Analysis Plan
Sb	antimony
SCS	single control sample
Se	selenium
Sn	tin
SO_4	sulfate
SVOC	semivolatile organic compounds
TB	trip blank
TDS	total dissolved solids
TIC	tentatively identified compound
Tl	thallium
TOC	total organic carbon
Tot.	total
TOX	total organic halogen
TPH	total petroleum hydrocarbons
TSS	total suspended solids
USEPA	United States Environmental Protection Agency
USGS/WRD	United States Geological Survey, Water Resources Division
V	vanadium
VOC	volatile organic compounds
Zn	zinc

Checklist Abbreviations, Acronyms, and Notes -- *continued*

Abbreviations:

µg/L	microgram per liter
<	less than
>	greater than
%	percent
%R	percent recovery

USEPA, 1994, USEPA Contract laboratory program national functional guidelines for organic data review, February, 1994, Publication 9240.1-05, Document number PB94-963501, 124 p.

NOTE: this reference is abbreviated FG-ORG in this checklist.

USEPA, 1994, USEPA contract laboratory program national functional guidelines for inorganic data review, February, 1994, Publication 9240.1-05-01, Document number PB94-963502, 42 p.

NOTE: this reference is abbreviated FG-INORG in this checklist.

USGS, 1992, Laboratory data validation checklist: Wyoming District, U.S. Geological Survey checklist prepared for the U.S. Air Force, multiple pages.

LABORATORY DATA REVIEW WORKSHEET

1.0 GENERAL INFORMATION

Data reviewer: R Daddow
Date of review: 4/21/99
Sample project number: D9C030169
Project name: NM Cannon AFB 4635-36004
Sample collection date: March 2, 1999
Sample matrix and number: 4 5-water

Type and number of samples in project:

Type	Number
Environmental	4
Trip blank	1
Equipment blank	
Ambient blank	
MS/MSD	
Other:	

INVOICE: OK
See attached copy

COPY FOR YOUR INFORMATION

2.0 DATA REPORT

Date of Analytical Results Report: 4/9/99
Number of volumes in Raw Data Report: 2
Raw Data Report reviewed? Yes ____ No X

Bound analytical report sent to Nico Royval by Quanterra

Were all analyses requested on the COC form performed by the laboratory?
Yes X No ____

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

Were the samples properly preserved upon receipt by the laboratory?
Yes X No ____

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

3.0 ANALYTICAL METHODS

Analytical methods used in this project Project No. 9C030169

X VOC by GC/MS (SW 8240, SW 8260, E524, E624) 14 days
___ Halogenated VOC by GC (SW ~~8010~~)
___ Aromatic VOC by GC (SW 8020)
___ SVOC by GC/MS (SW 8270)
___ PAH by HPLC (SW 8310)
X Organochlorine pesticides and PCB (SW ~~8080~~) 8081 ~~&~~ and 8082 ~~7/40~~ ~~40~~ 7/40 day
___ Organophosphorous pesticides (SW 8140)
___ Chlorinated herbicides (SW 8150)
___ Dioxins and Furans (SW 8280)
___ Explosives (SW 8330)
___ TOC (E415.1 or SW 9060)
___ TPH (E418.1)
___ Oil and Grease (E413.2)
___ TOX (SW 9020)

___ ICP screen for metals (SW 6010)
___ ICP/MS screen for metals (SW 6020)
___ Trace ICP screen for metals (SW 6010 modified)
___ Antimony by GFAA (SW 7041)
___ Arsenic by GFAA (SW 7060)
___ Chromium (SW 7191 or 7196)
___ Lead by GFAA (SW 7421)
___ Mercury by CVAA (SW 7470 or 7471)
___ Selenium by GFAA (SW 7740)
___ Thallium by GFAA (SW 7841)
X Inorganic anions (E300.0) Sulfate 28 days
___ Alkalinity (E310.1)
___ Cyanide, total and amenable (SW 9010/9012)
___ Nitrogen, ammonia (E350.1)
___ Nitrogen, TKN (E351.2)
___ Nitrogen, nitrate (E353.2)
X Nitrogen, nitrate plus nitrite (E353.2) 28 days
X Nitrogen, nitrite (E354.1) 48 hrs
___ Phosphorous, total or ortho (E365.3)
___ Sulfate (E375.4)
X Sulfide (E376.2) 9030 – 7 days
X TDS (E160.1) 7 days
___ pH (SW 9040 or 9045)
___ Percent moisture (D2216)

___ Gross alpha and gross beta radioactivity (SW 9310 or RICHRC5014)
___ Alpha-emitting radium isotopes (SW 9315)
___ Radium-228 (E904.0)
___ Uranium (E908.1 or RICHRC5058)

___ Other analyses:

Project No. DACO30169

Were analytical holding times met? Yes X No ____

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

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

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

Did actual reporting limits meet project detection limits?

Organic analyses: Yes X No ____

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

Method 300 (SO4): Samples -001, -002, -003, and -004

Inorganic analyses: Yes ____ No X

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

Did ~~BCS~~ LCS meet QC acceptance criteria? Yes ____ No X

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

% recovery outside of control limits

8081A gamma-BHC (p. 52) (p. 2)

6020 Cr (p. 66 and 2)

Project No. DQC030169

Did SCS meet QC acceptance criteria? Yes _____ No _____

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

Not applicable (N/A)

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

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

8260B Acetone 1.9J ug/L Methylene Chloride 0.27J ug/L

6020 Sb 0.20B ug/L Se 0.20B ug/L (p. 70)

Did the MS/MSD meet QC acceptance criteria? Yes _____ No X

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

% recoveries outside of control limits

8081 gamma-BHC MS/MSD (p. 55)

6020 Sb, Ag, Tl MS/MSD (p. 76)

As MSD only (p. 76)

353.2 NO_3 MS 9060 Total Sulfide MSD (p. 82)

Were the MS/MSD associated with samples in this project? Yes X No XX

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

Additional comments:

QC DATA ASSOCIATION SUMMARY

D9C030169

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	MCAWW 160.1		9069177	9069040
	WATER	MCAWW 353.2		9067365	9067178
	WATER	MCAWW 354.1		9063189	9063042
	WATER	MCAWW 300.0A		9063334	9065051
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 7470A		9063198	9063050
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9074346	9074142
	WATER	SW846 6010B		9063180	9063034
	WATER	SW846 9030B/9034		9068307	9068138
002	WATER	MCAWW 160.1		9069177	9069040
	WATER	MCAWW 353.2		9067365	9067178
	WATER	MCAWW 354.1		9063189	9063042
	WATER	MCAWW 300.0A		9063334	9065051
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 7470A		9063198	9063050
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9074346	9074142
	WATER	SW846 6010B		9063180	9063034
	WATER	SW846 9030B/9034		9068307	9068138
003	WATER	MCAWW 160.1		9069177	9069040
	WATER	MCAWW 353.2		9067365	9067178
	WATER	MCAWW 354.1		9063189	9063042
	WATER	MCAWW 300.0A		9063334	9065051
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 7470A		9063198	9063050
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9074346	9074142
	WATER	SW846 6010B		9063180	9063034
	WATER	SW846 9030B/9034		9068307	9068138
004	WATER	MCAWW 160.1		9069177	9069040
	WATER	MCAWW 353.2		9067365	9067178
	WATER	MCAWW 354.1		9063189	9063042
	WATER	MCAWW 300.0A		9063334	9065051
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 7470A		9063198	9063050
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065

(Continued on next page)

QC DATA ASSOCIATION SUMMARY

D9C030169

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
004	WATER	SW846 8260B		9074346	9074142
	WATER	SW846 6010B		9063180	9063034
	WATER	SW846 9030B/9034		9068307	9068138
005	WATER	SW846 8260B		9074346	9074142

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D9C030169 **Work Order #...:** CRM2F102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C150000-346 CRM2F103-LCSD
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 10:03
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**115**	**(75 - 124)**			**SW846 8260B**
	116	**(75 - 124)**	**1.1**	**(0-20)**	**SW846 8260B**
Benzene	**103**	**(82 - 114)**			**SW846 8260B**
	103	**(82 - 114)**	**0.64**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**104**	**(86 - 120)**			**SW846 8260B**
	102	**(86 - 120)**	**1.7**	**(0-20)**	**SW846 8260B**
Toluene	**101**	**(85 - 115)**			**SW846 8260B**
	98	**(85 - 115)**	**2.2**	**(0-20)**	**SW846 8260B**
Trichloroethene	**107**	**(85 - 115)**			**SW846 8260B**
	108	**(85 - 115)**	**0.99**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	103	(86 - 118)
	102	(86 - 118)
.,2-Dichloroethane-d4	106	(76 - 115)
	105	(76 - 115)
4-Bromofluorobenzene	102	(85 - 115)
	102	(85 - 115)
Toluene-d8	100	(85 - 115)
	99	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: D9C030169 **Work Order #...:** CRM2F102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C150000-346 CRM2F103-LCSD
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 10:03
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	**10.0**	**11.5**	**ug/L**	**115**		**SW846 8260B**
	10.0	**11.6**	**ug/L**	**116**	**1.1**	**SW846 8260B**
Benzene	**10.0**	**10.3**	**ug/L**	**103**		**SW846 8260B**
	10.0	**10.3**	**ug/L**	**103**	**0.64**	**SW846 8260B**
Chlorobenzene	**10.0**	**10.4**	**ug/L**	**104**		**SW846 8260B**
	10.0	**10.2**	**ug/L**	**102**	**1.7**	**SW846 8260B**
Toluene	**10.0**	**10.1**	**ug/L**	**101**		**SW846 8260B**
	10.0	**9.85**	**ug/L**	**98**	**2.2**	**SW846 8260B**
Trichloroethene	**10.0**	**10.7**	**ug/L**	**107**		**SW846 8260B**
	10.0	**10.8**	**ug/L**	**108**	**0.99**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	103	(86 - 118)
	102	(86 - 118)
,2-Dichloroethane-d4	106	(76 - 115)
	105	(76 - 115)
4-Bromofluorobenzene	102	(85 - 115)
	102	(85 - 115)
Toluene-d8	100	(85 - 115)
	99	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D9C030169 **Work Order #...:** CRM2F101 **Matrix.....:** WATER
MB Lot-Sample #: D9C150000-346

Prep Date.....: 03/12/99 **Analysis Time..:** 10:50

Analysis Date..: 03/12/99 **Prep Batch #...:** 9074346
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	**1.9 J**	**10**	**ug/L**	**SW846 8260B**
Acetonitrile	ND	20	ug/L	SW846 8260B
Acrylonitrile	ND	20	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Chloroprene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
loromethane	ND	2.0	ug/L	SW846 8260B
lyl chloride	ND	2.0	ug/L	SW846 8260B
Dibromomethane	ND	1.0	ug/L	SW846 8260B
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L	SW846 8260B
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
1,4-Dioxane	ND	200	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Iodomethane	ND	1.0	ug/L	SW846 8260B
Isobutyl alcohol	ND	50	ug/L	SW846 8260B
Methacrylonitrile	ND	10	ug/L	SW846 8260B
Methylene chloride	**0.27 J**	**1.0**	**ug/L**	**SW846 8260B**
Methyl methacrylate	ND	1.0	ug/L	SW846 8260B
Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
opionitrile	ND	4.0	ug/L	SW846 8260B

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D9C030169 **Work Order #...:** CRM2F101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Styrene	ND	1.0	ug/L	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260B
Vinyl acetate	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L	SW846 8260B
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260B
2-Butanone (MEK)	ND	5.0	ug/L	SW846 8260B
Acrolein	ND	20	ug/L	SW846 8260B
Ethyl methacrylate	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	100	(86 - 118)
1,2-Dichloroethane-d4	103	(76 - 115)
4-Bromofluorobenzene	102	(85 - 115)
Toluene-d8	100	(85 - 115)

NOTE(S):

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

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Method Blank Report

GC/MS Volatiles

Lot-Sample #: D9C150000-346 B **Work Order #:** CRM2F101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
none		-------- M		ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D9C030169 **Work Order #...:** CR9Q4129-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030169-001 CR9Q412A-MSD
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 12:24
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**100**	**(82 - 114)**			**SW846 8260B**
	101	**(82 - 114)**	**0.78**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**98**	**(86 - 120)**			**SW846 8260B**
	99	**(86 - 120)**	**1.3**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**108**	**(75 - 124)**			**SW846 8260B**
	110	**(75 - 124)**	**1.4**	**(0-20)**	**SW846 8260B**
Toluene	**95**	**(85 - 115)**			**SW846 8260B**
	97	**(85 - 115)**	**1.6**	**(0-20)**	**SW846 8260B**
Trichloroethene	**105**	**(85 - 115)**			**SW846 8260B**
	105	**(85 - 115)**	**0.18**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(86 - 118)
	102	(86 - 118)
1,2-Dichloroethane-d4	105	(76 - 115)
	103	(76 - 115)
4-Bromofluorobenzene	98	(85 - 115)
	97	(85 - 115)
Toluene-d8	99	(85 - 115)
	98	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: D9C030169 **Work Order #...:** CR9Q4129-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030169-001 CR9Q412A-MSD
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9074346 **Analysis Time..:** 12:24
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	ND	10.0	10.0	ug/L	100		SW846 8260B
	ND	10.0	10.1	ug/L	101	0.78	SW846 8260B
Chlorobenzene	ND	10.0	9.76	ug/L	98		SW846 8260B
	ND	10.0	9.88	ug/L	99	1.3	SW846 8260B
1,1-Dichloroethene	ND	10.0	10.8	ug/L	108		SW846 8260B
	ND	10.0	11.0	ug/L	110	1.4	SW846 8260B
Toluene	ND	10.0	9.54	ug/L	95		SW846 8260B
	ND	10.0	9.69	ug/L	97	1.6	SW846 8260B
Trichloroethene	ND	10.0	10.5	ug/L	105		SW846 8260B
	ND	10.0	10.5	ug/L	105	0.18	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
bromofluoromethane	102	(86 - 118)
	102	(86 - 118)
1,2-Dichloroethane-d4	105	(76 - 115)
	103	(76 - 115)
4-Bromofluorobenzene	98	(85 - 115)
	97	(85 - 115)
Toluene-d8	99	(85 - 115)
	98	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030169 Work Order #...: CRED8102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C080000-174 CRED8103-LCSD
Prep Date.....: 03/08/99 Analysis Date..: 03/27/99
Prep Batch #...: 9067174 Analysis Time..: 07:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4,4'-DDT	**70**	**(68 - 125)**			**SW846 8081A**
	80	**(68 - 125)**	**13**	**(0-15)**	**SW846 8081A**
Aldrin	**93**	**(52 - 114)**			**SW846 8081A**
	98	**(52 - 114)**	**5.6**	**(0-21)**	**SW846 8081A**
Dieldrin	**91**	**(62 - 111)**			**SW846 8081A**
	100	**(62 - 111)**	**9.8**	**(0-18)**	**SW846 8081A**
Endrin	**92**	**(69 - 125)**			**SW846 8081A**
	101	**(69 - 125)**	**9.7**	**(0-19)**	**SW846 8081A**
gamma-BHC (Lindane)	**38 a**	**(65 - 122)**			**SW846 8081A**
	40 a	**(65 - 122)**	**6.6**	**(0-19)**	**SW846 8081A**
Heptachlor	**94**	**(60 - 124)**			**SW846 8081A**
	102	**(60 - 124)**	**8.3**	**(0-19)**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	90	(51 - 132)
	103	(51 - 132)
Tetrachloro-m-xylene	82	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030169 Work Order #...: CRED8102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C080000-174 CRED8103-LCSD
Prep Date.....: 03/08/99 Analysis Date..: 03/27/99
Prep Batch #...: 9067174 Analysis Time..: 07:57
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
4,4'-DDT	**0.500**	**0.351**	**ug/L**	**70**		**SW846 8081A**
	0.500	**0.400**	**ug/L**	**80**	**13**	**SW846 8081A**
Aldrin	**0.200**	**0.186**	**ug/L**	**93**		**SW846 8081A**
	0.200	**0.197**	**ug/L**	**98**	**5.6**	**SW846 8081A**
Dieldrin	**0.500**	**0.453**	**ug/L**	**91**		**SW846 8081A**
	0.500	**0.500**	**ug/L**	**100**	**9.8**	**SW846 8081A**
Endrin	**0.500**	**0.459**	**ug/L**	**92**		**SW846 8081A**
	0.500	**0.506**	**ug/L**	**101**	**9.7**	**SW846 8081A**
gamma-BHC (Lindane)	**0.200**	**0.0758**	**aug/L**	**38**		**SW846 8081A**
	0.200	**0.0810**	**aug/L**	**40**	**6.6**	**SW846 8081A**
Heptachlor	**0.200**	**0.188**	**ug/L**	**94**		**SW846 8081A**
	0.200	**0.205**	**ug/L**	**102**	**8.3**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
ecachlorobiphenyl	90	(51 - 132)
	103	(51 - 132)
Tetrachloro-m-xylene	82	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CRED8101 **Matrix.....:** WATER
MB Lot-Sample #: D9C080000-174

Prep Date.....: 03/08/99 **Analysis Time..:** 07:22

Analysis Date..: 03/27/99 **Prep Batch #...:** 9067174
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diallate	ND	1.0	ug/L	SW846 8081A
Isodrin	ND	0.10	ug/L	SW846 8081A
Kepone	ND	1.0	ug/L	SW846 8081A
Aldrin	ND	0.050	ug/L	SW846 8081A
alpha-BHC	ND	0.050	ug/L	SW846 8081A
beta-BHC	ND	0.050	ug/L	SW846 8081A
delta-BHC	ND	0.050	ug/L	SW846 8081A
gamma-BHC (Lindane)	ND	0.050	ug/L	SW846 8081A
alpha-Chlordane	ND	0.050	ug/L	SW846 8081A
gamma-Chlordane	ND	0.050	ug/L	SW846 8081A
4,4'-DDD	ND	0.050	ug/L	SW846 8081A
4,4'-DDE	ND	0.050	ug/L	SW846 8081A
4,4'-DDT	ND	0.050	ug/L	SW846 8081A
Dieldrin	ND	0.050	ug/L	SW846 8081A
ndosulfan I	ND	0.050	ug/L	SW846 8081A
dosulfan II	ND	0.050	ug/L	SW846 8081A
ndosulfan sulfate	ND	0.050	ug/L	SW846 8081A
Endrin	ND	0.050	ug/L	SW846 8081A
Endrin aldehyde	ND	0.050	ug/L	SW846 8081A
Heptachlor	ND	0.050	ug/L	SW846 8081A
Heptachlor epoxide	ND	0.050	ug/L	SW846 8081A
Methoxychlor	ND	0.10	ug/L	SW846 8081A
Toxaphene	ND	2.0	ug/L	SW846 8081A
Endrin ketone	ND	0.050	ug/L	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	98	(51 - 132)
Tetrachloro-m-xylene	85	(56 - 107)

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CRDG411C-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411D-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 16:29
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4,4'-DDT	**72**	**(68 - 125)**			**SW846 8081A**
	77	**(68 - 125)**	**6.2**	**(0-15)**	**SW846 8081A**
Aldrin	**97**	**(52 - 114)**			**SW846 8081A**
	100	**(52 - 114)**	**2.3**	**(0-21)**	**SW846 8081A**
Dieldrin	**94**	**(62 - 111)**			**SW846 8081A**
	97	**(62 - 111)**	**3.4**	**(0-18)**	**SW846 8081A**
Endrin	**95**	**(69 - 125)**			**SW846 8081A**
	99	**(69 - 125)**	**3.6**	**(0-19)**	**SW846 8081A**
gamma-BHC (Lindane)	**39 a**	**(65 - 122)**			**SW846 8081A**
	39 a	**(65 - 122)**	**1.9**	**(0-19)**	**SW846 8081A**
Heptachlor	**98**	**(60 - 124)**			**SW846 8081A**
	102	**(60 - 124)**	**3.8**	**(0-19)**	**SW846 8081A**

RROGATE	PERCENT RECOVERY	RECOVERY LIMITS
ecachlorobiphenyl	92	(51 - 132)
	98	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030169 Work Order #...: CRDG411C-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411D-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/08/99 Analysis Date..: 03/27/99
Prep Batch #...: 9067174 Analysis Time..: 16:29
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
4,4'-DDT	**ND**	**0.505**	**0.365**	**ug/L**	**72**		**SW846 8081A**
	ND	**0.505**	**0.388**	**ug/L**	**77**	**6.2**	**SW846 8081A**
Aldrin	**ND**	**0.202**	**0.197**	**ug/L**	**97**		**SW846 8081A**
	ND	**0.202**	**0.201**	**ug/L**	**100**	**2.3**	**SW846 8081A**
Dieldrin	**ND**	**0.505**	**0.474**	**ug/L**	**94**		**SW846 8081A**
	ND	**0.505**	**0.490**	**ug/L**	**97**	**3.4**	**SW846 8081A**
Endrin	**ND**	**0.505**	**0.480**	**ug/L**	**95**		**SW846 8081A**
	ND	**0.505**	**0.498**	**ug/L**	**99**	**3.6**	**SW846 8081A**
gamma-BHC (Lindane)	**ND**	**0.202**	**0.0778**	**ug/L**	**39**		**SW846 8081A**
	ND	**0.202**	**0.0793**	**ug/L**	**39**	**1.9**	**SW846 8081A**
Heptachlor	**ND**	**0.202**	**0.198**	**ug/L**	**98**		**SW846 8081A**
	ND	**0.202**	**0.206**	**ug/L**	**102**	**3.8**	**SW846 8081A**

RROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	92	(51 - 132)
	98	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CREDG102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C080000-176 CREDG103-LCSD
Prep Date.....: 03/08/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9067176 **Analysis Time..:** 22:19
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**107**	**(71 - 119)**			**SW846 8082**
	108	**(71 - 119)**	**0.96**	**(0-15)**	**SW846 8082**
Aroclor 1260	**107**	**(59 - 116)**			**SW846 8082**
	107	**(59 - 116)**	**0.42**	**(0-15)**	**SW846 8082**

SURRCGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(65 - 137)
	84	(65 - 137)
Decachlorobiphenyl	94	(66 - 151)
	92	(66 - 151)

NOTE(S):

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

old print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CREDG102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C080000-176 CREDG103-LCSD
Prep Date.....: 03/08/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9067176 **Analysis Time..:** 22:19
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Aroclor 1016	**2.00**	**2.14**	**ug/L**	**107**		**SW846 8082**
	2.00	**2.16**	**ug/L**	**108**	**0.96**	**SW846 8082**
Aroclor 1260	**2.00**	**2.14**	**ug/L**	**107**		**SW846 8082**
	2.00	**2.13**	**ug/L**	**107**	**0.42**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(65 - 137)
	84	(65 - 137)
Decachlorobiphenyl	94	(66 - 151)
	92	(66 - 151)

NOTE(S):

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

Bold print denotes control parameters

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CREDG101 **Matrix.....:** WATER
MB Lot-Sample #: D9C080000-176

Prep Date.....: 03/08/99 **Analysis Time..:** 21:51
Analysis Date..: 03/18/99 **Prep Batch #...:** 9067176
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	1.0	ug/L	SW846 8082
Aroclor 1221	ND	1.0	ug/L	SW846 8082
Aroclor 1232	ND	1.0	ug/L	SW846 8082
Aroclor 1242	ND	1.0	ug/L	SW846 8082
Aroclor 1248	ND	1.0	ug/L	SW846 8082
Aroclor 1254	ND	1.0	ug/L	SW846 8082
Aroclor 1260	ND	1.0	ug/L	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(65 - 137)
Decachlorobiphenyl	93	(66 - 151)

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CRDG411E-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411F-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/25/99
Prep Batch #...: 9067176 **Analysis Time..:** 08:16
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**95**	**(71 - 119)**			**SW846 8082**
	95	**(71 - 119)**	**0.06**	**(0-15)**	**SW846 8082**
Aroclor 1260	**91**	**(59 - 116)**			**SW846 8082**
	90	**(59 - 116)**	**0.38**	**(0-15)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(65 - 137)
	85	(65 - 137)
Decachlorobiphenyl	90	(66 - 151)
	89	(66 - 151)

NOTE(S):

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

1 print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030169 **Work Order #...:** CRDG411E-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411F-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/25/99
Prep Batch #...: 9067176 **Analysis Time..:** 08:16
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Aroclor 1016	ND	2.04	1.93	ug/L	95		SW846 8082
	ND	2.04	1.93	ug/L	95	0.06	SW846 8082
Aroclor 1260	ND	2.04	1.85	ug/L	91		SW846 8082
	ND	2.04	1.85	ug/L	90	0.38	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(65 - 137)
	85	(65 - 137)
Decachlorobiphenyl	90	(66 - 151)
	89	(66 - 151)

NOTE(S):

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

print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Aluminum	100	(81 - 117)			SW846 6010B	03/08-03/09/99	9063180
	99	(81 - 117)	0.70	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Barium	99	(81 - 114)			SW846 6010B	03/08-03/09/99	9063180
	98	(81 - 114)	0.27	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Beryllium	103	(78 - 117)			SW846 6010B	03/08-03/09/99	9063180
	102	(78 - 117)	0.66	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Calcium	96	(83 - 112)			SW846 6010B	03/08-03/09/99	9063180
	96	(83 - 112)	0.58	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Cobalt	98	(75 - 120)			SW846 6010B	03/08-03/09/99	9063180
	97	(75 - 120)	0.76	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Copper	99	(79 - 115)			SW846 6010B	03/08-03/09/99	9063180
	98	(79 - 115)	0.26	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Iron	103	(82 - 117)			SW846 6010B	03/08-03/09/99	9063180
	99	(82 - 117)	3.4	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Magnesium	102	(79 - 114)			SW846 6010B	03/08-03/09/99	9063180
	102	(79 - 114)	0.17	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Manganese	97	(79 - 113)			SW846 6010B	03/08-03/09/99	9063180
	97	(79 - 113)	0.53	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Molybdenum	100	(75 - 120)			SW846 6010B	03/08-03/09/99	9063180
	99	(75 - 120)	1.3	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Aluminum	2000	1990	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	2000	1980	ug/L	99	0.70	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Barium	2000	1970	ug/L	99		SW846 6010B	03/08-03/09/99	9063180
	2000	1970	ug/L	98	0.27	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Beryllium	50.0	51.4	ug/L	103		SW846 6010B	03/08-03/09/99	9063180
	50.0	51.1	ug/L	102	0.66	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Calcium	50000	48100	ug/L	96		SW846 6010B	03/08-03/09/99	9063180
	50000	47800	ug/L	96	0.58	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Cobalt	500	488	ug/L	98		SW846 6010B	03/08-03/09/99	9063180
	500	484	ug/L	97	0.76	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Copper	250	247	ug/L	99		SW846 6010B	03/08-03/09/99	9063180
	250	246	ug/L	98	0.26	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Iron	1000	1030	ug/L	103		SW846 6010B	03/08-03/09/99	9063180
	1000	993	ug/L	99	3.4	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Magnesium	50000	51000	ug/L	102		SW846 6010B	03/08-03/09/99	9063180
	50000	50900	ug/L	102	0.17	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Manganese	500	487	ug/L	97		SW846 6010B	03/08-03/09/99	9063180
	500	484	ug/L	97	0.53	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Molybdenum	1000	999	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	1000	986	ug/L	99	1.3	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Nickel	98	(80 - 112)			SW846 6010B	03/08-03/09/99	9063180
	96	(80 - 112)	1.8	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Potassium	97	(77 - 111)			SW846 6010B	03/08-03/09/99	9063180
	96	(77 - 111)	0.87	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Sodium	100	(81 - 115)			SW846 6010B	03/08-03/09/99	9063180
	100	(81 - 115)	0.13	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Tin	100	(81 - 114)			SW846 6010B	03/08-03/09/99	9063180
	100	(81 - 114)	0.15	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Vanadium	97	(80 - 114)			SW846 6010B	03/08-03/09/99	9063180
	97	(80 - 114)	0.50	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Zinc	96	(77 - 113)			SW846 6010B	03/08-03/09/99	9063180
	96	(77 - 113)	0.08	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Mercury	86	(77 - 117)			SW846 7470A	03/05-03/08/99	9063198
	82	(77 - 117)	5.4	(0-10)	SW846 7470A	03/05-03/08/99	9063198
		Dilution Factor: 1					
Antimony	100	(90 - 110)			SW846 6020	03/10-03/18/99	9067241
	107	(90 - 110)	6.9	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Arsenic	100	(88 - 112)			SW846 6020	03/10-03/18/99	9067241
	105	(88 - 112)	4.8	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Cadmium	102	(83 - 117)			SW846 6020	03/10-03/18/99	9067241
	108	(83 - 117)	6.0	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nickel	500	490	ug/L	98		SW846 6010B	03/08-03/09/99	9063180
	500	482	ug/L	96	1.8	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Potassium	50000	48500	ug/L	97		SW846 6010B	03/08-03/09/99	9063180
	50000	48000	ug/L	96	0.87	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Sodium	50000	50100	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	50000	50000	ug/L	100	0.13	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Tin	2000	1990	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	2000	2000	ug/L	100	0.15	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Vanadium	500	487	ug/L	97		SW846 6010B	03/08-03/09/99	9063180
	500	485	ug/L	97	0.50	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Zinc	500	479	ug/L	96		SW846 6010B	03/08-03/09/99	9063180
	500	479	ug/L	96	0.08	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Mercury	5.00	4.32	ug/L	86		SW846 7470A	03/05-03/08/99	9063198
	5.00	4.09	ug/L	82	5.4	SW846 7470A	03/05-03/08/99	9063198
			Dilution Factor: 1					
Antimony	200	200	ug/L	100		SW846 6020	03/10-03/18/99	9067241
	200	214	ug/L	107	6.9	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Arsenic	200	201	ug/L	100		SW846 6020	03/10-03/18/99	9067241
	200	211	ug/L	105	4.8	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Cadmium	200	203	ug/L	102		SW846 6020	03/10-03/18/99	9067241
	200	216	ug/L	108	6.0	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Chromium	108	(90 - 110)			SW846 6020	03/10-03/18/99	9067241
	113 N	(90 - 110)	5.0	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Lead	103	(84 - 116)			SW846 6020	03/10-03/18/99	9067241
	108	(84 - 116)	5.5	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Selenium	101	(82 - 118)			SW846 6020	03/10-03/18/99	9067241
	106	(82 - 118)	5.1	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Silver	103	(90 - 111)			SW846 6020	03/10-03/18/99	9067241
	108	(90 - 111)	4.5	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Thallium	103	(90 - 110)			SW846 6020	03/10-03/18/99	9067241
	110	(90 - 110)	6.7	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chromium	200	216	ug/L	108		SW846 6020	03/10-03/18/99	9067241
	200	227 N	ug/L	113	5.0	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Lead	200	205	ug/L	103		SW846 6020	03/10-03/18/99	9067241
	200	217	ug/L	108	5.5	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Selenium	200	202	ug/L	101		SW846 6020	03/10-03/18/99	9067241
	200	212	ug/L	106	5.1	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Silver	200	207	ug/L	103		SW846 6020	03/10-03/18/99	9067241
	200	216	ug/L	108	4.5	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Thallium	200	206	ug/L	103		SW846 6020	03/10-03/18/99	9067241
	200	220	ug/L	110	6.7	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: D9C040000-180 **Prep Batch #...:** 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10C
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Barium	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10D
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10E
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Calcium	ND	200	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10F
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10G
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10H
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ101
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Potassium	ND	5000	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ102
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Magnesium	ND	200	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ103
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Manganese	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ104
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ105
		Dilution Factor: 1				
		Analysis Time..: 11:53				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	ND	5000	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ106
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Nickel	ND	40.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ107
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Tin	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ108
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Vanadium	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ109
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Zinc	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10A
		Dilution Factor: 1				
		Analysis Time..: 11:53				

MB Lot-Sample #: D9C040000-198 **Prep Batch #...:** 9063198

Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CRAJH101
		Dilution Factor: 1				
		Analysis Time..: 12:03				

MB Lot-Sample #: D9C080000-241 **Prep Batch #...:** 9067241

Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ101
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Arsenic	ND	5.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ102
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Cadmium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ103
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Chromium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ104
		Dilution Factor: 1				
		Analysis Time..: 09:26				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ105
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Antimony	**0.20 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CREHQ106**
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Selenium	**0.20 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CREHQ107**
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ108
		Dilution Factor: 1				
		Analysis Time..: 09:26				

NOTE(S):

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

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030169-001 **Prep Batch #...:** 9063180							
Aluminum	102	(81 - 117)			SW846 6010B	03/08-03/09/99	CR9Q411R
	104	(81 - 117)	1.6	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411T
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Barium	98	(81 - 114)			SW846 6010B	03/08-03/09/99	CR9Q411U
	99	(81 - 114)	1.8	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411V
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Beryllium	103	(78 - 117)			SW846 6010B	03/08-03/09/99	CR9Q411W
	105	(78 - 117)	2.1	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411X
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Calcium	98	(83 - 112)			SW846 6010B	03/08-03/09/99	CR9Q4120
	101	(83 - 112)	2.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4121
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Cobalt	96	(75 - 120)			SW846 6010B	03/08-03/09/99	CR9Q4122
	98	(75 - 120)	2.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4123
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Copper	99	(79 - 115)			SW846 6010B	03/08-03/09/99	CR9Q4124
	100	(79 - 115)	1.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4125
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Iron	97	(82 - 117)			SW846 6010B	03/08-03/09/99	CR9Q4114
	100	(82 - 117)	2.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4115
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Potassium	98	(77 - 111)			SW846 6010B	03/08-03/09/99	CR9Q4116
	99	(77 - 111)	1.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4117
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Magnesium	105	(79 - 114)			SW846 6010B	03/08-03/09/99	CR9Q4118
	107	(79 - 114)	1.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4119
		Dilution Factor: 1					
		Analysis Time..: 12:18					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Manganese	96	(79 - 113)			SW846 6010B	03/08-03/09/99	CR9Q411A
	98	(79 - 113)	2.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411C
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Molybdenum	99	(75 - 120)			SW846 6010B	03/08-03/09/99	CR9Q411D
	101	(75 - 120)	2.1	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411E
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Sodium	102	(81 - 115)			SW846 6010B	03/08-03/09/99	CR9Q411F
	105	(81 - 115)	1.2	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411G
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Nickel	96	(80 - 112)			SW846 6010B	03/08-03/09/99	CR9Q411H
	97	(80 - 112)	1.2	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411J
		Dilution Factor: 1					
		Analysis Time..: 12:18					
n	98	(81 - 114)			SW846 6010B	03/08-03/09/99	CR9Q411K
	97	(81 - 114)	1.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411L
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Vanadium	97	(80 - 114)			SW846 6010B	03/08-03/09/99	CR9Q411M
	99	(80 - 114)	2.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411N
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Zinc	99	(77 - 113)			SW846 6010B	03/08-03/09/99	CR9Q411P
	101	(77 - 113)	1.3	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411Q
		Dilution Factor: 1					
		Analysis Time..: 12:18					

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030169-001 **Prep Batch #...:** 9063180									
Aluminum									
	61.1	2000	2110	ug/L	102		SW846 6010B	03/08-03/09/99	CR9Q411R
	61.1	2000	2140	ug/L	104	1.6	SW846 6010B	03/08-03/09/99	CR9Q411T
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Barium									
	33.6	2000	1990	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q411U
	33.6	2000	2020	ug/L	99	1.8	SW846 6010B	03/08-03/09/99	CR9Q411V
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Beryllium									
	ND	50.0	51.6	ug/L	103		SW846 6010B	03/08-03/09/99	CR9Q411W
	ND	50.0	52.7	ug/L	105	2.1	SW846 6010B	03/08-03/09/99	CR9Q411X
				Dilution Factor: 1					
				Analysis Time..: 12:18					
.lcium									
	40200	50000	89200	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q4120
	40200	50000	90900	ug/L	101	2.0	SW846 6010B	03/08-03/09/99	CR9Q4121
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Cobalt									
	ND	500	479	ug/L	96		SW846 6010B	03/08-03/09/99	CR9Q4122
	ND	500	491	ug/L	98	2.4	SW846 6010B	03/08-03/09/99	CR9Q4123
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Copper									
	ND	250	247	ug/L	99		SW846 6010B	03/08-03/09/99	CR9Q4124
	ND	250	251	ug/L	100	1.4	SW846 6010B	03/08-03/09/99	CR9Q4125
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Iron									
	284	1000	1260	ug/L	97		SW846 6010B	03/08-03/09/99	CR9Q4114
	284	1000	1290	ug/L	100	2.4	SW846 6010B	03/08-03/09/99	CR9Q4115
				Dilution Factor: 1					
				Analysis Time..: 12:18					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Potassium									
	6400	50000	55400	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q4116
	6400	50000	56000	ug/L	99	1.0	SW846 6010B	03/08-03/09/99	CR9Q4117
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Magnesium									
	38000	50000	90300	ug/L	105		SW846 6010B	03/08-03/09/99	CR9Q4118
	38000	50000	91600	ug/L	107	1.4	SW846 6010B	03/08-03/09/99	CR9Q4119
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Manganese									
	6.0	500	488	ug/L	96		SW846 6010B	03/08-03/09/99	CR9Q411A
	6.0	500	497	ug/L	98	2.0	SW846 6010B	03/08-03/09/99	CR9Q411C
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Molybdenum									
	ND	1000	991	ug/L	99		SW846 6010B	03/08-03/09/99	CR9Q411D
	ND	1000	1010	ug/L	101	2.1	SW846 6010B	03/08-03/09/99	CR9Q411E
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Sodium									
	52500	50000	103000	ug/L	102		SW846 6010B	03/08-03/09/99	CR9Q411F
	52500	50000	105000	ug/L	105	1.2	SW846 6010B	03/08-03/09/99	CR9Q411G
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Nickel									
	8.6	500	488	ug/L	96		SW846 6010B	03/08-03/09/99	CR9Q411H
	8.6	500	494	ug/L	97	1.2	SW846 6010B	03/08-03/09/99	CR9Q411J
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Tin									
	28.4	2000	1990	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q411K
	28.4	2000	1970	ug/L	97	1.4	SW846 6010B	03/08-03/09/99	CR9Q411L
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Vanadium									
	18.0	500	504	ug/L	97		SW846 6010B	03/08-03/09/99	CR9Q411M
	18.0	500	514	ug/L	99	2.0	SW846 6010B	03/08-03/09/99	CR9Q411N
			Dilution Factor: 1						
			Analysis Time..: 12:18						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc									
	138	500	632	ug/L	99		SW846 6010B	03/08-03/09/99	CR9Q411P
	138	500	640	ug/L	101	1.3	SW846 6010B	03/08-03/09/99	CR9Q411Q

Dilution Factor: 1
Analysis Time..: 12:18

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067241							
Antimony	113 N	(90 - 110)			SW846 6020	03/10-03/18/99	CRDG4133
	116 N	(90 - 110)	2.1	(0-20)	SW846 6020	03/10-03/18/99	CRDG4134
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Arsenic	110	(88 - 112)			SW846 6020	03/10-03/18/99	CRDG412T
	113 N	(88 - 112)	2.6	(0-20)	SW846 6020	03/10-03/18/99	CRDG412U
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Cadmium	108	(83 - 117)			SW846 6020	03/10-03/18/99	CRDG412V
	110	(83 - 117)	1.9	(0-20)	SW846 6020	03/10-03/18/99	CRDG412W
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Chromium	106	(90 - 110)			SW846 6020	03/10-03/18/99	CRDG412X
	107	(90 - 110)	1.2	(0-20)	SW846 6020	03/10-03/18/99	CRDG4130
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Lead	113	(84 - 116)			SW846 6020	03/10-03/18/99	CRDG4131
	115	(84 - 116)	2.1	(0-20)	SW846 6020	03/10-03/18/99	CRDG4132
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Selenium	107	(82 - 118)			SW846 6020	03/10-03/18/99	CRDG4135
	111	(82 - 118)	3.4	(0-20)	SW846 6020	03/10-03/18/99	CRDG4136
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Silver	21 N	(90 - 111)			SW846 6020	03/10-03/18/99	CRDG412Q
	21 N	(90 - 111)	0.06	(0-20)	SW846 6020	03/10-03/18/99	CRDG412R
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Thallium	112 N	(90 - 110)			SW846 6020	03/10-03/18/99	CRDG4137
	115 N	(90 - 110)	2.7	(0-20)	SW846 6020	03/10-03/18/99	CRDG4138
		Dilution Factor: 1					
		Analysis Time..: 14:00					

NOTE(S):

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

Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067241									
Antimony									
	ND	200	227 N	ug/L	113		SW846 6020	03/10-03/18/99	CRDG4133
	ND	200	232 N	ug/L	116	2.1	SW846 6020	03/10-03/18/99	CRDG4134
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Arsenic									
	5.8	200	226	ug/L	110		SW846 6020	03/10-03/18/99	CRDG412T
	5.8	200	232 N	ug/L	113	2.6	SW846 6020	03/10-03/18/99	CRDG412U
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Cadmium									
	ND	200	217	ug/L	108		SW846 6020	03/10-03/18/99	CRDG412V
	ND	200	221	ug/L	110	1.9	SW846 6020	03/10-03/18/99	CRDG412W
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Chromium									
	1.0	200	213	ug/L	106		SW846 6020	03/10-03/18/99	CRDG412X
	1.0	200	215	ug/L	107	1.2	SW846 6020	03/10-03/18/99	CRDG4130
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Lead									
	ND	200	225	ug/L	113		SW846 6020	03/10-03/18/99	CRDG4131
	ND	200	230	ug/L	115	2.1	SW846 6020	03/10-03/18/99	CRDG4132
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Selenium									
	8.5	200	223	ug/L	107		SW846 6020	03/10-03/18/99	CRDG4135
	8.5	200	230	ug/L	111	3.4	SW846 6020	03/10-03/18/99	CRDG4136
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Silver									
	ND	200	42.2 N	ug/L	21		SW846 6020	03/10-03/18/99	CRDG412Q
	ND	200	42.2 N	ug/L	21	0.06	SW846 6020	03/10-03/18/99	CRDG412R
			Dilution Factor: 1						
			Analysis Time..: 14:00						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Thallium									
	ND	200	223 N	ug/L	112		SW846 6020	03/10-03/18/99	CRDG4137
	ND	200	230 N	ug/L	115	2.7	SW846 6020	03/10-03/18/99	CRDG4138

Dilution Factor: 1
Analysis Time..: 14:00

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate		WO#:CRF3K102-LCS/CRF3K103-LCSD				LCS Lot-Sample#: D9C080000-365	
	101	(94 - 114)			MCAWW 353.2	03/04/99	9067365
	94	(94 - 114)	6.9	(0-10)	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1					
Nitrite		WO#:CRAHC102-LCS/CRAHC103-LCSD				LCS Lot-Sample#: D9C040000-189	
	100	(90 - 110)			MCAWW 354.1	03/03/99	9063189
	100	(90 - 110)	0.0	(0-10)	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1					
Sulfate		WO#:CRE34102-LCS/CRE34103-LCSD				LCS Lot-Sample#: D9C040000-334	
	94	(90 - 110)			MCAWW 300.0A	03/02-03/03/99	9063334
	95	(90 - 110)	0.21	(0-10)	MCAWW 300.0A	03/02-03/03/99	9063334
		Dilution Factor: 1					
Total Dissolved Solids		WO#:CRG37102-LCS/CRG37103-LCSD				LCS Lot-Sample#: D9C100000-177	
	99	(86 - 106)			MCAWW 160.1	03/08-03/09/99	9069177
	102	(86 - 106)	3.1	(0-10)	MCAWW 160.1	03/08-03/09/99	9069177
		Dilution Factor: 1					
Total Sulfide		WO#:CRFXH102-LCS/CRFXH103-LCSD				LCS Lot-Sample#: D9C090000-307	
	73	(70 - 130)			SW846 9030B/9034	03/09/99	9068307
	72	(70 - 130)	1.0	(0-20)	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1					

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D9C030169 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate		WO#:CRF3K102-LCS/CRF3K103-LCSD				LCS Lot-Sample#: D9C080000-365		
	5.00	5.05	mg/L	101		MCAWW 353.2	03/04/99	9067365
	5.00	4.71	mg/L	94	6.9	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1						
Nitrite		WO#:CRAHC102-LCS/CRAHC103-LCSD				LCS Lot-Sample#: D9C040000-189		
	0.0400	0.0400	mg/L	100		MCAWW 354.1	03/03/99	9063189
	0.0400	0.0400	mg/L	100	0.0	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1						
Sulfate		WO#:CRE34102-LCS/CRE34103-LCSD				LCS Lot-Sample#: D9C040000-334		
	25.0	23.6	mg/L	94		MCAWW 300.0A	03/02-03/03/99	9063334
	25.0	23.7	mg/L	95	0.21	MCAWW 300.0A	03/02-03/03/99	9063334
		Dilution Factor: 1						
Total Dissolved Solids		WO#:CRG37102-LCS/CRG37103-LCSD				LCS Lot-Sample#: D9C100000-177		
	442	438	mg/L	99		MCAWW 160.1	03/08-03/09/99	9069177
	442	452	mg/L	102	3.1	MCAWW 160.1	03/08-03/09/99	9069177
		Dilution Factor: 1						
Total Sulfide		WO#:CRFXH102-LCS/CRFXH103-LCSD				LCS Lot-Sample#: D9C090000-307		
	10.6	7.68	mg/L	73		SW846 9030B/9034	03/09/99	9068307
	10.6	7.60	mg/L	72	1.0	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1						

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D9C030169 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate		Work Order #: CRF3K101		MB Lot-Sample #:	D9C080000-365	
	ND	0.10	mg/L	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Nitrite		Work Order #: CRAHC101		MB Lot-Sample #:	D9C040000-189	
	ND	0.010	mg/L	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Sulfate		Work Order #: CRE34101		MB Lot-Sample #:	D9C040000-334	
	ND	5.0	mg/L	MCAWW 300.0A	03/03/99	9063334
		Dilution Factor: 1				
		Analysis Time..: 19:44				
Total Dissolved Solids		Work Order #: CRG37101		MB Lot-Sample #:	D9C100000-177	
	ND	10.0	mg/L	MCAWW 160.1	03/08-03/09/99	9069177
		Dilution Factor: 1				
		Analysis Time..: 00:00				
tal Sulfide		Work Order #: CRFXH101		MB Lot-Sample #:	D9C090000-307	
	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1				
		Analysis Time..: 20:00				

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate		WO#: CR9RW116-MS/CR9RW117-MSD				MS Lot-Sample #: D9C030169-004	
	118 N	(94 - 114)			MCAWW 353.2	03/04/99	9067365
	109	(94 - 114)	8.0	(0-10)	MCAWW 353.2	03/04/99	9067365
		Dilution Factor: 1					
		Analysis Time..: 00:00					
Nitrite		WO#: CR9RW114-MS/CR9RW115-MSD				MS Lot-Sample #: D9C030169-004	
	102	(90 - 110)			MCAWW 354.1	03/03/99	9063189
	100	(90 - 110)	2.0	(0-10)	MCAWW 354.1	03/03/99	9063189
		Dilution Factor: 1					
		Analysis Time..: 00:00					
Sulfate		WO#: CR9RA13D-MS/CR9RA13E-MSD				MS Lot-Sample #: D9C030174-001	
	99	(90 - 110)			MCAWW 300.0A	03/02-03/03/99	9063334
	99	(90 - 110)	0.17	(0-10)	MCAWW 300.0A	03/02-03/03/99	9063334
		Dilution Factor: 1					
		Analysis Time..: 22:33					
Total Sulfide		WO#: CRDG413G-MS/CRDG413H-MSD				MS Lot-Sample #: D9C030208-012	
	75	(70 - 130)			SW846 9030B/9034	03/09/99	9068307
	69 N	(70 - 130)	8.2	(0-20)	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1					
		Analysis Time..: 20:00					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9C030169 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate			WO#: CR9RW116-MS/CR9RW117-MSD				MS Lot-Sample #: D9C030169-004		
	ND	5.00	5.92 N	mg/L	118		MCAWW 353.2	03/04/99	9067365
	ND	5.00	5.47	mg/L	109	8.0	MCAWW 353.2	03/04/99	9067365
			Dilution Factor: 1						
			Analysis Time..: 00:00						
Nitrite			WO#: CR9RW114-MS/CR9RW115-MSD				MS Lot-Sample #: D9C030169-004		
	ND	0.100	0.102	mg/L	102		MCAWW 354.1	03/03/99	9063189
	ND	0.100	0.100	mg/L	100	2.0	MCAWW 354.1	03/03/99	9063189
			Dilution Factor: 1						
			Analysis Time..: 00:00						
Sulfate			WO#: CR9RA13D-MS/CR9RA13E-MSD				MS Lot-Sample #: D9C030174-001		
	232	500	726	mg/L	99		MCAWW 300.0A	03/02-03/03/99	9063334
	232	500	727	mg/L	99	0.17	MCAWW 300.0A	03/02-03/03/99	9063334
			Dilution Factor: 1						
			Analysis Time..: 22:33						
Total Sulfide			WO#: CRDG413G-MS/CRDG413H-MSD				MS Lot-Sample #: D9C030208-012		
	ND	10.6	8.16	mg/L	75		SW846 9030B/9	03/09/99	9068307
	ND	10.6	7.52 N	mg/L	69	8.2	SW846 9030B/9	03/09/99	9068307
			Dilution Factor: 1						
			Analysis Time..: 20:00						

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: D9C030169 **Work Order #...:** CRCW4-SMP CRCW4-DUP **Matrix.....:** WATER

Date Sampled...: 03/02/99 09:45 **Date Received..:** 03/05/99

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids						SD Lot-Sample #: D9C050140-011		
	1440	1410	mg/L	2.0	(0-10)	MCAWW 160.1	03/08-03/09/99	9069177

Dilution Factor: 1

Analysis Time..: 00:00

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
Sampling Location: Sewage Lagoons, (wells E, F, G, H) Cannon Air Force Base, New Mexico	Packed and Sealed for Shipping by: Fred Gebhardt; Seal Number: 081549
Team Leader: Jerry Larson / Project chief - (Miko) Eileen Roybal	Delivered to Shipper by: Fred Gebhardt; Airbill Number: 3476773252
	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
MAR 1999	1230	CAFB- H	GROUND-WATER	10	All Apx-IX: SW8260B, SW8081, SW8082, SW6010-Total (Al, Ba, Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), NITRATE-E353.2 / E354.1, SULFATE-E300, TDS-E160.1, SULFIDE-SW9030	ENVIRONMENTAL SAMPLE
"	1420	CAFB-G	"	"	" "	"

Additional Comments: VOC's in cooler 1 w/ well B - Eq. Blank sample

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Jerry D Larson	Fed ex	3-2-99	1630	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Rob Summer	3/3/99	0830		Contents Temperature
					Laboratory Project Number: D9C030169

Work 25226

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
Sampling Location: Sewage Lagoons, (wells E, F, G, H) Cannon Air Force Base, New Mexico	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 071548
Team Leader: Jerry Larson / Project chief - (Miko) Eileen Roybal	Delivered to Shipper by: Fred Gebhardt — Airbill Number: 3476773263
	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
MAR 1999	1300	CAFB-E	GROUND-WATER	10	All Apx-IX: SW8260B, SW8081, SW8082, SW6010-Total (Al, Ba, Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), NITRATE-E353.2 / E354.1, SULFATE-E300, TDS-E160.1, SULFIDE-SW9030	ENVIRONMENTAL SAMPLE
" March 99	1430	CAFB-F	"	"	"	"

Additional Comments: VOC's in cooler 1 w/ CAFB-B-EB & TB

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Jerry Larson	Fed ex	3-2-99	1630	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Nole Summers	3/3/99	0830		Contents Temperature
					Laboratory Project Number: D9C030169

Sample Receiving Checklist

Lot #: D9C030169 Date/Time Received: 0830 3/3/99

npany Name & Sampling Site: USGS

*Cooler #(s): _____

Temperatures: 5.8

Unpacking & Labeling Check Points:

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

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

LABORATORY DATA VALIDATION CHECKLIST

SECTION 1.0: GENERAL INFORMATION *(also see Appendix A)*

Data reviewer(s) name, affiliation, title, signature, and date of review:

F. Eileen Roybal, USGS-WRD, Hydrologist F. Eileen Roybal 25JUN1999

DATA INVENTORY

1.1 Sample project number: Quanterra Environmental Services D9C030208 and D9D080151 (reanalysis of herbicides).

1.2 Operable unit and site: Landfill 5 unit, Cell 3

Sample collection date: 2-5MAR1999

1.3 Sample locations (location IDs): Wells CAFB-B, C, D, I, Q, S, T, and U; CAFB-X was a duplicate sample for CAFB-S.

1.4 Sample matrix (ground water, soil, other): ground water

1.5 Type and number of field samples (environmental and quality control) in sample project:

Type	number	Type	number
environmental	8	MS/MSD	1 pair
field duplicate	1	trip blank	3
equipment blank	1	ambient blank	0

Data validation level: **(circle one)** note--see appendix A for description of different levels

LEVEL 1 **LEVEL 2**

OTHER CHECKLIST SECTIONS COMPLETED FOR SAMPLE PROJECT:

√ 2.0 Data Reports and Completeness
√ 3.0 Appendix-IX, Volatile organic compounds (VOC)--Method SW5030/SW8260B
√ 4.0 Appendix-IX, Semivolatile organic compounds (SVOC)--Method SW3510/SW8270C
√ 5.0 Appendix-IX, Pesticides and PCB's--Method SW3520/SW8081A and 8082
√ 6.0 Appendix-IX, Herbicides--Method SW3520/SW8151A
√ 7.0 Appendix-IX, Dioxins and Furans--Method SW3520/SW8280
√ 8.0 Appendix-IX, Polynuclear aromatic hydrocarbons (PAH)--Method SW3510/SW8310

__√__ 9.0 Appendix-IX, Metals (Total)--Methods SW3005/SW6010B (Aluminum, Barium, Beryllium, Calcium, Cobalt, Copper, Iron, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Sodium, Tin, Vanadium, and Zinc), SW3005/SW6020 (Antimony, Arsenic, Cadmium, Chromium, Lead, Selenium, Silver, and Thallium), and SW3020/SW7470A (Mercury).

__√__ 10.0 Cyanide and Sulfide--Methods SW9012A (cyanide), 9030B/9030 (sulfide)

__√__ 11.0 Total Organic Carbon (TOC)--Method SW9060

__√__ 12.0 Total Organic Halogens (TOX)--Method SW9020B

SECTION 2.0: DATA REPORTS AND COMPLETENESS

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LABORATORY DATA REPORTS

2.1 Analytical Results Report--report date: 9APR1999, 29APR1999

2.2 Raw Data Report--number of volumes: N/A

2.3 Was completeness of lab reports acceptable? yes __√__ no ____

(overview, analytical results, quality-control report)

Lab reports were complete and acceptable.

DATA COMPLETENESS

2.4 Were all samples requested on chain of custody form analyzed by lab? yes __√__ no ____

All appendix IX parameters:

	VOC SW8260B	SVOC SW8270C	Pesticide SW8081A/ SW8082	Herbicide SW8151A	Dioxin SW8280
requested:	15	12	12	12	12
analyzed:	15	12	12	12	12

	PAH SW8310	Total Metals: 16-SW6010B, 8-SW6020, Mercury by SW7470A	Cyanide by SW9012A, Sulfide by 9030B/9034	TOC SW9060	TOX SW9020B
requested:	12	12	12	12	12
analyzed:	12	12	12	12	12

2.5 List cancelled analyses on cancelled-data worksheet: None.

2.6 Was sample cooler seal intact upon receipt by lab? Yes

2.7 What was the sample cooler temperature upon receipt by lab? Temperatures ranged from 3.9 - 12.6 °C.

2.8 Additional comments:

SECTION 3.0: APPENDIX-IX, VOLATILE ORGANIC COMPOUNDS-- METHOD SW5030/SW8260B

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

3.1 Were project-required analytical holding times met? yes √ no ____

(14-day limit from sample date to analysis date for water samples)

[FG-ORG, p. 6-8]

sample date: 2-5MAR1999 analysis date limit: 16-19MAR1999

Samples were analyzed by 12MAR1999, and met required holding times.

SURROGATE SPIKE RECOVERY

3.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes √ no ____

(all samples and blanks: SW8260A:%R varies)

[FG-ORG, p. 26-29]

All surrogate spike recovery results met Quanterra QC acceptance criteria.

PROJECT REPORTING LIMIT (PRL)

3.3 Did sample results meet project reporting limits? yes ____ no √

PRL's were not provided in Sampling and Analysis Plan (SAP). Reporting limits were raised for sample CAFB-B-EB due to matrix interference.

FIELD DUPLICATES

3.4 Did field duplicate results meet frequency and QC acceptance criteria?yes √ no ____

(1 set per sampling period; RPD < 30 %)

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

3.5 Did equipment blank results meet frequency and QC acceptance criteria? yes ___ no √

(1 set for non-dedicated pump; analytes <3 x RL)

[FG-ORG, p. 20-25]

Methylene chloride was detected at a concentration of 780 µg/L. This value was qualified with B (method blank contamination).

AMBIENT and TRIP BLANKS (water samples only)

3.6 Did blank results meet frequency and QC acceptance criteria? yes √ no ___

(ambient and trip blank frequency varies per sampling period)

[FG-ORG, p. 20-25]

All trip blank results were ND or below reporting limit and met QC acceptance criteria. Ambient condition blank was not collected for this sampling period.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

3.7 List number and level of TICs for each sample analyzed on TIC data sheet.

[FG-ORG, p. 41-44]

DUPLICATE CONTROL SAMPLES (DCSs)

3.8 Did DCS results meet frequency and QC acceptance criteria? yes √ no ___

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 32-33]

All DCS results met QC acceptance criteria.

SINGLE CONTROL SAMPLES (SCSs)

3.9 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per sample lot; %R limits established by laboratory)

[FG-ORG, p. 32-33]

All SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

3.10 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; analyte concentration ≤ RL except for common lab contaminants ≤ 5 times RL)

[FG-ORG, p. 20-25]

All method blank results were ND or J value (less than RL) and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

3.11 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; method SW8260A: %R and RPD varies)

[FG-ORG, p. 30-31]

All MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

3.12 Did initial calibrations meet frequency and QC acceptance criteria? yes ____ no ____

[FG-ORG, p. 12-16]

Not reviewed.

3.13 Did continuing calibrations meet frequency and QC acceptance criteria? yes ____ no ____

[FG-ORG, p. 17-19]

Not reviewed.

GC/MS TUNING

3.14 Did BFB tuning results meet frequency and QC acceptance criteria? yes ____ no ____

[FG-ORG, p. 9-11]

Not reviewed.

INTERNAL STANDARDS (IS)

3.15 Did IS results meet frequency and QC acceptance criteria? yes _____ no _____

(all blanks, standards, and samples; IS area limits within 50 to 200%)
[FG-ORG, p. 35-36]

Not reviewed

SAMPLE RESULT VERIFICATION

3.16 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? [FG-ORG, p. 47] yes _____ no _____

Not reviewed

LEVEL I and II -- Data Validation

ANALYTE RESULTS WITH DATA QUALIFIERS

3.17 Summarize analyte results with data qualifiers. List pertinent information on qualified-data worksheet: _____

3.18 Additional comments: _____

SECTION 4.0: APPENDIX-IX SEMIVOLATILE ORGANIC COMPOUNDS-- METHOD SW3510/SW8270C

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

4.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to extraction date for water samples)

(40-day limit from sample extraction date to analysis date for water samples)

[FG-ORG, p. 49-50]

sample date: 2-5MAR1999 extraction date limit: 9-12MAR1999

extraction date: 9, 11MAR1999 analysis date limit: 18, 20APR1999

Samples were extracted by 9, 11MAR1999 and were analyzed by March 15, 18, 1999 and met required extraction and analysis holding time limits.

SURROGATE SPIKE RECOVERY

4.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes √ no ____

(frequency: all samples and blanks: SW8270B:%R varies)

[FG-ORG, p. 66-68]

All surrogate recoveries were within QC acceptance criteria.

PROJECT REPORTING LIMIT (PRL)

4.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

4.4 Did field duplicate results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per sampling period; RPD ≤ 30%)

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

4.5 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; analytes < 3 x RL)

[FG-ORG, p. 62-65]

Equipment blank results were ND and met QC acceptance criteria.

TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

4.6 List number and level of TICs for each sample analyzed on TIC data sheet.

[FG-ORG, p. 80-83]

Sample ID	Page Number	Number of TICs	Reporting Level*
CAFB-B	I-70	6	Unknown, T2
CAFB-B-EB	I-58	6	Unknown, T2
CAFB-C	I-78	3	Unknown, T2
CAFB-D	I-74	2	Unknown, T2
CAFB-I	I-90	6	Unknown, T2
CAFB-Q	I-54	4	Unknown, T2
CAFB-S	I-62	4	Unknown, T2
CAFB-X(Duplicate)	I-66	3	Unknown
CAFB-T	I-86	3	Unknown
CAFB-U	I-82	1	Unknown

* T1 = tentative identification, T2 = confident identification, and T3 = confirmed identification.

DUPLICATE CONTROL SAMPLES (DCSs)

4.7 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 71-72]

All DCS results met QC acceptance criteria.

SINGLE CONTROL SAMPLES (SCSs)

4.8 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per quarter; %R limits established by laboratory)

[FG-ORG, p. 71-72]

All SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

4.9 Did method blank results meet frequency and QC acceptance criteria?yes √ no ____

(1 method blank per batch; analyte concentration ≤ RL except for common lab contaminants ≤ 5 times RL)

[FG-ORG, p. 62-65]

All results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

4.10 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; method SW8270B:%R and RPD varies)

[FG-ORG, p. 69-70]

All MS/MSD results met QC acceptance criteria except RPD for N-Nitrosodi-n-propylamine was 35 percent which is above RPD limits of 0-20 percent.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

4.11 Did initial calibration meet frequency and QC acceptance criteria? yes ____ no ____

[FG-ORG, p. 55-58]

Not reviewed

4.12 Did continuing calibrations meet frequency and QC acceptance criteria? yes ____ no ____

[FG-ORG, p. 59-61]

Not reviewed

GC/MS TUNING

4.13 Did BFB tuning results meet frequency and QC acceptance criteria? yes _____ no _____

[FG-ORG, p. 51-54]

Not reviewed

INTERNAL STANDARDS (IS)

4.14 Did IS results meet frequency and QC acceptance criteria? yes _____ no _____

(all blanks, standards, and samples; IS area limits within 50 to 200%)

[FG-ORG, p. 74-75]

Not reviewed

SAMPLE RESULT VERIFICATION

4.15 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes _____ no _____

Not reviewed

LEVEL I and II -- Data Validation

ANALYTE RESULTS WITH DATA QUALIFIERS

4.16 Summarize analyte results with data qualifiers. List pertinent information on qualified-data worksheet: _____

4.17 Additional comments: _____

SECTION 5.0: APPENDIX-IX, PESTICIDES AND PCB'S-- METHOD SW3520/SW8081A AND 8082

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

5.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to extraction date and 40-day limit from extraction date to analysis date)

[FG-ORG, p. 49-50]

sample date: 2-5MAR1999 extraction date limit: 9-12MAR1999

extraction date: 8MAR1999 analysis date limit: 17APR1999

Samples were extracted by 8MAR1999 and were analyzed by March 19, 25, and 27, 1999 and met required extraction and analysis holding time limits.

SURROGATE SPIKE RECOVERY

5.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes √ no ____

(frequency: all samples and blanks: SW8080A:%R varies)

[FG-ORG, p. 66-68]

All surrogate spike recovery results met QC acceptance criteria.

PROJECT REPORTING LIMIT

5.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

5.4 Did field duplicate results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per sampling period; RPD ≤ 30%)

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

5.5 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 62-65]

Equipment blank results were ND and met QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

5.6 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 71-72]

All DCS results met QC acceptance criteria except for percent recovery of gamma-BHC (lindane) was lower than control limits for method 8081A.

SINGLE CONTROL SAMPLES (SCSs)

5.7 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per quarter; %R limits established by laboratory)

[FG-ORG, p. 71-72]

SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

5.8 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-ORG, p. 62-65]

All method blank results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

5.9 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD limits varies)

[FG-ORG, p. 69-70]

All MS/MSD results met QC acceptance criteria except percent recovery for gamma-BHC (lindane) by method 8081A was below control limits.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

5.10 Did initial and continuing calibrations meet frequency and QC criteria?yes ____ no ____

[FG-ORG, p. 55-58]

Not reviewed

SAMPLE RESULT VERIFICATION

5.11 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes ____ no ____

Not reviewed

5.12 Additional comments: ____

SECTION 6.0: APPENDIX-IX, HERBICIDES-- METHOD SW3520/SW8151A

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

6.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to extraction date and 40-day limit from extraction date to analysis date)

[FG-ORG, p. 49-50]

sample date: 2-5MAR1999 extraction date limit: 9-12MAR1999

extraction date: 9MAR1999 analysis date limit: 18APR1999

All samples were extracted by 9MAR1999 and were analyzed by March 26, 1999 and met required extraction and analysis holding time limits. Reanalysis for samples CAFB-D, I, and U exceeded extraction and analysis holding time limits.

SURROGATE SPIKE RECOVERY

6.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes ____ no √

(frequency: all samples and blanks: SW8150:%R varies)

[FG-ORG, p. 66-68]

Surrogate spike recovery results for samples CAFB-D, I, and U did not meet QC acceptance criteria. Surrogate spike recoveries for reanalysis of these samples were within QC acceptance criteria.

PROJECT REPORTING LIMIT

6.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

6.4 Did field duplicate results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per sampling period; RPD ≤ 30%)

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

6.5 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 62-65]

Equipment blank results were ND and met QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

6.6 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 71-72]

DCS results met QC acceptance criteria.

SINGLE CONTROL SAMPLES (SCSs)

6.7 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per quarter; %R limits established by laboratory)

[FG-ORG, p. 71-72]

SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

6.8 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-ORG, p. 62-65]

All method blank results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

6.9 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD limits varies)

[FG-ORG, p. 69-70]

MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

6.10 Did initial and continuing calibrations meet frequency and QC criteria?yes ____ no ____

[FG-ORG, p. 55-58]

Not reviewed

SAMPLE RESULT VERIFICATION

6.11 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes ____ no ____

Not reviewed

6.12 Additional comments: ____

SECTION 7.0: APPENDIX-IX, DIOXINS AND FURANS-- METHOD SW3520/SW8280

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

7.1 Were project-required analytical holding times met? yes √ no ____

(30-day limit from sample date to extraction date and 45-day limit from extraction date to analysis date for method SW8280)
[FG-ORG, p. 49-50]

sample date: 2-5MAR1999 extraction date limit: 1-4APR1999
extraction date: 22MAR1999 analysis date limit: 6MAY1999

Samples were extracted by 22MAR1999 and were analyzed by 31MAR1999, and 1APR1999 and met required extraction and analysis holding time limits.

SURROGATE SPIKE RECOVERY

7.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes ____ no √

(frequency: all samples and blanks: SW8280:%R varies)
[FG-ORG, p. 66-68]

All surrogate spike recovery results met QC acceptance criteria except for 13C-1,2,3,6,7,8-HxCDD was greater than control limits. Associated samples are equipment blank, CAFB-D, I, and S.

PROJECT REPORTING LIMIT

7.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

7.4 Did field duplicate results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per sampling period; RPD ≤ 30%)

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

7.5 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 62-65]

Equipment blank results were ND and met QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

7.6 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 71-72]

DCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

7.7 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-ORG, p. 62-65]

All method blank results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

7.8 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD limits varies)

[FG-ORG, p. 69-70]

MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

7.9 Did initial and continuing calibrations meet frequency and QC criteria? yes _____ no _____
[FG-ORG, p. 55-58]

Not reviewed

SAMPLE RESULT VERIFICATION

7.10 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes _____ no _____

Not reviewed

7.11 Additional comments: _____

SECTION 8.0: APPENDIX-IX, POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)--METHOD SW3510/SW8310

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

8.1 Were project-required analytical holding times met? yes √ no ____

(7-day limit from sample date to extraction date and 40-day limit from extraction date to analysis date for method SW8310)

[FG-ORG, p. 49-50]

sample date: 2-5MAR1999 extraction date limit: 9-12MAR1999

extraction date: 8MAR1999 analysis date limit: 17APR1999

Samples were extracted by 8MAR1999 and were analyzed by 16MAR1999 and met required extraction and analysis holding time limits.

SURROGATE SPIKE RECOVERY

8.2 Did surrogate spike results meet frequency and QC acceptance criteria? yes √ no ____

(frequency: all samples and blanks: SW8310:%R varies)

[FG-ORG, p. 66-68]

All surrogate spike recovery results met QC acceptance criteria.

PROJECT REPORTING LIMIT

8.3 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

8.4 Did field duplicate results meet frequency and QC acceptance criteria?yes √ no ____

(1 set per sampling period; RPD ≤ 30%)

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

8.5 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 62-65]

Equipment blank results were ND and met QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

8.6 Did DCS results meet frequency and QC acceptance criteria? yes ____ no √

(1 DCS per quarter; %R and RPD within 3 SD of historical results of lab performance)

[FG-ORG, p. 71-72]

All DCS results met QC acceptance criteria except for naphthalene.
Percent recoveries for naphthalene were greater than control limits.

SINGLE CONTROL SAMPLES (SCSs)

8.7 Did SCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 SCS per quarter; %R limits established by laboratory)

[FG-ORG, p. 71-72]

SCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

8.8 Did method blank results meet frequency and QC acceptance criteria?yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-ORG, p. 62-65]

All method blank results were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

8.9 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD limits varies)

[FG-ORG, p. 69-70]

MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

8.10 Did initial and continuing calibrations meet frequency and QC criteria?yes ____ no ____

[FG-ORG, p. 55-58]

Not reviewed

SAMPLE RESULT VERIFICATION

8.11 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes ____ no ____

Not reviewed

8.12 Additional comments: ____

SECTION 9.0: APPENDIX-IX, METALS (TOTAL)-- METHODS SW3005/SW6010B (ALUMINUM, BARIUM, BERYLLIUM, CALCIUM, COBALT, COPPER, IRON, MAGNESIUM, MANGANESE, MOLYBDENUM, NICKEL, POTASSIUM, SODIUM, TIN, VANADIUM, AND ZINC), SW3005/SW6020 (ANTIMONY, ARSENIC, CADMIUM, CHROMIUM, LEAD, SELENIUM, SILVER, AND THALLIUM), AND SW3020/SW7470A (MERCURY).

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

9.1 Were project-required analytical holding times met? yes √ no ____

(180-day limit from sample date to analysis, except mercury-28 days)

[FG-INORG, p. 6-7]

Mercury sample date: 2-5MAR1999 analysis date limit: 30,31MAR; 1,2APR1999

All rest sample date: 2-5MAR1999 analysis date limit: 29-31AUG; 1SEP1999

Mercury samples were analyzed by 8MAR1999 and met required holding time limits. All rest were analyzed by 18MAR1999 and met required holding time limits.

PROJECT REPORTING LIMIT (PRL)

9.2 Did sample results meet project reporting limits? yes √ no ____

PRL's were not provided in SAP. Quanterra reporting limits were not raised for any of the samples.

FIELD DUPLICATES

9.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no √

(1 set for each sampling period; RPD < 30 %)

[FG-INORG, p. 35]

Molybdenum, tin, chromium, and lead did not meet QC acceptance criteria.

EQUIPMENT BLANKS

9.4 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; analytes < 3 x RL)

[FG-INORG, p. 16-18]

Equipment blank results met QC acceptance criteria except for calcium, magnesium, and sodium.

DUPLICATE CONTROL SAMPLES (DCSs)

9.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per quarter; % R and RPD within 3 SD of historical results of lab performance)

[FG-INORG, p. 25-26]

All DCS results met QC acceptance criteria except for chromium. Percent recovery was slightly above control limit.

LABORATORY METHOD BLANKS

9.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; analyte concentration ≤ RL except for common lab contaminants ≤ 2 times RL)

[FG-INORG, p. 16-18]

All method blank results were ND or below reporting limit and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

9.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes ____ no √

(1 set per quarter; %R and RPD varies)

[FG-INORG, p. 27-29]

MS/MSD results for antimony, arsenic, silver, and thallium recovered outside control limits. Matrix effects are suspected.

LEVEL II -- Data Validation

CALIBRATION

9.8 Did initial (ICV) and continuing (CCV) calibrations meet QC acceptance criteria?
[FG-INORG, p. 8-15] yes _____ no _____

Not reviewed.

INTERELEMENT CHECK SAMPLES (method SW6010 only)

9.9 Did interelement check results meet frequency and QC criteria? yes _____ no _____

(within 20% of known value)
[FG-INORG, p. 19-21]

Not reviewed.

ANALYTICAL SPIKE RECOVERY (all methods except SW6010 and mercury)

9.10 Did analytical spike results meet frequency and QC acceptance criteria? yes _____ no _____

(every sample; %R within 80-120% except when sample results are ND, the %R within 40-120%)the %R within 40-120%)
[FG-INORG, p. 27-29]

Not reviewed.

SAMPLE RESULT VERIFICATION

9.11 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes _____ no _____

Not reviewed.

LEVEL I AND II -- Data Validation

ANALYTE RESULTS WITH DATA QUALIFIERS

9.12 Summarize analyte results with data qualifiers. List pertinent information on qualified-data worksheet: _____

9.13 Additional comments: None.

SECTION 10.0: CYANIDE--METHOD SW9012A AND SULFIDE--METHOD 9030B/9034

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

10.1 Were project-required analytical holding times met? yes √ no ____

(Cyanide: 14-day limit from sample date to analysis date for water samples)
(Sulfide: 7-day limit from sample date to analysis date for water samples)
[FG-INORG, p. 6-7]

Cyanide sample date: 2-5MAR1999 analysis date limit: 16-19MAR1999
Sulfide sample date: 2-5MAR1999 analysis date limit: 9-12MAR1999

Cyanide samples were analyzed by 12MAR1999 and sulfide samples were analyzed by 9MAR1999. All samples met required holding time limits.

PROJECT REPORTING LIMIT

10.2 Did sample results meet project reporting limits? yes √ no ____

(Quanterra RL for: Cyanide 0.01 mg/L, Sulfide 0.05 mg/L)

PRL's were not provided in SAP. Reporting limits were not raised for any of the samples.

FIELD DUPLICATES

10.3 Did field duplicate results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per each sampling period; RPD ≤ 30%)
[FG-INORG, p. 35]

Field duplicate results met QC acceptance criteria.

EQUIPMENT BLANKS

10.4 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; target compound concentration ≤ 3 times RL)
[FG-INORG, p. 16-18]

Equipment blank results were ND and met QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

10.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R and RPD within 3 SD of historical results of lab performance)

[FG-INORG, p. 25-26]

All DCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

10.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch; concentration ≤ 2 times RL)

[FG-INORG, p. 16-18]

Laboratory method blank results for both cyanide and sulfide were ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

10.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R and RPD varies)

[FG-INORG, p. 27-29]

MS/MSD results met QC acceptance criteria for cyanide, but percent recovery for sulfide was slightly below control limit.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

10.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

(%R within 90-110%)

[FG-INORG, p. 8-15]

Not reviewed

SAMPLE RESULT VERIFICATION

10.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? **[FG-INORG, p. 36]** yes ____ no ____

Not reviewed

10.10 Additional comments: ____

SECTION 11.0: TOTAL ORGANIC CARBON (TOC)-- METHOD SW9060

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

11.1 Were project-required analytical holding times met? yes √ no ____

(28-day limit from sample date to analysis date for water samples)

[FG-ORG, p. 6-8]

sample date: 2-5MAR1999 analysis date limit: 30,31MAR; 1,2APR1999

Samples were analyzed by 25MAR1999 and met required holding times.

PROJECT REPORTING LIMIT (PRL)

11.2 Did sample results meet project reporting limits? yes √ no ____

(Quanterra RL: 1.0 mg/L)

PRL was not provided in SAP. Reporting limit was not raised on any of the samples.

FIELD DUPLICATES

11.3 Did field duplicate results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per each sampling period; RPD <30 %)

Field duplicate results were within acceptance criteria.

EQUIPMENT BLANKS

11.4 Did equipment blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 20-25]

Equipment blank result met QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

11.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R and RPD within 3 SD of historical results of Lab performance)

[FG-ORG, p. 32-33]

DCS results met QC acceptance criteria.

LABORATORY METHOD BLANK

11.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per batch)

[FG-ORG, p. 20-25]

Method blank result was ND and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

11.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter)

[FG-ORG, p. 30-31]

MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

11.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

[FG-ORG, p. 12-16]

Not reviewed.

SAMPLE RESULT VERIFICATION

11.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes ____ no ____

Not reviewed.

11.10 Additional comments: None.

SECTION 12.0: TOTAL ORGANIC HALOGENS (TOX) METHOD SW9020B

Name of reviewer(s) and review date: F. Eileen Roybal 25JUN1999

LEVEL I AND II -- Data Validation

HOLDING TIMES

12.1 Were project-required analytical holding times met? yes √ no ____

(28-day limit from sample date to analysis date for water samples)

[FG-ORG, p. 6-8]

sample date: 2-5MAR1999 analysis date limit: 30,31MAR, 1,2APR1999

Samples were analyzed by 17MAR1999 and met required holding times.

PROJECT REPORTING LIMIT

12.2 Did sample results meet project reporting limits? yes ____ no √

(Quanterra RL: 30 µg/L)

PRL was not provided in SAP. Reporting limit was raised for equipment blank sample due to high analyte levels.

FIELD DUPLICATES

12.3 Did field duplicate results meet frequency and QC acceptance criteria? yes ____ no √

(1 set per each sampling period; RPD ≤ 30 %)

Field duplicate results did not meet QC acceptance criteria. The RPD was 113 percent.

EQUIPMENT BLANKS

12.4 Did equipment blank results meet frequency and QC acceptance criteria? yes ____ no √

(1 set for non-dedicated pump; target compound concentration ≤ RL)

[FG-ORG, p. 20-25]

Equipment blank result did not meet QC acceptance criteria.

DUPLICATE CONTROL SAMPLES (DCSs)

12.5 Did DCS results meet frequency and QC acceptance criteria? yes √ no ____

(1 DCS per batch; %R within 80 to 120% and RPD < 20%)

[FG-ORG, p. 32-33]

DCS results met QC acceptance criteria.

LABORATORY METHOD BLANKS

12.6 Did method blank results meet frequency and QC acceptance criteria? yes √ no ____

(1 method blank per quarter)

[FG-ORG, p. 20-25]

Laboratory method blank result was below reporting limit and met QC acceptance criteria.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATE (MS/MSD)

12.7 Did MS/MSD results meet frequency and QC acceptance criteria? yes √ no ____

(1 set per quarter; %R within 80 to 120 %; RPD < 20 %)

[FG-ORG, p. 30-31]

MS/MSD results met QC acceptance criteria.

LEVEL II -- Data Validation

INSTRUMENT CALIBRATION

12.8 Did initial and continuing calibrations meet frequency and QC criteria? yes ____ no ____

[FG-ORG, p. 12-16]

Not reviewed.

SAMPLE RESULT VERIFICATION

12.9 No omissions, problems, discrepancies, transcription errors, or reduction (dilution, conversion) errors in selected raw data? yes ____ no ____

Not reviewed.

12.10 Additional comments: Qualifier Q (reporting limit is elevated due to high analyte levels) for sample CAFB-B-EB.

Appendix A -- Laboratory Data Validation Checklist

Instruction Notes for the Data Validation Checklist

This data validation checklist will be used when validating the chemical analytical results. Data validation is a systematic and independent verification of data quality and consists of checking, verifying, evaluating, and qualifying the chemical analytical results.

Two different levels of data validation are used with level I being not as detailed or as rigorous as level II. Level I data validation includes: (1) checking holding times limits, (2) evaluating the results of field and laboratory quality-control (QC) samples such as field replicates, matrix spikes, surrogate samples, and duplicate control samples, and (3) checking that contamination during sample processing has not occurred in QC blanks such as equipment, method, ambient, and trip blanks. Most of the information and data used to conduct a level I data validation is contained in the summary-data reports prepared by the reporting laboratory. Level II data validation includes all the level I guidelines plus using the raw-data reports prepared by the reporting laboratory to: (1) check that the laboratory instruments have been properly tuned and calibrated, and (2) verify that selected sample results do not have any omissions, problems, discrepancies, transcription errors, and reduction (dilution, conversion) errors.

Field samples (environmental and QC) are processed and analyzed by the reporting laboratory in specific groups of samples called sample projects (also called sample cases). A sample project usually consists of 20 or fewer samples that are collected from one or more sampling locations (monitoring well) in a given sampling period. Numerous laboratory QC samples also are analyzed with the field samples for each sample project.

This data validation checklist is designed to be used when validating the analytical results for a given sample project and it has a multi-level organization. The first part of the checklist contains general information (section 1.0) about the scope (who, when, how, and what) of the data validation and data reports and completeness (section 2.0) for each sample project. Sections 1.0 and 2.0 will be completed and included with all data validation checklists. The data validation checklist also contains numerous supplemental sections which are listed at the bottom of the first page of this document. These supplemental checklist sections are used for specific analytical methods and will be marked with a checkmark (√) when they are completed for a given sample project. Specific project-required frequency and QC acceptance criteria, and pertinent reference page numbers are listed with most of the checklist items. The major data-validation references are the USEPA guidance documents (USEPA 1994).

Checklist Abbreviations, Acronyms, and Notes

Abbreviations:

Al	aluminum
Ag	silver
As	arsenic
CAP	Chromic Acid Pit
CCV	continuing calibration verification
Cr	chromium
DCS	duplicate control sample
Ba	barium
Be	beryllium
Ca	calcium
Cd	cadmium
Cl	chloride
Co	cobalt
Conc.	concentration
Cu	copper
Diss.	dissolved
DRO	diesel range organics with GC/FID analysis C10-C28
DU	duplicate environmental sample
EB	equipment blank
Fe	iron
FG-INORG	Functional guidelines (EPA) for evaluating inorganic analyses
FG-ORG	Functional guidelines (EPA) for evaluating organic analyses
Fl	fluoride
GFAA	graphite furnace atomic absorption
Hg	mercury
ICP	inductively coupled plasma
ID	identification
IS	internal standards
J	estimated value qualifier
K	potassium
MCAWW	"Methods for Chemical Analysis of Water and Wastes"', EPA-600/4-79-020, March 1983 subsequent revisions.
Mg	magnesium
mg/L	milligrams per liter
Mn	manganese
Mo	molybdenum
MS/MSD	matrix spike/matrix spike duplicate

Checklist Abbreviations, Acronyms, and Notes -- *continued*

Abbreviations:

MW	monitoring well
Na	sodium
Ni	nickel
NO_2	nitrate
NO_3	nitrite
PAC	Chromic Acid Pit duplicate sample identification
Pb	lead
PO_4	orthophosphate
PRL	project reporting limit
QC	quality control
RCLs	Recovery Control Limits
RL	reporting limits
RMAL	Rocky Mountain Analytical Laboratory
RPD	relative percent difference
SA	environmental sample
SAP	Sampling and Analysis Plan
Sb	antimony
SCS	single control sample
Se	selenium
Sn	tin
SO_4	sulfate
SVOC	semivolatile organic compounds
TB	trip blank
TDS	total dissolved solids
TIC	tentatively identified compound
Tl	thallium
TOC	total organic carbon
Tot.	total
TOX	total organic halogen
TPH	total petroleum hydrocarbons
TSS	total suspended solids
USEPA	United States Environmental Protection Agency
USGS/WRD	United States Geological Survey, Water Resources Division
V	vanadium
VOC	volatile organic compounds
Zn	zinc

Checklist Abbreviations, Acronyms, and Notes -- *continued*

Abbreviations:

µg/L	microgram per liter
<	less than
>	greater than
%	percent
%R	percent recovery

USEPA, 1994, USEPA Contract laboratory program national functional guidelines for organic data review, February, 1994, Publication 9240.1-05, Document number PB94-963501, 124 p.

NOTE: this reference is abbreviated FG-ORG in this checklist.

USEPA, 1994, USEPA contract laboratory program national functional guidelines for inorganic data review, February, 1994, Publication 9240.1-05-01, Document number PB94-963502, 42 p.

NOTE: this reference is abbreviated FG-INORG in this checklist.

USGS, 1992, Laboratory data validation checklist: Wyoming District, U.S. Geological Survey checklist prepared for the U.S. Air Force, multiple pages.

LABORATORY DATA REVIEW WORKSHEET

1.0 GENERAL INFORMATION

Data reviewer: Richard Daddow
Date of review: April 19, 1999
Sample project number: DAC030208
Project name: Cannon AFB (4835-36004)
Sample collection date: March 2-5, 1999
Sample matrix and number: 13 - water 2 - Matrix Spikes

Type and number of samples in project:

Type	Number
Environmental	9
Trip blank	3
Equipment blank	1
Ambient blank	
MS/MSD	2
Other:	

INVOICE: OK
see attached invoice

COPY FOR YOUR INFORMATION

2.0 DATA REPORT

Date of Analytical Results Report: 4/9/99
Number of volumes in Raw Data Report: 5
Raw Data Report reviewed? Yes ____ No X

Bound analytical report sent to Miko Roybal by Quanterra.

Were all analyses requested on the COC form performed by the laboratory?
Yes X No ____

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

extra pages in analytical report. (p. 210-218)
Missing Method Blank results for method 8082 in analytical - sent copy to Miko Roybal on 4/21/99. (page 192a)

Were the samples properly preserved upon receipt by the laboratory?
Yes ____ No X

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

Cooler rec'd at lab on 3/4/99 and 3/5/99 had temperatures >6.0°C - USGS project chief Miko Roybal was notified by Quanterra (p. 262-263) - 1 sample bottle was broken when rec'd by lab - sample CAFB-EB (p. 261)

3.0 ANALYTICAL METHODS

Analytical methods used in this project Project No. D9C030208

X	VOC by GC/MS (SW 8240, SW 8260, E524, E624) App. IX 14 day
	Halogenated VOC by GC (SW 8010)
	Aromatic VOC by GC (SW 8020)
X	SVOC by GC/MS (SW 8270) App. IX 7/40 days
X	PAH by HPLC (SW 8310) App IX 7/40
X	Organochlorine pesticides and PCB (~~SW 8080~~) 8081 and 8082 7/40
	Organophosphorous pesticides (SW 8140)
X	Chlorinated herbicides (SW 8150) 7/40
X	Dioxins and Furans (SW 8280) App IX 30/45 days
	Explosives (SW 8330)
X	TOC (E415.1 or SW 9060) 28 days
	TPH (E418.1)
	Oil and Grease (E413.2)
X	TOX (SW 9020) 28 days
	ICP screen for metals (SW 6010) – Total
	ICP/MS screen for metals (SW 6020) – Total 8 metals
	Trace ICP screen for metals (SW 6010 modified)
	Antimony by GFAA (SW 7041)
	Arsenic by GFAA (SW 7060)
	Chromium (SW 7191 or 7196)
	Lead by GFAA (SW ~~7421~~)
X	Mercury by CVAA (SW 7470 or 7471) 28 days
	Selenium by GFAA (~~SW 7740~~)
	Thallium by GFAA (SW 7841)
	Inorganic anions (E300.0)
	Alkalinity (E310.1)
X	Cyanide, total and amenable (SW 9010/9012) 14 days
	Nitrogen, ammonia (E350.1)
	Nitrogen, TKN (E351.2)
	Nitrogen, nitrate (E353.2)
	Nitrogen, nitrate plus nitrite (E353.2)
	Nitrogen, nitrite (E354.1)
	Phosphorous, total or ortho (E365.3)
	Sulfate (E375.4)
X	Sulfide (E376.2) – 9030 7 days
	TDS (E160.1)
	pH (SW 9040 or 9045)
	Percent moisture (D2216)
	Gross alpha and gross beta radioactivity (SW 9310 or RICHRC5014)
	Alpha-emitting radium isotopes (SW 9315)
	Radium-228 (E904.0)
	Uranium (E908.1 or RICHRC5058)
	Other analyses:

Project No. D9C030208

Were analytical holding times met? Yes X No ____

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

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

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

8151A Surrogate: DCAA % Recovery less than lower Control Limit
Samples: CAFB-D (-007), CAFB-U (-011), CAFB-I (-015)
According to case narrative (p. 2) These 3 samples will be extracted and reanalyzed, Results will be reported in lot D9D080151

Did actual reporting limits meet project detection limits?

Organic analyses: Yes ____ No X

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

Method 8260 - Samples CAFB-B-EB (-002)

Method 9020 Samples: -002,

Inorganic analyses: Yes ____ No X

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

Did ~~BCS~~ LCS meet QC acceptance criteria? Yes ____ No X

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

2 recovered outside of control limits
8081A 1 analyte (p. 186)
8310 Naphthalene (p. 200)
6020 Chromium (p. 208)

Project No. 09C030208

Did SCS meet QC acceptance criteria? Yes _____ No _____

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

Not applicable (N/A)

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

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

8260 Acetone 1.2 J ug/L, Methylene Chloride 0.33 J ug/L (p. 167)
6020 - Total Sb 0.20 B ug/L Se 0.20 B ug/L (p. 226)

9020B TOX 3.0 B ug/L (p. 242)

Did the MS/MSD meet QC acceptance criteria? Yes _____ No X

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

% recovered outside of control limits
8270C 1 analyte RPD (p. 184)
8081A 1 analyte MS/MSD (p. 189)
6020 Sb-Total MS/MSD (p. 230)
Tl - Total MS/MSD (p. 230)
9030 Total Sulfide MSD (p. 243)

Were the MS/MSD associated with samples in this project? Yes X No _____

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

Additional comments:

Method 8260 - Internal Stds ~~outs~~ % Recovered outside of control limits -
1 analyte samples: CAFB-B-EB (p. 277) CAFB-J (p. 278)
CAFB-D (p. 281) CAFB-I (p. 285)

QC DATA ASSOCIATION SUMMARY

D9C030208

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	9068037
	WATER	SW846 7470A		9063198	9063050
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9068270	
	WATER	SW846 6010B		9063180	9063034
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
002	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	9068037
	WATER	SW846 7470A		9063198	9063050
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9068270	
	WATER	SW846 6010B		9063180	9063034
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
003	WATER	SW846 8260B		9075249	9075105
004	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9068270	
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138

(Continued on next page)

QC DATA ASSOCIATION SUMMARY

D9C030208

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
005	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9068270	
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
006	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9068270	
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
007	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9070332	9070145
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138

(Continued on next page)

QC DATA ASSOCIATION SUMMARY

D9C030208

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
008	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9077228	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9070332	9070145
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
011	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9077228	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9070332	9070145
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
012	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9064251	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9070332	9070145
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138

(Continued on next page)

QC DATA ASSOCIATION SUMMARY

D9C030208

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
013	WATER	SW846 8260B		9075249	9075105
015	WATER	SW846 9060		9085292	9090063
	WATER	SW846 6020		9067241	9067108
	WATER	SW846 9020B		9077228	9068037
	WATER	SW846 7470A		9067161	9067053
	WATER	SW846 8082		9067176	9067068
	WATER	SW846 8081A		9067174	9067065
	WATER	SW846 8260B		9075249	9075105
	WATER	SW846 8270C		9070332	9070145
	WATER	SW846 6010B		9067229	9067102
	WATER	SW846 9012A		9074329	9074134
	WATER	SW846 8151A		9068143	9068031
	WATER	SW846 8310		9067180	9067073
	WATER	SW846 9030B/9034		9068307	9068138
016	WATER	SW846 8260B		9075249	9075105

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D9C030208
LCS Lot-Sample#: D9C160000-249
Prep Date.....: 03/12/99
Prep Batch #...: 9075249
Dilution Factor: 1

Work Order #...: CRMLW102-LCS
CRMLW103-LCSD
Analysis Date..: 03/12/99
Analysis Time..: 11:52

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
1,1-Dichloroethene	**107**	**(75 - 124)**			**SW846 8260B**
	105	**(75 - 124)**	**2.0**	**(0-20)**	**SW846 8260B**
Benzene	**107**	**(82 - 114)**			**SW846 8260B**
	107	**(82 - 114)**	**0.43**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**102**	**(86 - 120)**			**SW846 8260B**
	103	**(86 - 120)**	**1.1**	**(0-20)**	**SW846 8260B**
Toluene	**100**	**(85 - 115)**			**SW846 8260B**
	100	**(85 - 115)**	**0.12**	**(0-20)**	**SW846 8260B**
Trichloroethene	**108**	**(85 - 115)**			**SW846 8260B**
	106	**(85 - 115)**	**0.96**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(86 - 118)
	100	(86 - 118)
,2-Dichloroethane-d4	96	(76 - 115)
	97	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
	97	(85 - 115)
Toluene-d8	100	(85 - 115)
	100	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: D9C030208 Work Order #...: CRMLW102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C160000-249 CRMLW103-LCSD
Prep Date.....: 03/12/99 Analysis Date..: 03/12/99
Prep Batch #...: 9075249 Analysis Time..: 11:52
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
1,1-Dichloroethene	10.0	10.7	ug/L	107		SW846 8260B
	10.0	10.5	ug/L	105	2.0	SW846 8260B
Benzene	10.0	10.7	ug/L	107		SW846 8260B
	10.0	10.7	ug/L	107	0.43	SW846 8260B
Chlorobenzene	10.0	10.2	ug/L	102		SW846 8260B
	10.0	10.3	ug/L	103	1.1	SW846 8260B
Toluene	10.0	10.0	ug/L	100		SW846 8260B
	10.0	9.98	ug/L	100	0.12	SW846 8260B
Trichloroethene	10.0	10.8	ug/L	108		SW846 8260B
	10.0	10.6	ug/L	106	0.96	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(86 - 118)
	100	(86 - 118)
,2-Dichloroethane-d4	96	(76 - 115)
	97	(76 - 115)
4-Bromofluorobenzene	95	(85 - 115)
	97	(85 - 115)
Toluene-d8	100	(85 - 115)
	100	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D9C030208 **Work Order #...:** CRMLW101 **Matrix.....:** WATER
MB Lot-Sample #: D9C160000-249

Prep Date.....: 03/12/99 **Analysis Time..:** 12:38

Analysis Date..: 03/12/99 **Prep Batch #...:** 9075249
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	**1.2 J**	**10**	**ug/L**	**SW846 8260B**
Acetonitrile	ND	20	ug/L	SW846 8260B
Acrylonitrile	ND	20	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	2.0	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Chloroprene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
loromethane	ND	2.0	ug/L	SW846 8260B
lyl chloride	ND	2.0	ug/L	SW846 8260B
Dibromomethane	ND	1.0	ug/L	SW846 8260B
trans-1,4-Dichloro-2-butene	ND	1.0	ug/L	SW846 8260B
Dichlorodifluoromethane	ND	2.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	0.50	ug/L	SW846 8260B
1,2-Dichloroethene (total)	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
1,4-Dioxane	ND	200	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Trichlorofluoromethane	ND	2.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Iodomethane	ND	1.0	ug/L	SW846 8260B
Isobutyl alcohol	ND	50	ug/L	SW846 8260B
Methacrylonitrile	ND	10	ug/L	SW846 8260B
Methylene chloride	**0.33 J**	**1.0**	**ug/L**	**SW846 8260B**
Methyl methacrylate	ND	1.0	ug/L	SW846 8260B
Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
opionitrile	ND	4.0	ug/L	SW846 8260B

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D9C030208 **Work Order #...:** CRMLW101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Styrene	ND	1.0	ug/L	SW846 8260B
1,1,1,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
1,2,3-Trichloropropane	ND	1.0	ug/L	SW846 8260B
Vinyl acetate	ND	2.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Xylenes (total)	ND	1.0	ug/L	SW846 8260B
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	ug/L	SW846 8260B
1,2-Dibromoethane (EDB)	ND	1.0	ug/L	SW846 8260B
2-Butanone (MEK)	ND	5.0	ug/L	SW846 8260B
Acrolein	ND	20	ug/L	SW846 8260B
Ethyl methacrylate	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(86 - 118)
1,2-Dichloroethane-d4	94	(76 - 115)
4-Bromofluorobenzene	96	(85 - 115)
Toluene-d8	101	(85 - 115)

NOTE(S):

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

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

Method Blank Report

GC/MS Volatiles

Lot-Sample #: D9C160000-249 B **Work Order #:** CRMLW101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None		---------		ug/L

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D9C030208 **Work Order #...:** CRDG4117-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG4118-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/12/99 **Analysis Date..:** 03/12/99
Prep Batch #...: 9075249 **Analysis Time..:** 17:17
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**98**	**(82 - 114)**			**SW846 8260B**
	99	**(82 - 114)**	**0.49**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**94**	**(86 - 120)**			**SW846 8260B**
	96	**(86 - 120)**	**1.9**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**95**	**(75 - 124)**			**SW846 8260B**
	96	**(75 - 124)**	**1.1**	**(0-20)**	**SW846 8260B**
Toluene	**91**	**(85 - 115)**			**SW846 8260B**
	94	**(85 - 115)**	**2.7**	**(0-20)**	**SW846 8260B**
Trichloroethene	**99**	**(85 - 115)**			**SW846 8260B**
	99	**(85 - 115)**	**0.41**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluoromethane	100	(86 - 118)
	98	(86 - 118)
1,2-Dichloroethane-d4	95	(76 - 115)
	93	(76 - 115)
4-Bromofluorobenzene	97	(85 - 115)
	97	(85 - 115)
Toluene-d8	99	(85 - 115)
	101	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: D9C030208 Work Order #...: CRDG4117-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG4118-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/12/99 Analysis Date..: 03/12/99
Prep Batch #...: 9075249 Analysis Time..: 17:17
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	ND	10.0	9.84	ug/L	98		SW846 8260B
	ND	10.0	9.89	ug/L	99	0.49	SW846 8260B
Chlorobenzene	ND	10.0	9.43	ug/L	94		SW846 8260B
	ND	10.0	9.61	ug/L	96	1.9	SW846 8260B
1,1-Dichloroethene	ND	10.0	9.49	ug/L	95		SW846 8260B
	ND	10.0	9.59	ug/L	96	1.1	SW846 8260B
Toluene	ND	10.0	9.13	ug/L	91		SW846 8260B
	ND	10.0	9.38	ug/L	94	2.7	SW846 8260B
Trichloroethene	ND	10.0	9.86	ug/L	99		SW846 8260B
	ND	10.0	9.90	ug/L	99	0.41	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Bromofluoromethane	100	(86 - 118)
	98	(86 - 118)
1,2-Dichloroethane-d4	95	(76 - 115)
	93	(76 - 115)
4-Bromofluorobenzene	97	(85 - 115)
	97	(85 - 115)
Toluene-d8	99	(85 - 115)
	101	(85 - 115)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRFTJ102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C090000-270 CRFTJ103-LCSD
Prep Date.....: 03/09/99 Analysis Date..: 03/15/99
Prep Batch #...: 9068270 Analysis Time..: 13:41
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Acenaphthene	80	(48 - 119)			SW846 8270C
	76	(48 - 119)	5.0	(0-20)	SW846 8270C
4-Chloro-3-methylphenol	81	(48 - 110)			SW846 8270C
	77	(48 - 110)	5.0	(0-20)	SW846 8270C
2-Chlorophenol	81	(45 - 108)			SW846 8270C
	77	(45 - 108)	5.0	(0-22)	SW846 8270C
1,4-Dichlorobenzene	73	(46 - 113)			SW846 8270C
	72	(46 - 113)	1.4	(0-27)	SW846 8270C
2,4-Dinitrotoluene	87	(56 - 125)			SW846 8270C
	81	(56 - 125)	7.2	(0-21)	SW846 8270C
4-Nitrophenol	81	(28 - 129)			SW846 8270C
	71	(28 - 129)	12	(0-32)	SW846 8270C
N-Nitrosodi-n-propylamine	73	(47 - 112)			SW846 8270C
	71	(47 - 112)	2.7	(0-20)	SW846 8270C
entachlorophenol	88	(38 - 117)			SW846 8270C
	87	(38 - 117)	1.5	(0-30)	SW846 8270C
Phenol	76	(40 - 110)			SW846 8270C
	72	(40 - 110)	4.6	(0-20)	SW846 8270C
Pyrene	84	(38 - 141)			SW846 8270C
	86	(38 - 141)	2.6	(0-20)	SW846 8270C
1,2,4-Trichlorobenzene	78	(47 - 116)			SW846 8270C
	73	(47 - 116)	6.4	(0-27)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	85	(46 - 98)
	79	(46 - 98)
Phenol-d5	87	(45 - 103)
	79	(45 - 103)
Nitrobenzene-d5	85	(51 - 101)
	80	(51 - 101)
2-Fluorobiphenyl	83	(49 - 106)
	76	(49 - 106)
2,4,6-Tribromophenol	86	(54 - 107)
	78	(54 - 107)
Terphenyl-d14	91	(49 - 117)
	88	(49 - 117)

NOTE(S):

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

old print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRFTJ102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C090000-270 CRFTJ103-LCSD
Prep Date.....: 03/09/99 Analysis Date..: 03/15/99
Prep Batch #...: 9068270 Analysis Time..: 13:41
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Acenaphthene	100	80.5	ug/L	80		SW846 8270C
	100	76.5	ug/L	76	5.0	SW846 8270C
4-Chloro-3-methylphenol	150	122	ug/L	81		SW846 8270C
	150	116	ug/L	77	5.0	SW846 8270C
2-Chlorophenol	150	121	ug/L	81		SW846 8270C
	150	115	ug/L	77	5.0	SW846 8270C
1,4-Dichlorobenzene	100	73.1	ug/L	73		SW846 8270C
	100	72.1	ug/L	72	1.4	SW846 8270C
2,4-Dinitrotoluene	100	86.7	ug/L	87		SW846 8270C
	100	80.7	ug/L	81	7.2	SW846 8270C
4-Nitrophenol	150	121	ug/L	81		SW846 8270C
	150	107	ug/L	71	12	SW846 8270C
N-Nitrosodi-n-propylamine	100	73.3	ug/L	73		SW846 8270C
	100	71.4	ug/L	71	2.7	SW846 8270C
entachlorophenol	150	132	ug/L	88		SW846 8270C
	150	130	ug/L	87	1.5	SW846 8270C
Phenol	150	113	ug/L	76		SW846 8270C
	150	108	ug/L	72	4.6	SW846 8270C
Pyrene	100	83.8	ug/L	84		SW846 8270C
	100	85.9	ug/L	86	2.6	SW846 8270C
1,2,4-Trichlorobenzene	100	78.0	ug/L	78		SW846 8270C
	100	73.1	ug/L	73	6.4	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	85	(46 - 98)
	79	(46 - 98)
Phenol-d5	87	(45 - 103)
	79	(45 - 103)
Nitrobenzene-d5	85	(51 - 101)
	80	(51 - 101)
2-Fluorobiphenyl	83	(49 - 106)
	76	(49 - 106)
2,4,6-Tribromophenol	86	(54 - 107)
	78	(54 - 107)
Terphenyl-d14	91	(49 - 117)
	88	(49 - 117)

NOTE(S):

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

old print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRJAV102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C110000-332 CRJAV103-LCSD
Prep Date.....: 03/11/99 Analysis Date..: 03/18/99
Prep Batch #...: 9070332 Analysis Time..: 10:50
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Acenaphthene	84	(48 - 119)			SW846 8270C
	84	(48 - 119)	0.66	(0-20)	SW846 8270C
4-Chloro-3-methylphenol	89	(48 - 110)			SW846 8270C
	89	(48 - 110)	0.050	(0-20)	SW846 8270C
2-Chlorophenol	85	(45 - 108)			SW846 8270C
	88	(45 - 108)	2.7	(0-22)	SW846 8270C
1,4-Dichlorobenzene	82	(46 - 113)			SW846 8270C
	84	(46 - 113)	1.6	(0-27)	SW846 8270C
2,4-Dinitrotoluene	89	(56 - 125)			SW846 8270C
	89	(56 - 125)	0.63	(0-21)	SW846 8270C
4-Nitrophenol	88	(28 - 129)			SW846 8270C
	88	(28 - 129)	0.49	(0-32)	SW846 8270C
N-Nitrosodi-n-propylamine	80	(47 - 112)			SW846 8270C
	78	(47 - 112)	3.0	(0-20)	SW846 8270C
entachlorophenol	90	(38 - 117)			SW846 8270C
	92	(38 - 117)	2.7	(0-30)	SW846 8270C
Phenol	80	(40 - 110)			SW846 8270C
	82	(40 - 110)	2.7	(0-20)	SW846 8270C
Pyrene	85	(38 - 141)			SW846 8270C
	87	(38 - 141)	2.9	(0-20)	SW846 8270C
1,2,4-Trichlorobenzene	83	(47 - 116)			SW846 8270C
	85	(47 - 116)	1.2	(0-27)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	91	(46 - 98)
	89	(46 - 98)
Phenol-d5	92	(45 - 103)
	92	(45 - 103)
Nitrobenzene-d5	90	(51 - 101)
	87	(51 - 101)
2-Fluorobiphenyl	85	(49 - 106)
	82	(49 - 106)
2,4,6-Tribromophenol	89	(54 - 107)
	86	(54 - 107)
Terphenyl-d14	89	(49 - 117)
	87	(49 - 117)

NOTE(S):

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

old print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRJAV102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C110000-332 CRJAV103-LCSD
Prep Date.....: 03/11/99 Analysis Date..: 03/18/99
Prep Batch #...: 9070332 Analysis Time..: 10:50
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Acenaphthene	100	83.5	ug/L	84		SW846 8270C
	100	84.1	ug/L	84	0.66	SW846 8270C
4-Chloro-3-methylphenol	150	134	ug/L	89		SW846 8270C
	150	134	ug/L	89	0.050	SW846 8270C
2-Chlorophenol	150	128	ug/L	85		SW846 8270C
	150	132	ug/L	88	2.7	SW846 8270C
1,4-Dichlorobenzene	100	82.3	ug/L	82		SW846 8270C
	100	83.6	ug/L	84	1.6	SW846 8270C
2,4-Dinitrotoluene	100	89.2	ug/L	89		SW846 8270C
	100	88.6	ug/L	89	0.63	SW846 8270C
4-Nitrophenol	150	132	ug/L	88		SW846 8270C
	150	131	ug/L	88	0.49	SW846 8270C
N-Nitrosodi-n-propylamine	100	80.5	ug/L	80		SW846 8270C
	100	78.1	ug/L	78	3.0	SW846 8270C
'entachlorophenol	150	135	ug/L	90		SW846 8270C
	150	138	ug/L	92	2.7	SW846 8270C
Phenol	150	119	ug/L	80		SW846 8270C
	150	123	ug/L	82	2.7	SW846 8270C
Pyrene	100	84.8	ug/L	85		SW846 8270C
	100	87.3	ug/L	87	2.9	SW846 8270C
1,2,4-Trichlorobenzene	100	83.5	ug/L	83		SW846 8270C
	100	84.5	ug/L	85	1.2	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	91	(46 - 98)
	89	(46 - 98)
Phenol-d5	92	(45 - 103)
	92	(45 - 103)
Nitrobenzene-d5	90	(51 - 101)
	87	(51 - 101)
2-Fluorobiphenyl	85	(49 - 106)
	82	(49 - 106)
2,4,6-Tribromophenol	89	(54 - 107)
	86	(54 - 107)
Terphenyl-d14	89	(49 - 117)
	87	(49 - 117)

NOTE(S):

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

Bold print denotes control parameters

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRFTJ101 **Matrix.....:** WATER
MB Lot-Sample #: D9C090000-270

Prep Date.....: 03/09/99 **Analysis Time..:** 13:06

Analysis Date..: 03/15/99 **Prep Batch #...:** 9068270
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Di-n-butyl phthalate	ND	10	ug/L	SW846 8270C
1,3-Dichlorobenzene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Phenol	ND	10	ug/L	SW846 8270C
2-Chlorophenol	ND	10	ug/L	SW846 8270C
bis(2-Chloroethyl) ether	ND	10	ug/L	SW846 8270C
bis(2-Chloroethoxy) methane	ND	10	ug/L	SW846 8270C
1,4-Dichlorobenzene	ND	10	ug/L	SW846 8270C
1,2-Dichlorobenzene	ND	10	ug/L	SW846 8270C
2-Methylphenol	ND	10	ug/L	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846 8270C
2,2'-oxybis(1-Chloropropa	ND	10	ug/L	SW846 8270C
Methylphenol	ND	10	ug/L	SW846 8270C
Nitrosodi-n-propylamine	ND	10	ug/L	SW846 8270C
Hexachloroethane	ND	10	ug/L	SW846 8270C
Nitrobenzene	ND	10	ug/L	SW846 8270C
Isophorone	ND	10	ug/L	SW846 8270C
2-Nitrophenol	ND	10	ug/L	SW846 8270C
2,4-Dimethylphenol	ND	10	ug/L	SW846 8270C
2,4-Dichlorophenol	ND	10	ug/L	SW846 8270C
1,2,4-Trichlorobenzene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
4-Chloroaniline	ND	10	ug/L	SW846 8270C
Hexachlorobutadiene	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Hexachlorocyclopentadiene	ND	50	ug/L	SW846 8270C
2,4,5-Trichlorophenol	ND	10	ug/L	SW846 8270C
2,4,6-Trichlorophenol	ND	10	ug/L	SW846 8270C
2-Chloronaphthalene	ND	10	ug/L	SW846 8270C
Dimethyl phthalate	ND	10	ug/L	SW846 8270C
Acenaphthene	ND	10	ug/L	SW846 8270C
3-Nitroaniline	ND	50	ug/L	SW846 8270C
2,4-Dinitrophenol	ND	50	ug/L	SW846 8270C
4-Nitrophenol	ND	50	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
2,4-Dinitrotoluene	ND	10	ug/L	SW846 8270C
2,6-Dinitrotoluene	ND	10	ug/L	SW846 8270C
ethyl phthalate	ND	10	ug/L	SW846 8270C
Chlorophenyl phenyl ether	ND	10	ug/L	SW846 8270C

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRFTJ101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Fluorene	ND	10	ug/L	SW846 8270C
4-Nitroaniline	ND	50	ug/L	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	50	ug/L	SW846 8270C
N-Nitrosodiphenylamine	ND	10	ug/L	SW846 8270C
4-Bromophenyl phenyl ether	ND	10	ug/L	SW846 8270C
Hexachlorobenzene	ND	10	ug/L	SW846 8270C
Pentachlorophenol	ND	50	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Butyl benzyl phthalate	ND	10	ug/L	SW846 8270C
3,3'-Dichlorobenzidine	ND	50	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Di-n-octyl phthalate	ND	10	ug/L	SW846 8270C
nzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
nzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
4-Chloro-3-methylphenol	ND	10	ug/L	SW846 8270C
2-Nitroaniline	ND	50	ug/L	SW846 8270C
Acetophenone	ND	10	ug/L	SW846 8270C
2-Acetylaminofluorene	ND	100	ug/L	SW846 8270C
4-Aminobiphenyl	ND	50	ug/L	SW846 8270C
Aniline	ND	10	ug/L	SW846 8270C
Aramite	ND	20	ug/L	SW846 8270C
Benzyl alcohol	ND	10	ug/L	SW846 8270C
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L	SW846 8270C
2,6-Dichlorophenol	ND	10	ug/L	SW846 8270C
4-Dimethylaminoazobenzene	ND	20	ug/L	SW846 8270C
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L	SW846 8270C
3,3'-Dimethylbenzidine	ND	20	ug/L	SW846 8270C
alpha,alpha-Dimethylphene	ND	50	ug/L	SW846 8270C
1,3-Dinitrobenzene	ND	10	ug/L	SW846 8270C
Diphenylamine	ND	10	ug/L	SW846 8270C
Ethyl methanesulfonate	ND	10	ug/L	SW846 8270C
xachloropropene	ND	100	ug/L	SW846 8270C
osafrole	ND	20	ug/L	SW846 8270C

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRFTJ101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methapyrilene	ND	50	ug/L	SW846 8270C
3-Methylcholanthrene	ND	20	ug/L	SW846 8270C
Methyl methanesulfonate	ND	10	ug/L	SW846 8270C
3-Methylphenol	ND	10	ug/L	SW846 8270C
1,4-Naphthoquinone	ND	50	ug/L	SW846 8270C
1-Naphthylamine	ND	10	ug/L	SW846 8270C
2-Naphthylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodi-n-butylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodiethylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodimethylamine	ND	10	ug/L	SW846 8270C
N-Nitrosomethylethylamine	ND	10	ug/L	SW846 8270C
N-Nitrosomorpholine	ND	10	ug/L	SW846 8270C
N-Nitrosopiperidine	ND	10	ug/L	SW846 8270C
N-Nitrosopyrrolidine	ND	10	ug/L	SW846 8270C
5-Nitro-o-toluidine	ND	20	ug/L	SW846 8270C
Pentachlorobenzene	ND	10	ug/L	SW846 8270C
Pentachloroethane	ND	50	ug/L	SW846 8270C
Pentachloronitrobenzene	ND	50	ug/L	SW846 8270C
enacetin	ND	20	ug/L	SW846 8270C
Picoline	ND	20	ug/L	SW846 8270C
Pronamide	ND	20	ug/L	SW846 8270C
Pyridine	ND	20	ug/L	SW846 8270C
Safrole	ND	20	ug/L	SW846 8270C
1,2,4,5-Tetrachloro-benzene	ND	10	ug/L	SW846 8270C
2,3,4,6-Tetrachlorophenol	ND	50	ug/L	SW846 8270C
2-Toluidine	ND	10	ug/L	SW846 8270C
1,3,5-Trinitrobenzene	ND	50	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	91	(46 - 98)
Phenol-d5	94	(45 - 103)
Nitrobenzene-d5	90	(51 - 101)
2-Fluorobiphenyl	87	(49 - 106)
2,4,6-Tribromophenol	86	(54 - 107)
Terphenyl-d14	93	(49 - 117)

NOTE(S):

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

US GEOLOGICAL SURVEY

Method Blank Report

GC/MS Semivolatiles

Lot-Sample #: D9C090000-270 B **Work Order #:** CRFTJ101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown #1		4.3	M	7.037	ug/L
Unknown #2		6.8	M	4.251	ug/L
Unknown #3		10	M	4.796	ug/L
Unknown #4		5.4	M	6.099	ug/L
1-propene,1,1,2-trichloro		19 T2	M	6.211	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRJAV101 **Matrix.....:** WATER
MB Lot-Sample #: D9C110000-332

Prep Date.....: 03/11/99 **Analysis Time..:** 10:16
Analysis Date..: 03/18/99 **Prep Batch #...:** 9070332
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Di-n-butyl phthalate	ND	10	ug/L	SW846 8270C
1,3-Dichlorobenzene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Phenol	ND	10	ug/L	SW846 8270C
2-Chlorophenol	ND	10	ug/L	SW846 8270C
bis(2-Chloroethyl) ether	ND	10	ug/L	SW846 8270C
bis(2-Chloroethoxy) methane	ND	10	ug/L	SW846 8270C
1,4-Dichlorobenzene	ND	10	ug/L	SW846 8270C
1,2-Dichlorobenzene	ND	10	ug/L	SW846 8270C
2-Methylphenol	ND	10	ug/L	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846 8270C
2,2'-oxybis(1-Chloropropa	ND	10	ug/L	SW846 8270C
Methylphenol	ND	10	ug/L	SW846 8270C
Nitrosodi-n-propylamine	ND	10	ug/L	SW846 8270C
Hexachloroethane	ND	10	ug/L	SW846 8270C
Nitrobenzene	ND	10	ug/L	SW846 8270C
Isophorone	ND	10	ug/L	SW846 8270C
2-Nitrophenol	ND	10	ug/L	SW846 8270C
2,4-Dimethylphenol	ND	10	ug/L	SW846 8270C
2,4-Dichlorophenol	ND	10	ug/L	SW846 8270C
1,2,4-Trichlorobenzene	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
4-Chloroaniline	ND	10	ug/L	SW846 8270C
Hexachlorobutadiene	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
Hexachlorocyclopentadiene	ND	50	ug/L	SW846 8270C
2,4,5-Trichlorophenol	ND	10	ug/L	SW846 8270C
2,4,6-Trichlorophenol	ND	10	ug/L	SW846 8270C
2-Chloronaphthalene	ND	10	ug/L	SW846 8270C
Dimethyl phthalate	ND	10	ug/L	SW846 8270C
Acenaphthene	ND	10	ug/L	SW846 8270C
3-Nitroaniline	ND	50	ug/L	SW846 8270C
2,4-Dinitrophenol	ND	50	ug/L	SW846 8270C
4-Nitrophenol	ND	50	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
2,4-Dinitrotoluene	ND	10	ug/L	SW846 8270C
2,6-Dinitrotoluene	ND	10	ug/L	SW846 8270C
ethyl phthalate	ND	10	ug/L	SW846 8270C
Chlorophenyl phenyl ether	ND	10	ug/L	SW846 8270C

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRJAV101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Fluorene	ND	10	ug/L	SW846 8270C
4-Nitroaniline	ND	50	ug/L	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	50	ug/L	SW846 8270C
N-Nitrosodiphenylamine	ND	10	ug/L	SW846 8270C
4-Bromophenyl phenyl ether	ND	10	ug/L	SW846 8270C
Hexachlorobenzene	ND	10	ug/L	SW846 8270C
Pentachlorophenol	ND	50	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
Butyl benzyl phthalate	ND	10	ug/L	SW846 8270C
3,3'-Dichlorobenzidine	ND	50	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Di-n-octyl phthalate	ND	10	ug/L	SW846 8270C
nzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
nzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
4-Chloro-3-methylphenol	ND	10	ug/L	SW846 8270C
2-Nitroaniline	ND	50	ug/L	SW846 8270C
Acetophenone	ND	10	ug/L	SW846 8270C
2-Acetylaminofluorene	ND	100	ug/L	SW846 8270C
4-Aminobiphenyl	ND	50	ug/L	SW846 8270C
Aniline	ND	10	ug/L	SW846 8270C
Aramite	ND	20	ug/L	SW846 8270C
Benzyl alcohol	ND	10	ug/L	SW846 8270C
2-sec-Butyl-4,6-dinitro-phenol	ND	20	ug/L	SW846 8270C
2,6-Dichlorophenol	ND	10	ug/L	SW846 8270C
4-Dimethylaminoazobenzene	ND	20	ug/L	SW846 8270C
7,12-Dimethylbenz(a)-anthracene	ND	20	ug/L	SW846 8270C
3,3'-Dimethylbenzidine	ND	20	ug/L	SW846 8270C
alpha,alpha-Dimethylphene	ND	50	ug/L	SW846 8270C
1,3-Dinitrobenzene	ND	10	ug/L	SW846 8270C
Diphenylamine	ND	10	ug/L	SW846 8270C
Ethyl methanesulfonate	ND	10	ug/L	SW846 8270C
xachloropropene	ND	100	ug/L	SW846 8270C
osafrole	ND	20	ug/L	SW846 8270C

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRJAV101 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Methapyrilene	ND	50	ug/L	SW846 8270C
3-Methylcholanthrene	ND	20	ug/L	SW846 8270C
Methyl methanesulfonate	ND	10	ug/L	SW846 8270C
3-Methylphenol	ND	10	ug/L	SW846 8270C
1,4-Naphthoquinone	ND	50	ug/L	SW846 8270C
1-Naphthylamine	ND	10	ug/L	SW846 8270C
2-Naphthylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodi-n-butylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodiethylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodimethylamine	ND	10	ug/L	SW846 8270C
N-Nitrosomethylethylamine	ND	10	ug/L	SW846 8270C
N-Nitrosomorpholine	ND	10	ug/L	SW846 8270C
N-Nitrosopiperidine	ND	10	ug/L	SW846 8270C
N-Nitrosopyrrolidine	ND	10	ug/L	SW846 8270C
5-Nitro-o-toluidine	ND	20	ug/L	SW846 8270C
Pentachlorobenzene	ND	10	ug/L	SW846 8270C
Pentachloroethane	ND	50	ug/L	SW846 8270C
Pentachloronitrobenzene	ND	50	ug/L	SW846 8270C
enacetin	ND	20	ug/L	SW846 8270C
-Piccline	ND	20	ug/L	SW846 8270C
Pronamide	ND	20	ug/L	SW846 8270C
Pyridine	ND	20	ug/L	SW846 8270C
Safrole	ND	20	ug/L	SW846 8270C
1,2,4,5-Tetrachloro-benzene	ND	10	ug/L	SW846 8270C
2,3,4,6-Tetrachlorophenol	ND	50	ug/L	SW846 8270C
2-Toluidine	ND	10	ug/L	SW846 8270C
1,3,5-Trinitrobenzene	ND	50	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Flucrophenol	88	(46 - 98)
Phenol-d5	89	(45 - 103)
Nitrobenzene-d5	84	(51 - 101)
2-Flucrobiphenyl	84	(49 - 106)
2,4,6-Tribromophenol	87	(54 - 107)
Terphenyl-d14	90	(49 - 117)

NOTE(S):

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

T2 - Confident identification - major ions and ratios largely agree.

US GEOLOGICAL SURVEY

Method Blank Report

GC/MS Semivolatiles

Lot-Sample #: D9C110000-332 B **Work Order #:** CRJAV101 **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		7.3	M	4.232	ug/L
Unknown		7.3	M	4.771	ug/L
1-Propene,1,1,2-trichloro-	21400-25-9	8.4 T2	M	6.192	ug/L

NOTE(S):

M: Result was measured against nearest internal standard assuming a response factor of 1.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRDG4119-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411A-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/11/99 Analysis Date..: 03/18/99
Prep Batch #...: 9070332 Analysis Time..: 14:18
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Phenol	79	(40 - 110)			SW846 8270C
	74	(40 - 110)	6.5	(0-20)	SW846 8270C
2-Chlorophenol	83	(45 - 108)			SW846 8270C
	78	(45 - 108)	5.6	(0-22)	SW846 8270C
1,4-Dichlorobenzene	80	(46 - 113)			SW846 8270C
	76	(46 - 113)	5.1	(0-27)	SW846 8270C
N-Nitrosodi-n-propylamine	79	(47 - 112)			SW846 8270C
	56 p	(47 - 112)	35	(0-20)	SW846 8270C
1,2,4-Trichlorobenzene	82	(47 - 116)			SW846 8270C
	79	(47 - 116)	3.4	(0-27)	SW846 8270C
Acenaphthene	82	(48 - 119)			SW846 8270C
	79	(48 - 119)	3.1	(0-20)	SW846 8270C
4-Nitrophenol	84	(28 - 129)			SW846 8270C
	82	(28 - 129)	2.6	(0-32)	SW846 8270C
,4-Dinitrotoluene	89	(56 - 125)			SW846 8270C
	87	(56 - 125)	2.8	(0-21)	SW846 8270C
Pentachlorophenol	83	(38 - 117)			SW846 8270C
	87	(38 - 117)	4.4	(0-30)	SW846 8270C
Pyrene	83	(38 - 141)			SW846 8270C
	74	(38 - 141)	12	(0-20)	SW846 8270C
4-Chloro-3-methylphenol	86	(48 - 110)			SW846 8270C
	84	(48 - 110)	2.5	(0-20)	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	89	(46 - 98)
	81	(46 - 98)
Phenol-d5	89	(45 - 103)
	82	(45 - 103)
Nitrobenzene-d5	90	(51 - 101)
	83	(51 - 101)
2-Fluorobiphenyl	83	(49 - 106)
	82	(49 - 106)
2,4,6-Tribromophenol	88	(54 - 107)
	82	(54 - 107)
Terphenyl-d14	89	(49 - 117)
	84	(49 - 117)

TE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRDG4119-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411A-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/11/99 Analysis Date..: 03/18/99
Prep Batch #...: 9070332 Analysis Time..: 14:18
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Phenol	ND	153	121	ug/L	79		SW846 8270C
	ND	154	114	ug/L	74	6.5	SW846 8270C
2-Chlorophenol	ND	153	127	ug/L	83		SW846 8270C
	ND	154	120	ug/L	78	5.6	SW846 8270C
1,4-Dichlorobenzene	ND	102	81.5	ug/L	80		SW846 8270C
	ND	103	77.9	ug/L	76	5.1	SW846 8270C
N-Nitrosodi-n-propylamine	ND	102	81.1	ug/L	79		SW846 8270C
	ND	103	57.0 p	ug/L	56	35	SW846 8270C
1,2,4-Trichlorobenzene	ND	102	83.4	ug/L	82		SW846 8270C
	ND	103	81.0	ug/L	79	3.4	SW846 8270C
Acenaphthene	ND	102	83.2	ug/L	82		SW846 8270C
	ND	103	81.1	ug/L	79	3.1	SW846 8270C
4-Nitrophenol	ND	153	128	ug/L	84		SW846 8270C
	ND	154	126	ug/L	82	2.6	SW846 8270C
2,4-Dinitrotoluene	ND	102	91.0	ug/L	89		SW846 8270C
	ND	103	88.9	ug/L	87	2.8	SW846 8270C
Pentachlorophenol	ND	153	127	ug/L	83		SW846 8270C
	ND	154	133	ug/L	87	4.4	SW846 8270C
Pyrene	ND	102	84.7	ug/L	83		SW846 8270C
	ND	103	75.7	ug/L	74	12	SW846 8270C
4-Chloro-3-methylphenol	ND	153	132	ug/L	86		SW846 8270C
	ND	154	130	ug/L	84	2.5	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	89	(46 - 98)
	81	(46 - 98)
Phenol-d5	89	(45 - 103)
	82	(45 - 103)
Nitrobenzene-d5	90	(51 - 101)
	83	(51 - 101)
2-Fluorobiphenyl	83	(49 - 106)
	82	(49 - 106)
2,4,6-Tribromophenol	88	(54 - 107)
	82	(54 - 107)
Terphenyl-d14	89	(49 - 117)
	84	(49 - 117)

NOTE(S):

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

Bold print denotes control parameters

p Relative percent difference (RPD) is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRED8102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C080000-174 CRED8103-LCSD
Prep Date.....: 03/08/99 Analysis Date..: 03/27/99
Prep Batch #...: 9067174 Analysis Time..: 07:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
4,4'-DDT	**70**	**(68 - 125)**			**SW846 8081A**
	80	**(68 - 125)**	**13**	**(0-15)**	**SW846 8081A**
Aldrin	**93**	**(52 - 114)**			**SW846 8081A**
	98	**(52 - 114)**	**5.6**	**(0-21)**	**SW846 8081A**
Dieldrin	**91**	**(62 - 111)**			**SW846 8081A**
	100	**(62 - 111)**	**9.8**	**(0-18)**	**SW846 8081A**
Endrin	**92**	**(69 - 125)**			**SW846 8081A**
	101	**(69 - 125)**	**9.7**	**(0-19)**	**SW846 8081A**
gamma-BHC (Lindane)	**38 a**	**(65 - 122)**			**SW846 8081A**
	40 a	**(65 - 122)**	**6.6**	**(0-19)**	**SW846 8081A**
Heptachlor	**94**	**(60 - 124)**			**SW846 8081A**
	102	**(60 - 124)**	**8.3**	**(0-19)**	**SW846 8081A**

URROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	90	(51 - 132)
	103	(51 - 132)
Tetrachloro-m-xylene	82	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRED8102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C080000-174 CRED8103-LCSD
Prep Date.....: 03/08/99 Analysis Date..: 03/27/99
Prep Batch #...: 9067174 Analysis Time..: 07:57
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
4,4'-DDT	**0.500**	**0.351**	**ug/L**	**70**		**SW846 8081A**
	0.500	**0.400**	**ug/L**	**80**	**13**	**SW846 8081A**
Aldrin	**0.200**	**0.186**	**ug/L**	**93**		**SW846 8081A**
	0.200	**0.197**	**ug/L**	**98**	**5.6**	**SW846 8081A**
Dieldrin	**0.500**	**0.453**	**ug/L**	**91**		**SW846 8081A**
	0.500	**0.500**	**ug/L**	**100**	**9.8**	**SW846 8081A**
Endrin	**0.500**	**0.459**	**ug/L**	**92**		**SW846 8081A**
	0.500	**0.506**	**ug/L**	**101**	**9.7**	**SW846 8081A**
gamma-BHC (Lindane)	**0.200**	**0.0758**	**aug/L**	**38**		**SW846 8081A**
	0.200	**0.0810**	**aug/L**	**40**	**6.6**	**SW846 8081A**
Heptachlor	**0.200**	**0.188**	**ug/L**	**94**		**SW846 8081A**
	0.200	**0.205**	**ug/L**	**102**	**8.3**	**SW846 8081A**

URROGATE	PERCENT RECOVERY	RECOVERY LIMITS
ecachlorobiphenyl	90	(51 - 132)
	103	(51 - 132)
Tetrachloro-m-xylene	82	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRED8101 **Matrix.....:** WATER
MB Lot-Sample #: D9C080000-174

Prep Date.....: 03/08/99 **Analysis Time..:** 07:22

Analysis Date..: 03/27/99 **Prep Batch #...:** 9067174
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diallate	ND	1.0	ug/L	SW846 8081A
Isodrin	ND	0.10	ug/L	SW846 8081A
Kepone	ND	1.0	ug/L	SW846 8081A
Aldrin	ND	0.050	ug/L	SW846 8081A
alpha-BHC	ND	0.050	ug/L	SW846 8081A
beta-BHC	ND	0.050	ug/L	SW846 8081A
delta-BHC	ND	0.050	ug/L	SW846 8081A
gamma-BHC (Lindane)	ND	0.050	ug/L	SW846 8081A
alpha-Chlordane	ND	0.050	ug/L	SW846 8081A
gamma-Chlordane	ND	0.050	ug/L	SW846 8081A
4,4'-DDD	ND	0.050	ug/L	SW846 8081A
4,4'-DDE	ND	0.050	ug/L	SW846 8081A
4,4'-DDT	ND	0.050	ug/L	SW846 8081A
Dieldrin	ND	0.050	ug/L	SW846 8081A
Endosulfan I	ND	0.050	ug/L	SW846 8081A
Endosulfan II	ND	0.050	ug/L	SW846 8081A
Endosulfan sulfate	ND	0.050	ug/L	SW846 8081A
Endrin	ND	0.050	ug/L	SW846 8081A
Endrin aldehyde	ND	0.050	ug/L	SW846 8081A
Heptachlor	ND	0.050	ug/L	SW846 8081A
Heptachlor epoxide	ND	0.050	ug/L	SW846 8081A
Methoxychlor	ND	0.10	ug/L	SW846 8081A
Toxaphene	ND	2.0	ug/L	SW846 8081A
Endrin ketone	ND	0.050	ug/L	SW846 8081A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	98	(51 - 132)
Tetrachloro-m-xylene	85	(56 - 107)

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRDG411C-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411D-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 16:29
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aldrin	**97**	**(52 - 114)**			**SW846 8081A**
	100	**(52 - 114)**	**2.3**	**(0-21)**	**SW846 8081A**
gamma-BHC (Lindane)	**39 a**	**(65 - 122)**			**SW846 8081A**
	39 a	**(65 - 122)**	**1.9**	**(0-19)**	**SW846 8081A**
4,4'-DDT	**72**	**(68 - 125)**			**SW846 8081A**
	77	**(68 - 125)**	**6.2**	**(0-15)**	**SW846 8081A**
Dieldrin	**94**	**(62 - 111)**			**SW846 8081A**
	97	**(62 - 111)**	**3.4**	**(0-18)**	**SW846 8081A**
Endrin	**95**	**(69 - 125)**			**SW846 8081A**
	99	**(69 - 125)**	**3.6**	**(0-19)**	**SW846 8081A**
Heptachlor	**98**	**(60 - 124)**			**SW846 8081A**
	102	**(60 - 124)**	**3.8**	**(0-19)**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	92	(51 - 132)
	98	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRDG411C-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411D-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/27/99
Prep Batch #...: 9067174 **Analysis Time..:** 16:29
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Aldrin	**ND**	**0.202**	**0.197**	**ug/L**	**97**		**SW846 8081A**
	ND	**0.202**	**0.201**	**ug/L**	**100**	**2.3**	**SW846 8081A**
gamma-BHC (Lindane)	**ND**	**0.202**	**0.0778**	**ug/L**	**39**		**SW846 8081A**
	ND	**0.202**	**0.0793**	**ug/L**	**39**	**1.9**	**SW846 8081A**
4,4'-DDT	**ND**	**0.505**	**0.365**	**ug/L**	**72**		**SW846 8081A**
	ND	**0.505**	**0.388**	**ug/L**	**77**	**6.2**	**SW846 8081A**
Dieldrin	**ND**	**0.505**	**0.474**	**ug/L**	**94**		**SW846 8081A**
	ND	**0.505**	**0.490**	**ug/L**	**97**	**3.4**	**SW846 8081A**
Endrin	**ND**	**0.505**	**0.480**	**ug/L**	**95**		**SW846 8081A**
	ND	**0.505**	**0.498**	**ug/L**	**99**	**3.6**	**SW846 8081A**
Heptachlor	**ND**	**0.202**	**0.198**	**ug/L**	**98**		**SW846 8081A**
	ND	**0.202**	**0.206**	**ug/L**	**102**	**3.8**	**SW846 8081A**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Decachlorobiphenyl	92	(51 - 132)
	98	(51 - 132)
Tetrachloro-m-xylene	86	(56 - 107)
	87	(56 - 107)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CREDG102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C080000-176 CREDG103-LCSD
Prep Date.....: 03/08/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9067176 **Analysis Time..:** 22:19
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	**107**	**(71 - 119)**			**SW846 8082**
	108	**(71 - 119)**	**0.96**	**(0-15)**	**SW846 8082**
Aroclor 1260	**107**	**(59 - 116)**			**SW846 8082**
	107	**(59 - 116)**	**0.42**	**(0-15)**	**SW846 8082**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(65 - 137)
	84	(65 - 137)
Decachlorobiphenyl	94	(66 - 151)
	92	(66 - 151)

NOTE(S):

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

ıld print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CREDG102-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D9C080000-176 CREDG103-LCSD
Prep Date.....: 03/08/99 **Analysis Date..:** 03/18/99
Prep Batch #...: 9067176 **Analysis Time..:** 22:19
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Aroclor 1016	2.00	2.14	ug/L	107		SW846 8082
	2.00	2.16	ug/L	108	0.96	SW846 8082
Aroclor 1260	2.00	2.14	ug/L	107		SW846 8082
	2.00	2.13	ug/L	107	0.42	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	84	(65 - 137)
	84	(65 - 137)
Decachlorobiphenyl	94	(66 - 151)
	92	(66 - 151)

NOTE(S):

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

ld print denotes control parameters

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CREDG101 **Matrix.....:** WATER
MB Lot-Sample #: D9C080000-176

Prep Date.....: 03/08/99 **Analysis Time..:** 21:51
Analysis Date..: 03/18/99 **Prep Batch #...:** 9067176
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Aroclor 1016	ND	1.0	ug/L	SW846 8082
Aroclor 1221	ND	1.0	ug/L	SW846 8082
Aroclor 1232	ND	1.0	ug/L	SW846 8082
Aroclor 1242	ND	1.0	ug/L	SW846 8082
Aroclor 1248	ND	1.0	ug/L	SW846 8082
Aroclor 1254	ND	1.0	ug/L	SW846 8082
Aroclor 1260	ND	1.0	ug/L	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	80	(65 - 137)
Decachlorobiphenyl	93	(66 - 151)

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRDG411E-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411F-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/08/99 Analysis Date..: 03/25/99
Prep Batch #...: 9067176 Analysis Time..: 08:16
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Aroclor 1016	95	(71 - 119)			SW846 8082
	95	(71 - 119)	0.06	(0-15)	SW846 8082
Aroclor 1260	91	(59 - 116)			SW846 8082
	90	(59 - 116)	0.38	(0-15)	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(65 - 137)
	85	(65 - 137)
Decachlorobiphenyl	90	(66 - 151)
	89	(66 - 151)

NOTE(S):

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

old print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRDG411E-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411F-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/08/99 **Analysis Date..:** 03/25/99
Prep Batch #...: 9067176 **Analysis Time..:** 08:16
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Aroclor 1016	ND	2.04	1.93	ug/L	95		SW846 8082
	ND	2.04	1.93	ug/L	95	0.06	SW846 8082
Aroclor 1260	ND	2.04	1.85	ug/L	91		SW846 8082
	ND	2.04	1.85	ug/L	90	0.38	SW846 8082

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Tetrachloro-m-xylene	83	(65 - 137)
	85	(65 - 137)
Decachlorobiphenyl	90	(66 - 151)
	89	(66 - 151)

NOTE(S):

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

old print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRF66102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C090000-143 CRF66103-LCSD
Prep Date.....: 03/09/99 Analysis Date..: 03/26/99
Prep Batch #...: 9068143 Analysis Time..: 02:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	65	(16 - 135)			SW846 8151A
	63	(16 - 135)	2.5	(0-27)	SW846 8151A
2,4,5-TP (Silvex)	48	(18 - 103)			SW846 8151A
	39	(18 - 103)	19	(0-31)	SW846 8151A
2,4,5-T	55	(35 - 109)			SW846 8151A
	58	(35 - 109)	5.4	(0-29)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	18	(16 - 123)
	25	(16 - 123)

NOTE(S):

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

old print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRF66102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C090000-143 CRF66103-LCSD
Prep Date.....: 03/09/99 Analysis Date..: 03/26/99
Prep Batch #...: 9068143 Analysis Time..: 02:00
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2,4-D	16.0	10.4	ug/L	65		SW846 8151A
	16.0	10.1	ug/L	63	2.5	SW846 8151A
2,4,5-TP (Silvex)	4.00	1.90	ug/L	48		SW846 8151A
	4.00	1.57	ug/L	39	19	SW846 8151A
2,4,5-T	4.00	2.20	ug/L	55		SW846 8151A
	4.00	2.32	ug/L	58	5.4	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	18	(16 - 123)
	25	(16 - 123)

NOTE(S):

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

ld print denotes control parameters

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: D9C030208
MB Lot-Sample #: D9C090000-143

Work Order #...: CRF66101

Matrix.....: WATER

Prep Date.....: 03/09/99
Prep Batch #...: 9068143

Analysis Time..: 01:25

Analysis Date..: 03/26/99
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
2,4-D	ND	4.0	ug/L	SW846 8151A
2,4,5-T	ND	1.0	ug/L	SW846 8151A
2,4,5-TP (Silvex)	ND	1.0	ug/L	SW846 8151A
Dinoseb	ND	0.60	ug/L	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	14 *	(16 - 123)

NOTE(S):

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

* Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D9C030208 **Work Order #...:** CRDG411G-MS **Matrix.....:** WATER
MS Lot-Sample #: D9C030208-012 CRDG411H-MSD
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99
Prep Date.....: 03/09/99 **Analysis Date..:** 03/26/99
Prep Batch #...: 9068143 **Analysis Time..:** 09:27
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
2,4-D	59	(16 - 135)			SW846 8151A
	58	(16 - 135)	0.61	(0-27)	SW846 8151A
2,4,5-T	54	(35 - 109)			SW846 8151A
	52	(35 - 109)	2.4	(0-29)	SW846 8151A
2,4,5-TP (Silvex)	52	(18 - 103)			SW846 8151A
	53	(18 - 103)	1.9	(0-31)	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	32	(16 - 123)
	43	(16 - 123)

NOTE(S):

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

id print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: D9C030208 Work Order #...: CRDG411G-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411H-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/09/99 Analysis Date..: 03/26/99
Prep Batch #...: 9068143 Analysis Time..: 09:27
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
2,4-D	ND	16.0	9.36	ug/L	59		SW846 8151A
	ND	16.0	9.31	ug/L	58	0.61	SW846 8151A
2,4,5-T	ND	4.00	2.15	ug/L	54		SW846 8151A
	ND	4.00	2.10	ug/L	52	2.4	SW846 8151A
2,4,5-TP (Silvex)	ND	4.00	2.07	ug/L	52		SW846 8151A
	ND	4.00	2.11	ug/L	53	1.9	SW846 8151A

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
DCAA	32	(16 - 123)
	43	(16 - 123)

NOTE(S):

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

id print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: D9C030208 Work Order #...: CREDN102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C080000-180 CREDN103-LCSD
Prep Date.....: 03/08/99 Analysis Date..: 03/10/99
Prep Batch #...: 9067180 Analysis Time..: 09:55
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(a)pyrene	83	(58 - 124)			SW846 8310
	84	(58 - 124)	2.1	(0-22)	SW846 8310
Fluorene	94	(60 - 116)			SW846 8310
	95	(60 - 116)	1.3	(0-26)	SW846 8310
Indeno(1,2,3-cd)pyrene	74	(56 - 121)			SW846 8310
	76	(56 - 121)	1.7	(0-22)	SW846 8310
Naphthalene	138 a	(56 - 126)			SW846 8310
	148 a	(56 - 126)	6.5	(0-33)	SW846 8310
Pyrene	82	(69 - 118)			SW846 8310
	85	(69 - 118)	3.3	(0-28)	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	60	(57 - 128)
	58	(57 - 128)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

HPLC

Client Lot #...: D9C030208 Work Order #...: CREDN102-LCS Matrix.....: WATER
LCS Lot-Sample#: D9C080000-180 CREDN103-LCSD
Prep Date.....: 03/08/99 Analysis Date..: 03/10/99
Prep Batch #...: 9067180 Analysis Time..: 09:55
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzo(a)pyrene	4.00	3.31	ug/L	83		SW846 8310
	4.00	3.38	ug/L	84	2.1	SW846 8310
Fluorene	4.00	3.74	ug/L	94		SW846 8310
	4.00	3.79	ug/L	95	1.3	SW846 8310
Indeno(1,2,3-cd)pyrene	4.00	2.98	ug/L	74		SW846 8310
	4.00	3.03	ug/L	76	1.7	SW846 8310
Naphthalene	4.00	5.54 a	ug/L	138		SW846 8310
	4.00	5.91 a	ug/L	148	6.5	SW846 8310
Pyrene	4.00	3.30	ug/L	82		SW846 8310
	4.00	3.41	ug/L	85	3.3	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	60	(57 - 128)
	58	(57 - 128)

NOTE(S):

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

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

HPLC

Client Lot #...: D9C030208 **Work Order #...:** CREDN101 **Matrix.....:** WATER
MB Lot-Sample #: D9C080000-180

Prep Date.....: 03/08/99 **Analysis Time..:** 09:26
Analysis Date..: 03/10/99 **Prep Batch #...:** 9067180
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	1.0	ug/L	SW846 8310
Acenaphthylene	ND	1.0	ug/L	SW846 8310
Anthracene	ND	0.10	ug/L	SW846 8310
Benzo(a)anthracene	ND	0.10	ug/L	SW846 8310
Benzo(a)pyrene	ND	0.10	ug/L	SW846 8310
Benzo(b)fluoranthene	ND	0.10	ug/L	SW846 8310
Benzo(ghi)perylene	ND	0.20	ug/L	SW846 8310
Benzo(k)fluoranthene	ND	0.10	ug/L	SW846 8310
Chrysene	ND	0.20	ug/L	SW846 8310
Dibenzo(a,h)anthracene	ND	0.20	ug/L	SW846 8310
Fluoranthene	ND	0.20	ug/L	SW846 8310
Fluorene	ND	0.20	ug/L	SW846 8310
Indeno(1,2,3-cd)pyrene	ND	0.20	ug/L	SW846 8310
1-Methylnaphthalene	ND	1.0	ug/L	SW846 8310
Methylnaphthalene	ND	1.0	ug/L	SW846 8310
aphthalene	ND	1.0	ug/L	SW846 8310
Phenanthrene	ND	0.20	ug/L	SW846 8310
Pyrene	ND	0.20	ug/L	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	58	(57 - 128)

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

HPLC

Client Lot #...: D9C030208 Work Order #...: CRDG411J-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411K-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/08/99 Analysis Date..: 03/16/99
Prep Batch #...: 9067180 Analysis Time..: 11:36
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzo(a)pyrene	84	(58 - 124)			SW846 8310
	87	(58 - 124)	3.5	(0-22)	SW846 8310
Fluorene	86	(60 - 116)			SW846 8310
	89	(60 - 116)	3.7	(0-26)	SW846 8310
Indeno(1,2,3-cd)pyrene	84	(56 - 121)			SW846 8310
	87	(56 - 121)	3.5	(0-22)	SW846 8310
Naphthalene	109	(56 - 126)			SW846 8310
	114	(56 - 126)	4.3	(0-33)	SW846 8310
Pyrene	88	(69 - 118)			SW846 8310
	89	(69 - 118)	0.84	(0-28)	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
rphenyl-d14	57	(57 - 128)
	57	(57 - 128)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

HPLC

Client Lot #...: D9C030208 Work Order #...: CRDG411J-MS Matrix.....: WATER
MS Lot-Sample #: D9C030208-012 CRDG411K-MSD
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99
Prep Date.....: 03/08/99 Analysis Date..: 03/16/99
Prep Batch #...: 9067180 Analysis Time..: 11:36
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzo(a)pyrene	ND	4.00	3.36	ug/L	84		SW846 8310
	ND	4.00	3.48	ug/L	87	3.5	SW846 8310
Fluorene	ND	4.00	3.42	ug/L	86		SW846 8310
	ND	4.00	3.55	ug/L	89	3.7	SW846 8310
Indeno(1,2,3-cd)pyrene	ND	4.00	3.36	ug/L	84		SW846 8310
	ND	4.00	3.48	ug/L	87	3.5	SW846 8310
Naphthalene	ND	4.00	4.35	ug/L	109		SW846 8310
	ND	4.00	4.54	ug/L	114	4.3	SW846 8310
Pyrene	ND	4.00	3.54	ug/L	88		SW846 8310
	ND	4.00	3.57	ug/L	89	0.84	SW846 8310

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
rphenyl-d14	57	(57 - 128)
	57	(57 - 128)

NOTE(S):

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

Bold print denotes control parameters

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Aluminum	100	(81 - 117)			SW846 6010B	03/08-03/09/99	9063180
	99	(81 - 117)	0.70	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Barium	99	(81 - 114)			SW846 6010B	03/08-03/09/99	9063180
	98	(81 - 114)	0.27	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Beryllium	103	(78 - 117)			SW846 6010B	03/08-03/09/99	9063180
	102	(78 - 117)	0.66	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Calcium	96	(83 - 112)			SW846 6010B	03/08-03/09/99	9063180
	96	(83 - 112)	0.58	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Cobalt	98	(75 - 120)			SW846 6010B	03/08-03/09/99	9063180
	97	(75 - 120)	0.76	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Copper	99	(79 - 115)			SW846 6010B	03/08-03/09/99	9063180
	98	(79 - 115)	0.26	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Iron	103	(82 - 117)			SW846 6010B	03/08-03/09/99	9063180
	99	(82 - 117)	3.4	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Magnesium	102	(79 - 114)			SW846 6010B	03/08-03/09/99	9063180
	102	(79 - 114)	0.17	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Manganese	97	(79 - 113)			SW846 6010B	03/08-03/09/99	9063180
	97	(79 - 113)	0.53	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Molybdenum	100	(75 - 120)			SW846 6010B	03/08-03/09/99	9063180
	99	(75 - 120)	1.3	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Nickel	98	(80 - 112)			SW846 6010B	03/08-03/09/99	9063180
	96	(80 - 112)	1.8	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Potassium	97	(77 - 111)			SW846 6010B	03/08-03/09/99	9063180
	96	(77 - 111)	0.87	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Sodium	100	(81 - 115)			SW846 6010B	03/08-03/09/99	9063180
	100	(81 - 115)	0.13	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Tin	100	(81 - 114)			SW846 6010B	03/08-03/09/99	9063180
	100	(81 - 114)	0.15	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Vanadium	97	(80 - 114)			SW846 6010B	03/08-03/09/99	9063180
	97	(80 - 114)	0.50	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Zinc	96	(77 - 113)			SW846 6010B	03/08-03/09/99	9063180
	96	(77 - 113)	0.08	(0-10)	SW846 6010B	03/08-03/09/99	9063180
		Dilution Factor: 1					
Mercury	86	(77 - 117)			SW846 7470A	03/05-03/08/99	9063198
	82	(77 - 117)	5.4	(0-10)	SW846 7470A	03/05-03/08/99	9063198
		Dilution Factor: 1					
Mercury	88	(77 - 117)			SW846 7470A	03/08-03/09/99	9067161
	88	(77 - 117)	0.29	(0-10)	SW846 7470A	03/08-03/09/99	9067161
		Dilution Factor: 1					
Aluminum	102	(81 - 117)			SW846 6010B	03/10-03/11/99	9067229
	100	(81 - 117)	1.6	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Barium	102	(81 - 114)			SW846 6010B	03/10-03/11/99	9067229
	101	(81 - 114)	1.5	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Beryllium	107	(78 - 117)			SW846 6010B	03/10-03/11/99	9067229
	107	(78 - 117)	0.37	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Calcium	98	(83 - 112)			SW846 6010B	03/10-03/11/99	9067229
	98	(83 - 112)	0.45	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Cobalt	99	(75 - 120)			SW846 6010B	03/10-03/11/99	9067229
	99	(75 - 120)	0.53	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Copper	102	(79 - 115)			SW846 6010B	03/10-03/11/99	9067229
	101	(79 - 115)	0.82	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Iron	101	(82 - 117)			SW846 6010B	03/10-03/11/99	9067229
	103	(82 - 117)	2.0	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Magnesium	104	(79 - 114)			SW846 6010B	03/10-03/11/99	9067229
	103	(79 - 114)	1.2	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Manganese	101	(79 - 113)			SW846 6010B	03/10-03/11/99	9067229
	100	(79 - 113)	0.53	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Molybdenum	100	(75 - 120)			SW846 6010B	03/10-03/11/99	9067229
	100	(75 - 120)	0.51	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Nickel	99	(80 - 112)			SW846 6010B	03/10-03/11/99	9067229
	98	(80 - 112)	1.2	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Potassium	100	(77 - 111)			SW846 6010B	03/10-03/11/99	9067229
	99	(77 - 111)	1.2	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Sodium	102	(81 - 115)			SW846 6010B	03/10-03/11/99	9067229
	102	(81 - 115)	0.70	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Tin	98	(81 - 114)			SW846 6010B	03/10-03/11/99	9067229
	102	(81 - 114)	4.1	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Vanadium	100	(80 - 114)			SW846 6010B	03/10-03/11/99	9067229
	99	(80 - 114)	0.64	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Zinc	98	(77 - 113)			SW846 6010B	03/10-03/11/99	9067229
	97	(77 - 113)	0.95	(0-10)	SW846 6010B	03/10-03/11/99	9067229
		Dilution Factor: 1					
Antimony	100	(90 - 110)			SW846 6020	03/10-03/18/99	9067241
	107	(90 - 110)	6.9	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Arsenic	100	(88 - 112)			SW846 6020	03/10-03/18/99	9067241
	105	(88 - 112)	4.8	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Cadmium	102	(83 - 117)			SW846 6020	03/10-03/18/99	9067241
	108	(83 - 117)	6.0	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Chromium	108	(90 - 110)			SW846 6020	03/10-03/18/99	9067241
	113 N	(90 - 110)	5.0	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Lead	103	(84 - 116)			SW846 6020	03/10-03/18/99	9067241
	108	(84 - 116)	5.5	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Selenium	101	(82 - 118)			SW846 6020	03/10-03/18/99	9067241
	106	(82 - 118)	5.1	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Silver	103	(90 - 111)			SW846 6020	03/10-03/18/99	9067241
	108	(90 - 111)	4.5	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					
Thallium	103	(90 - 110)			SW846 6020	03/10-03/18/99	9067241
	110	(90 - 110)	6.7	(0-20)	SW846 6020	03/10-03/18/99	9067241
		Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Aluminum	2000	1990	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	2000	1980	ug/L	99	0.70	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Barium	2000	1970	ug/L	99		SW846 6010B	03/08-03/09/99	9063180
	2000	1970	ug/L	98	0.27	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Beryllium	50.0	51.4	ug/L	103		SW846 6010B	03/08-03/09/99	9063180
	50.0	51.1	ug/L	102	0.66	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Calcium	50000	48100	ug/L	96		SW846 6010B	03/08-03/09/99	9063180
	50000	47800	ug/L	96	0.58	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Cobalt	500	488	ug/L	98		SW846 6010B	03/08-03/09/99	9063180
	500	484	ug/L	97	0.76	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Copper	250	247	ug/L	99		SW846 6010B	03/08-03/09/99	9063180
	250	246	ug/L	98	0.26	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Iron	1000	1030	ug/L	103		SW846 6010B	03/08-03/09/99	9063180
	1000	993	ug/L	99	3.4	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Magnesium	50000	51000	ug/L	102		SW846 6010B	03/08-03/09/99	9063180
	50000	50900	ug/L	102	0.17	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Manganese	500	487	ug/L	97		SW846 6010B	03/08-03/09/99	9063180
	500	484	ug/L	97	0.53	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Molybdenum	1000	999	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	1000	986	ug/L	99	1.3	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nickel	500	490	ug/L	98		SW846 6010B	03/08-03/09/99	9063180
	500	482	ug/L	96	1.8	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Potassium	50000	48500	ug/L	97		SW846 6010B	03/08-03/09/99	9063180
	50000	48000	ug/L	96	0.87	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Sodium	50000	50100	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	50000	50000	ug/L	100	0.13	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Tin	2000	1990	ug/L	100		SW846 6010B	03/08-03/09/99	9063180
	2000	2000	ug/L	100	0.15	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Vanadium	500	487	ug/L	97		SW846 6010B	03/08-03/09/99	9063180
	500	485	ug/L	97	0.50	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Zinc	500	479	ug/L	96		SW846 6010B	03/08-03/09/99	9063180
	500	479	ug/L	96	0.08	SW846 6010B	03/08-03/09/99	9063180
			Dilution Factor: 1					
Mercury	5.00	4.32	ug/L	86		SW846 7470A	03/05-03/08/99	9063198
	5.00	4.09	ug/L	82	5.4	SW846 7470A	03/05-03/08/99	9063198
			Dilution Factor: 1					
Mercury	5.00	4.39	ug/L	88		SW846 7470A	03/08-03/09/99	9067161
	5.00	4.38	ug/L	88	0.29	SW846 7470A	03/08-03/09/99	9067161
			Dilution Factor: 1					
Aluminum	2000	2030	ug/L	102		SW846 6010B	03/10-03/11/99	9067229
	2000	2000	ug/L	100	1.6	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Barium	2000	2040	ug/L	102		SW846 6010B	03/10-03/11/99	9067229
	2000	2010	ug/L	101	1.5	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Beryllium	50.0	53.6	ug/L	107		SW846 6010B	03/10-03/11/99	9067229
	50.0	53.4	ug/L	107	0.37	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Calcium	50000	49100	ug/L	98		SW846 6010B	03/10-03/11/99	9067229
	50000	48900	ug/L	98	0.45	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Cobalt	500	493	ug/L	99		SW846 6010B	03/10-03/11/99	9067229
	500	496	ug/L	99	0.53	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Copper	250	254	ug/L	102		SW846 6010B	03/10-03/11/99	9067229
	250	252	ug/L	101	0.82	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Iron	1000	1010	ug/L	101		SW846 6010B	03/10-03/11/99	9067229
	1000	1030	ug/L	103	2.0	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Magnesium	50000	51900	ug/L	104		SW846 6010B	03/10-03/11/99	9067229
	50000	51300	ug/L	103	1.2	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Manganese	500	505	ug/L	101		SW846 6010B	03/10-03/11/99	9067229
	500	502	ug/L	100	0.53	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Molybdenum	1000	1000	ug/L	100		SW846 6010B	03/10-03/11/99	9067229
	1000	998	ug/L	100	0.51	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Nickel	500	497	ug/L	99		SW846 6010B	03/10-03/11/99	9067229
	500	492	ug/L	98	1.2	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Potassium	50000	49900	ug/L	100		SW846 6010B	03/10-03/11/99	9067229
	50000	49300	ug/L	99	1.2	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Sodium	50000	50800	ug/L	102		SW846 6010B	03/10-03/11/99	9067229
	50000	51200	ug/L	102	0.70	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Tin	2000	1950	ug/L	98		SW846 6010B	03/10-03/11/99	9067229
	2000	2030	ug/L	102	4.1	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Vanadium	500	498	ug/L	100		SW846 6010B	03/10-03/11/99	9067229
	500	494	ug/L	99	0.64	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Zinc	500	489	ug/L	98		SW846 6010B	03/10-03/11/99	9067229
	500	485	ug/L	97	0.95	SW846 6010B	03/10-03/11/99	9067229
			Dilution Factor: 1					
Antimony	200	200	ug/L	100		SW846 6020	03/10-03/18/99	9067241
	200	214	ug/L	107	6.9	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Arsenic	200	201	ug/L	100		SW846 6020	03/10-03/18/99	9067241
	200	211	ug/L	105	4.8	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Cadmium	200	203	ug/L	102		SW846 6020	03/10-03/18/99	9067241
	200	216	ug/L	108	6.0	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Chromium	200	216	ug/L	108		SW846 6020	03/10-03/18/99	9067241
	200	227 N	ug/L	113	5.0	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Lead	200	205	ug/L	103		SW846 6020	03/10-03/18/99	9067241
	200	217	ug/L	108	5.5	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Selenium	200	202	ug/L	101		SW846 6020	03/10-03/18/99	9067241
	200	212	ug/L	106	5.1	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Silver	200	207	ug/L	103		SW846 6020	03/10-03/18/99	9067241
	200	216	ug/L	108	4.5	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					
Thallium	200	206	ug/L	103		SW846 6020	03/10-03/18/99	9067241
	200	220	ug/L	110	6.7	SW846 6020	03/10-03/18/99	9067241
			Dilution Factor: 1					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: D9C040000-180 **Prep Batch #...:** 9063180						
Aluminum	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10C
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Barium	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10D
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Beryllium	ND	2.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10E
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Calcium	ND	200	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10F
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Cobalt	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10G
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Copper	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10H
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Iron	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ101
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Potassium	ND	5000	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ102
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Magnesium	ND	200	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ103
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Manganese	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ104
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ105
		Dilution Factor: 1				
		Analysis Time..: 11:53				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Sodium	ND	5000	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ106
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Nickel	ND	40.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ107
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Tin	ND	100	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ108
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Vanadium	ND	10.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ109
		Dilution Factor: 1				
		Analysis Time..: 11:53				
Zinc	ND	20.0	ug/L	SW846 6010B	03/08-03/09/99	CRAGJ10A
		Dilution Factor: 1				
		Analysis Time..: 11:53				

MB Lot-Sample #: D9C040000-198 **Prep Batch #...:** 9063198

Mercury	ND	0.20	ug/L	SW846 7470A	03/05-03/08/99	CRAJH101
		Dilution Factor: 1				
		Analysis Time..: 12:03				

MB Lot-Sample #: D9C080000-161 **Prep Batch #...:** 9067161

Mercury	ND	0.20	ug/L	SW846 7470A	03/08-03/09/99	CREC1101
		Dilution Factor: 1				
		Analysis Time..: 14:14				

MB Lot-Sample #: D9C080000-241 **Prep Batch #...:** 9067241

Silver	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ101
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Arsenic	ND	5.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ102
		Dilution Factor: 1				
		Analysis Time..: 09:26				
admium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ103
		Dilution Factor: 1				
		Analysis Time..: 09:26				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030208 Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Chromium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ104
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Lead	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ105
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Antimony	**0.20 B**	**1.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CREHQ106**
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Selenium	**0.20 B**	**5.0**	**ug/L**	**SW846 6020**	**03/10-03/18/99**	**CREHQ107**
		Dilution Factor: 1				
		Analysis Time..: 09:26				
Thallium	ND	1.0	ug/L	SW846 6020	03/10-03/18/99	CREHQ108
		Dilution Factor: 1				
		Analysis Time..: 09:26				

MB Lot-Sample #: D9C080000-229 **Prep Batch #...:** 9067229

Aluminum	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CREH610G
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Barium	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CREH610H
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Beryllium	ND	2.0	ug/L	SW846 6010B	03/10-03/11/99	CREH6101
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Calcium	ND	200	ug/L	SW846 6010B	03/10-03/11/99	CREH6102
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Cobalt	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CREH6103
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Copper	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CREH6104
		Dilution Factor: 1				
		Analysis Time..: 09:24				

(Continued on next page)

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Iron	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CREH6105
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Potassium	ND	5000	ug/L	SW846 6010B	03/10-03/11/99	CREH6106
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Magnesium	ND	200	ug/L	SW846 6010B	03/10-03/11/99	CREH6107
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Manganese	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CREH6108
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Molybdenum	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CREH6109
		Dilution Factor: 1				
		Analysis Time..: 09:24				
dium	ND	5000	ug/L	SW846 6010B	03/10-03/11/99	CREH610A
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Nickel	ND	40.0	ug/L	SW846 6010B	03/10-03/11/99	CREH610C
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Tin	ND	100	ug/L	SW846 6010B	03/10-03/11/99	CREH610D
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Vanadium	ND	10.0	ug/L	SW846 6010B	03/10-03/11/99	CREH610E
		Dilution Factor: 1				
		Analysis Time..: 09:24				
Zinc	ND	20.0	ug/L	SW846 6010B	03/10-03/11/99	CREH610F
		Dilution Factor: 1				
		Analysis Time..: 09:24				

NOTE(S):

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

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067161							
Mercury	93	(77 - 117)			SW846 7470A	03/08-03/09/99	CRDG4139
	96	(77 - 117)	2.7	(0-10)	SW846 7470A	03/08-03/09/99	CRDG413A
		Dilution Factor: 1					
		Analysis Time..: 14:50					
MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067229							
Aluminum	104	(81 - 117)			SW846 6010B	03/10-03/11/99	CRDG411N
	99	(81 - 117)	4.8	(0-10)	SW846 6010B	03/10-03/11/99	CRDG411P
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Barium	103	(81 - 114)			SW846 6010B	03/10-03/11/99	CRDG411Q
	99	(81 - 114)	4.1	(0-10)	SW846 6010B	03/10-03/11/99	CRDG411R
		Dilution Factor: 1					
		Analysis Time..: 10:18					
ryllium	111	(78 - 117)			SW846 6010B	03/10-03/11/99	CRDG411T
	105	(78 - 117)	4.8	(0-10)	SW846 6010B	03/10-03/11/99	CRDG411U
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Calcium	95	(83 - 112)			SW846 6010B	03/10-03/11/99	CRDG411V
	85	(83 - 112)	5.5	(0-10)	SW846 6010B	03/10-03/11/99	CRDG411W
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Cobalt	98	(75 - 120)			SW846 6010B	03/10-03/11/99	CRDG411X
	93	(75 - 120)	5.2	(0-10)	SW846 6010B	03/10-03/11/99	CRDG4120
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Copper	103	(79 - 115)			SW846 6010B	03/10-03/11/99	CRDG4121
	100	(79 - 115)	3.3	(0-10)	SW846 6010B	03/10-03/11/99	CRDG4122
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Iron	104	(82 - 117)			SW846 6010B	03/10-03/11/99	CRDG4123
	99	(82 - 117)	5.6	(0-10)	SW846 6010B	03/10-03/11/99	CRDG4124
		Dilution Factor: 1					
		Analysis Time..: 10:18					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Potassium	103	(77 - 111)			SW846 6010B	03/10-03/11/99	CRDG4125
	98	(77 - 111)	3.7	(0-10)	SW846 6010B	03/10-03/11/99	CRDG4126
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Magnesium	105	(79 - 114)			SW846 6010B	03/10-03/11/99	CRDG4127
	97	(79 - 114)	4.4	(0-10)	SW846 6010B	03/10-03/11/99	CRDG4128
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Manganese	100	(79 - 113)			SW846 6010B	03/10-03/11/99	CRDG4129
	95	(79 - 113)	5.2	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412A
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Molybdenum	100	(75 - 120)			SW846 6010B	03/10-03/11/99	CRDG412C
	95	(75 - 120)	5.1	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412D
		Dilution Factor: 1					
		Analysis Time..: 10:18					
dium	102	(81 - 115)			SW846 6010B	03/10-03/11/99	CRDG412E
	95	(81 - 115)	3.4	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412F
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Nickel	98	(80 - 112)			SW846 6010B	03/10-03/11/99	CRDG412G
	91	(80 - 112)	7.3	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412H
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Tin	100	(81 - 114)			SW846 6010B	03/10-03/11/99	CRDG412J
	96	(81 - 114)	4.3	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412K
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Vanadium	100	(80 - 114)			SW846 6010B	03/10-03/11/99	CRDG412L
	95	(80 - 114)	4.9	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412M
		Dilution Factor: 1					
		Analysis Time..: 10:18					
Zinc	94	(77 - 113)			SW846 6010B	03/10-03/11/99	CRDG412N
	89	(77 - 113)	5.2	(0-10)	SW846 6010B	03/10-03/11/99	CRDG412P
		Dilution Factor: 1					
		Analysis Time..: 10:18					

MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067241

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver	21 N	(90 - 111)			SW846 6020	03/10-03/18/99	CRDG412Q
	21 N	(90 - 111)	0.06	(0-20)	SW846 6020	03/10-03/18/99	CRDG412R
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Arsenic	110	(88 - 112)			SW846 6020	03/10-03/18/99	CRDG412T
	113 N	(88 - 112)	2.6	(0-20)	SW846 6020	03/10-03/18/99	CRDG412U
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Cadmium	108	(83 - 117)			SW846 6020	03/10-03/18/99	CRDG412V
	110	(83 - 117)	1.9	(0-20)	SW846 6020	03/10-03/18/99	CRDG412W
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Chromium	106	(90 - 110)			SW846 6020	03/10-03/18/99	CRDG412X
	107	(90 - 110)	1.2	(0-20)	SW846 6020	03/10-03/18/99	CRDG4130
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Lead	113	(84 - 116)			SW846 6020	03/10-03/18/99	CRDG4131
	115	(84 - 116)	2.1	(0-20)	SW846 6020	03/10-03/18/99	CRDG4132
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Antimony	113 N	(90 - 110)			SW846 6020	03/10-03/18/99	CRDG4133
	116 N	(90 - 110)	2.1	(0-20)	SW846 6020	03/10-03/18/99	CRDG4134
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Selenium	107	(82 - 118)			SW846 6020	03/10-03/18/99	CRDG4135
	111	(82 - 118)	3.4	(0-20)	SW846 6020	03/10-03/18/99	CRDG4136
		Dilution Factor: 1					
		Analysis Time..: 14:00					
Thallium	112 N	(90 - 110)			SW846 6020	03/10-03/18/99	CRDG4137
	115 N	(90 - 110)	2.7	(0-20)	SW846 6020	03/10-03/18/99	CRDG4138
		Dilution Factor: 1					
		Analysis Time..: 14:00					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067161									
Mercury									
	0.19	5.00	4.84	ug/L	93		SW846 7470A	03/08-03/09/99	CRDG4139
	0.19	5.00	4.97	ug/L	96	2.7	SW846 7470A	03/08-03/09/99	CRDG413A
				Dilution Factor: 1					
				Analysis Time..: 14:50					
MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067229									
Aluminum									
	47.5	2000	2140	ug/L	104		SW846 6010B	03/10-03/11/99	CRDG411N
	47.5	2000	2040	ug/L	99	4.8	SW846 6010B	03/10-03/11/99	CRDG411P
				Dilution Factor: 1					
				Analysis Time..: 10:18					
Barium									
	35.2	2000	2110	ug/L	103		SW846 6010B	03/10-03/11/99	CRDG411Q
	35.2	2000	2020	ug/L	99	4.1	SW846 6010B	03/10-03/11/99	CRDG411R
				Dilution Factor: 1					
				Analysis Time..: 10:18					
Beryllium									
	ND	50.0	55.3	ug/L	111		SW846 6010B	03/10-03/11/99	CRDG411T
	ND	50.0	52.7	ug/L	105	4.8	SW846 6010B	03/10-03/11/99	CRDG411U
				Dilution Factor: 1					
				Analysis Time..: 10:18					
Calcium									
	44600	50000	92300	ug/L	95		SW846 6010B	03/10-03/11/99	CRDG411V
	44600	50000	87300	ug/L	85	5.5	SW846 6010B	03/10-03/11/99	CRDG411W
				Dilution Factor: 1					
				Analysis Time..: 10:18					
Cobalt									
	ND	500	492	ug/L	98		SW846 6010B	03/10-03/11/99	CRDG411X
	ND	500	467	ug/L	93	5.2	SW846 6010B	03/10-03/11/99	CRDG4120
				Dilution Factor: 1					
				Analysis Time..: 10:18					
Copper									
	ND	250	257	ug/L	103		SW846 6010B	03/10-03/11/99	CRDG4121
	ND	250	249	ug/L	100	3.3	SW846 6010B	03/10-03/11/99	CRDG4122
				Dilution Factor: 1					
				Analysis Time..: 10:18					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 Matrix.....: WATER
Date Sampled...: 03/04/99 13:30 Date Received..: 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Iron									
	ND	1000	1040	ug/L	104		SW846 6010B	03/10-03/11/99	CRDG4123
	ND	1000	986	ug/L	99	5.6	SW846 6010B	03/10-03/11/99	CRDG4124
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Potassium									
	6590	50000	58000	ug/L	103		SW846 6010B	03/10-03/11/99	CRDG4125
	6590	50000	55800	ug/L	98	3.7	SW846 6010B	03/10-03/11/99	CRDG4126
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Magnesium									
	40100	50000	92400	ug/L	105		SW846 6010B	03/10-03/11/99	CRDG4127
	40100	50000	88400	ug/L	97	4.4	SW846 6010B	03/10-03/11/99	CRDG4128
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Manganese									
	15.4	500	515	ug/L	100		SW846 6010B	03/10-03/11/99	CRDG4129
	15.4	500	489	ug/L	95	5.2	SW846 6010B	03/10-03/11/99	CRDG412A
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Molybdenum									
	6.6	1000	1000	ug/L	100		SW846 6010B	03/10-03/11/99	CRDG412C
	6.6	1000	955	ug/L	95	5.1	SW846 6010B	03/10-03/11/99	CRDG412D
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Sodium									
	55400	50000	106000	ug/L	102		SW846 6010B	03/10-03/11/99	CRDG412E
	55400	50000	103000	ug/L	95	3.4	SW846 6010B	03/10-03/11/99	CRDG412F
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Nickel									
	ND	500	492	ug/L	98		SW846 6010B	03/10-03/11/99	CRDG412G
	ND	500	457	ug/L	91	7.3	SW846 6010B	03/10-03/11/99	CRDG412H
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Tin									
	ND	2000	2000	ug/L	100		SW846 6010B	03/10-03/11/99	CRDG412J
	ND	2000	1910	ug/L	96	4.3	SW846 6010B	03/10-03/11/99	CRDG412K
			Dilution Factor: 1						
			Analysis Time..: 10:18						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Vanadium									
	25.5	500	526	ug/L	100		SW846 6010B	03/10-03/11/99	CRDG412L
	25.5	500	501	ug/L	95	4.9	SW846 6010B	03/10-03/11/99	CRDG412M
			Dilution Factor: 1						
			Analysis Time..: 10:18						
Zinc									
	29.9	500	502	ug/L	94		SW846 6010B	03/10-03/11/99	CRDG412N
	29.9	500	477	ug/L	89	5.2	SW846 6010B	03/10-03/11/99	CRDG412P
			Dilution Factor: 1						
			Analysis Time..: 10:18						

MS Lot-Sample #: D9C030208-012 **Prep Batch #...:** 9067241

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Silver									
	ND	200	42.2 N	ug/L	21		SW846 6020	03/10-03/18/99	CRDG412Q
	ND	200	42.2 N	ug/L	21	0.06	SW846 6020	03/10-03/18/99	CRDG412R
			Dilution Factor: 1						
			Analysis Time..: 14:00						
senic									
	5.8	200	226	ug/L	110		SW846 6020	03/10-03/18/99	CRDG412T
	5.8	200	232 N	ug/L	113	2.6	SW846 6020	03/10-03/18/99	CRDG412U
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Cadmium									
	ND	200	217	ug/L	108		SW846 6020	03/10-03/18/99	CRDG412V
	ND	200	221	ug/L	110	1.9	SW846 6020	03/10-03/18/99	CRDG412W
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Chromium									
	1.0	200	213	ug/L	106		SW846 6020	03/10-03/18/99	CRDG412X
	1.0	200	215	ug/L	107	1.2	SW846 6020	03/10-03/18/99	CRDG4130
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Lead									
	ND	200	225	ug/L	113		SW846 6020	03/10-03/18/99	CRDG4131
	ND	200	230	ug/L	115	2.1	SW846 6020	03/10-03/18/99	CRDG4132
			Dilution Factor: 1						
			Analysis Time..: 14:00						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Antimony									
	ND	200	227 N	ug/L	113		SW846 6020	03/10-03/18/99	CRDG4133
	ND	200	232 N	ug/L	116	2.1	SW846 6020	03/10-03/18/99	CRDG4134
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Selenium									
	8.5	200	223	ug/L	107		SW846 6020	03/10-03/18/99	CRDG4135
	8.5	200	230	ug/L	111	3.4	SW846 6020	03/10-03/18/99	CRDG4136
			Dilution Factor: 1						
			Analysis Time..: 14:00						
Thallium									
	ND	200	223 N	ug/L	112		SW846 6020	03/10-03/18/99	CRDG4137
	ND	200	230 N	ug/L	115	2.7	SW846 6020	03/10-03/18/99	CRDG4138
			Dilution Factor: 1						
			Analysis Time..: 14:00						

NOTE(S):

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

piked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030169-001 **Prep Batch #...:** 9063180							
Aluminum	102	(81 - 117)			SW846 6010B	03/08-03/09/99	CR9Q411R
	104	(81 - 117)	1.6	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411T
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Barium	98	(81 - 114)			SW846 6010B	03/08-03/09/99	CR9Q411U
	99	(81 - 114)	1.8	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411V
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Beryllium	103	(78 - 117)			SW846 6010B	03/08-03/09/99	CR9Q411W
	105	(78 - 117)	2.1	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411X
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Calcium	98	(83 - 112)			SW846 6010B	03/08-03/09/99	CR9Q4120
	101	(83 - 112)	2.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4121
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Cobalt	96	(75 - 120)			SW846 6010B	03/08-03/09/99	CR9Q4122
	98	(75 - 120)	2.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4123
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Copper	99	(79 - 115)			SW846 6010B	03/08-03/09/99	CR9Q4124
	100	(79 - 115)	1.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4125
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Iron	97	(82 - 117)			SW846 6010B	03/08-03/09/99	CR9Q4114
	100	(82 - 117)	2.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4115
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Magnesium	105	(79 - 114)			SW846 6010B	03/08-03/09/99	CR9Q4118
	107	(79 - 114)	1.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4119
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Manganese	96	(79 - 113)			SW846 6010B	03/08-03/09/99	CR9Q411A
	98	(79 - 113)	2.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411C
		Dilution Factor: 1					
		Analysis Time..: 12:18					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Molybdenum	99	(75 - 120)			SW846 6010B	03/08-03/09/99	CR9Q411D
	101	(75 - 120)	2.1	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411E
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Nickel	96	(80 - 112)			SW846 6010B	03/08-03/09/99	CR9Q411H
	97	(80 - 112)	1.2	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411J
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Potassium	98	(77 - 111)			SW846 6010B	03/08-03/09/99	CR9Q4116
	99	(77 - 111)	1.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q4117
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Sodium	102	(81 - 115)			SW846 6010B	03/08-03/09/99	CR9Q411F
	105	(81 - 115)	1.2	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411G
		Dilution Factor: 1					
		Analysis Time..: 12:18					
[illegible]	98	(81 - 114)			SW846 6010B	03/08-03/09/99	CR9Q411K
	97	(81 - 114)	1.4	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411L
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Vanadium	97	(80 - 114)			SW846 6010B	03/08-03/09/99	CR9Q411M
	99	(80 - 114)	2.0	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411N
		Dilution Factor: 1					
		Analysis Time..: 12:18					
Zinc	99	(77 - 113)			SW846 6010B	03/08-03/09/99	CR9Q411P
	101	(77 - 113)	1.3	(0-10)	SW846 6010B	03/08-03/09/99	CR9Q411Q
		Dilution Factor: 1					
		Analysis Time..: 12:18					

NOTE(S):

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

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D9C030169-001 **Prep Batch #...:** 9063180									
Aluminum									
	61.1	2000	2110	ug/L	102		SW846 6010B	03/08-03/09/99	CR9Q411R
	61.1	2000	2140	ug/L	104	1.6	SW846 6010B	03/08-03/09/99	CR9Q411T
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Barium									
	33.6	2000	1990	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q411U
	33.6	2000	2020	ug/L	99	1.8	SW846 6010B	03/08-03/09/99	CR9Q411V
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Beryllium									
	ND	50.0	51.6	ug/L	103		SW846 6010B	03/08-03/09/99	CR9Q411W
	ND	50.0	52.7	ug/L	105	2.1	SW846 6010B	03/08-03/09/99	CR9Q411X
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Calcium									
	40200	50000	89200	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q4120
	40200	50000	90900	ug/L	101	2.0	SW846 6010B	03/08-03/09/99	CR9Q4121
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Cobalt									
	ND	500	479	ug/L	96		SW846 6010B	03/08-03/09/99	CR9Q4122
	ND	500	491	ug/L	98	2.4	SW846 6010B	03/08-03/09/99	CR9Q4123
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Copper									
	ND	250	247	ug/L	99		SW846 6010B	03/08-03/09/99	CR9Q4124
	ND	250	251	ug/L	100	1.4	SW846 6010B	03/08-03/09/99	CR9Q4125
				Dilution Factor: 1					
				Analysis Time..: 12:18					
Iron									
	284	1000	1260	ug/L	97		SW846 6010B	03/08-03/09/99	CR9Q4114
	284	1000	1290	ug/L	100	2.4	SW846 6010B	03/08-03/09/99	CR9Q4115
				Dilution Factor: 1					
				Analysis Time..: 12:18					

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Magnesium									
	38000	50000	90300	ug/L	105		SW846 6010B	03/08-03/09/99	CR9Q4118
	38000	50000	91600	ug/L	107	1.4	SW846 6010B	03/08-03/09/99	CR9Q4119
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Manganese									
	6.0	500	488	ug/L	96		SW846 6010B	03/08-03/09/99	CR9Q411A
	6.0	500	497	ug/L	98	2.0	SW846 6010B	03/08-03/09/99	CR9Q411C
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Molybdenum									
	ND	1000	991	ug/L	99		SW846 6010B	03/08-03/09/99	CR9Q411D
	ND	1000	1010	ug/L	101	2.1	SW846 6010B	03/08-03/09/99	CR9Q411E
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Nickel									
	8.6	500	488	ug/L	96		SW846 6010B	03/08-03/09/99	CR9Q411H
	8.6	500	494	ug/L	97	1.2	SW846 6010B	03/08-03/09/99	CR9Q411J
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Potassium									
	6400	50000	55400	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q4116
	6400	50000	56000	ug/L	99	1.0	SW846 6010B	03/08-03/09/99	CR9Q4117
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Sodium									
	52500	50000	103000	ug/L	102		SW846 6010B	03/08-03/09/99	CR9Q411F
	52500	50000	105000	ug/L	105	1.2	SW846 6010B	03/08-03/09/99	CR9Q411G
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Tin									
	28.4	2000	1990	ug/L	98		SW846 6010B	03/08-03/09/99	CR9Q411K
	28.4	2000	1970	ug/L	97	1.4	SW846 6010B	03/08-03/09/99	CR9Q411L
			Dilution Factor: 1						
			Analysis Time..: 12:18						
Vanadium									
	18.0	500	504	ug/L	97		SW846 6010B	03/08-03/09/99	CR9Q411M
	18.0	500	514	ug/L	99	2.0	SW846 6010B	03/08-03/09/99	CR9Q411N
			Dilution Factor: 1						
			Analysis Time..: 12:18						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/02/99 12:30 **Date Received..:** 03/03/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Zinc									
	138	500	632	ug/L	99		SW846 6010B	03/08-03/09/99	CR9Q411P
	138	500	640	ug/L	101	1.3	SW846 6010B	03/08-03/09/99	CR9Q411Q

Dilution Factor: 1
Analysis Time..: 12:18

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D9C030208 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#:CRM0V106-LCS/CRM0V107-LCSD				LCS Lot-Sample#: D9C150000-329	
	101	(72 - 118)			SW846 9012A	03/12/99	9074329
	100	(72 - 118)	0.55	(0-18)	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1					
Total Organic Halogens		WO#:CRD8C102-LCS/CRD8C103-LCSD				LCS Lot-Sample#: D9C050000-251	
	85	(79 - 115)			SW846 9020B	03/04/99	9064251
	91	(79 - 115)	7.0	(0-18)	SW846 9020B	03/04/99	9064251
		Dilution Factor: 1					
Total Organic Halogens		WO#:CRQ00102-LCS/CRQ00103-LCSD				LCS Lot-Sample#: D9C180000-228	
	98	(79 - 115)			SW846 9020B	03/04-03/16/99	9077228
	100	(79 - 115)	1.6	(0-18)	SW846 9020B	03/04-03/16/99	9077228
		Dilution Factor: 1					
Total Organic Carbon		WO#:CT617102-LCS/CT617103-LCSD				LCS Lot-Sample#: D9C260000-292	
	102	(90 - 110)			SW846 9060	03/25/99	9085292
	106	(90 - 110)	4.1	(0-10)	SW846 9060	03/25/99	9085292
		Dilution Factor: 1					
Total Sulfide		WO#:CRFXH102-LCS/CRFXH103-LCSD				LCS Lot-Sample#: D9C090000-307	
	73	(70 - 130)			SW846 9030B/9034	03/09/99	9068307
	72	(70 - 130)	1.0	(0-20)	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1					

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #....: D9C030208 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD		PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#:CRM0V106-LCS/CRM0V107-LCSD					LCS Lot-Sample#: D9C150000-329		
	0.198	0.199	mg/L	101		SW846	9012A	03/12/99	9074329
	0.198	0.198	mg/L	100	0.55	SW846	9012A	03/12/99	9074329
		Dilution Factor: 1							
Total Organic Halogens		WO#:CRD8C102-LCS/CRD8C103-LCSD					LCS Lot-Sample#: D9C050000-251		
	100	85.1	ug/L	85		SW846	9020B	03/04/99	9064251
	100	91.3	ug/L	91	7.0	SW846	9020B	03/04/99	9064251
		Dilution Factor: 1							
Total Organic Halogens		WO#:CRQ00102-LCS/CRQ00103-LCSD					LCS Lot-Sample#: D9C180000-228		
	100000	98.4	ug/L	98		SW846	9020B	03/04-03/16/99	9077228
	100	100	ug/L	100	1.6	SW846	9020B	03/04-03/16/99	9077228
		Dilution Factor: 1							
Total Organic Carbon		WO#:CT617102-LCS/CT617103-LCSD					LCS Lot-Sample#: D9C260000-292		
	25.0	25.5	mg/L	102		SW846	9060	03/25/99	9085292
	25.0	26.6	mg/L	106	4.1	SW846	9060	03/25/99	9085292
		Dilution Factor: 1							
Total Sulfide		WO#:CRFXH102-LCS/CRFXH103-LCSD					LCS Lot-Sample#: D9C090000-307		
	10.6	7.68	mg/L	73		SW846	9030B/9034	03/09/99	9068307
	10.6	7.60	mg/L	72	1.0	SW846	9030B/9034	03/09/99	9068307
		Dilution Factor: 1							

NOTE(S):

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

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D9C030208 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		Work Order #: CRM0V101		MB Lot-Sample #:	D9C150000-329	
	ND	0.010	mg/L	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Total Organic Halogens		Work Order #: CRD8C101		MB Lot-Sample #:	D9C050000-251	
	ND	30.0	ug/L	SW846 9020B	03/04/99	9064251
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Total Organic Halogens		Work Order #: CRQ00101		MB Lot-Sample #:	D9C180000-228	
	3.0 B	**30.0**	**ug/L**	**SW846 9020B**	**03/04-03/16/99**	**9077228**
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Total Organic Carbon		Work Order #: CT617101		MB Lot-Sample #:	D9C260000-292	
	ND	1.0	mg/L	SW846 9060	03/25/99	9085292
		Dilution Factor: 1				
		Analysis Time..: 00:00				
Total Sulfide		Work Order #: CRFXH101		MB Lot-Sample #:	D9C090000-307	
	ND	4.0	mg/L	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1				
		Analysis Time..: 20:00				

NOTE(S):

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

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total		WO#: CRDG413C-MS/CRDG413D-MSD				MS Lot-Sample #: D9C030208-012	
	94	(72 - 118)			SW846 9012A	03/12/99	9074329
	97	(72 - 118)	3.8	(0-18)	SW846 9012A	03/12/99	9074329
		Dilution Factor: 1					
		Analysis Time..: 00:00					
Total Organic Halogens		WO#: CRDG413E-MS/CRDG413F-MSD				MS Lot-Sample #: D9C030208-012	
	98	(79 - 115)			SW846 9020B	03/04-03/08/99	9064251
	100	(79 - 115)	1.9	(0-18)	SW846 9020B	03/04-03/08/99	9064251
		Dilution Factor: 1					
		Analysis Time..: 00:00					
Total Organic Carbon		WO#: CRDG413J-MS/CRDG413K-MSD				MS Lot-Sample #: D9C030208-012	
	101	(90 - 110)			SW846 9060	03/25/99	9085292
	103	(90 - 110)	2.1	(0-10)	SW846 9060	03/25/99	9085292
		Dilution Factor: 1					
		Analysis Time..: 00:00					
tal Sulfide		WO#: CRDG413G-MS/CRDG413H-MSD				MS Lot-Sample #: D9C030208-012	
	75	(70 - 130)			SW846 9030B/9034	03/09/99	9068307
	69 N	(70 - 130)	8.2	(0-20)	SW846 9030B/9034	03/09/99	9068307
		Dilution Factor: 1					
		Analysis Time..: 20:00					

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D9C030208 **Matrix.....:** WATER
Date Sampled...: 03/04/99 13:30 **Date Received..:** 03/05/99

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Cyanide, Total			WO#: CRDG413C-MS/CRDG413D-MSD				MS Lot-Sample #: D9C030208-012		
	ND	0.099	0.0926	mg/L	94		SW846 9012A	03/12/99	9074329
	ND	0.099	0.0962	mg/L	97	3.8	SW846 9012A	03/12/99	9074329
			Dilution Factor: 1						
			Analysis Time..: 00:00						
Total Organic Halogens			WO#: CRDG413E-MS/CRDG413F-MSD				MS Lot-Sample #: D9C030208-012		
	ND	100	102	ug/L	98		SW846 9020B	03/04-03/08/99	9064251
	ND	100	104	ug/L	100	1.9	SW846 9020B	03/04-03/08/99	9064251
			Dilution Factor: 1						
			Analysis Time..: 00:00						
Total Organic Carbon			WO#: CRDG413J-MS/CRDG413K-MSD				MS Lot-Sample #: D9C030208-012		
	ND	25.0	25.3	mg/L	101		SW846 9060	03/25/99	9085292
	ND	25.0	25.8	mg/L	103	2.1	SW846 9060	03/25/99	9085292
			Dilution Factor: 1						
			Analysis Time..: 00:00						
tal Sulfide			WO#: CRDG413G-MS/CRDG413H-MSD				MS Lot-Sample #: D9C030208-012		
	ND	10.6	8.16	mg/L	75		SW846 9030B/9	03/09/99	9068307
	ND	10.6	7.52 N	mg/L	69	8.2	SW846 9030B/9	03/09/99	9068307
			Dilution Factor: 1						
			Analysis Time..: 20:00						

NOTE(S):

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

N Spiked analyte recovery is outside stated control limits.

Quanterra

QC LOT ASSIGNMENT REPORT
Special Services - Low Resolution Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (LCS/BLANK)
304473-0001-MB	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0001-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0002-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0003-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0004-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0005-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0006-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0007-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0008-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0009-MS	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0009-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0009-SD	AQUEOUS	DXNFUR2-A	22 MAR 99-B	
304473-0010-SA	AQUEOUS	DXNFUR2-A	22 MAR 99-B	

Quanterra

DUPLICATE CONTROL SAMPLE REPORT
Special Services - Low Resolution Mass Spectrometry
Project: 304473

Category: DXNFUR2-A C14-C18 Dioxin and Furans by Low Resolution MS
Testcode: DXNFUR-AP9-A Method: 8280
Matrix: AQUEOUS Concentration Units: ng/L
QC Lot: 22 MAR 99-B Analyzed Date: 31 MAR 99 Time: 08:48

Analyte	Concentration Spiked	Concentration Measured DCS1	Concentration Measured DCS2	Accuracy (%) DCS1	Accuracy (%) DCS2	Limits	Precision (RPD) DCS	Precision (RPD) Limit
2,3,7,8-TCDF	25.0	21.4	22.6	86	91	83-142	5.7	20
1,2,3,7,8-PeCDF	62.5	60.7	63.8	97	102	61-191	4.9	20
1,2,3,6,7,8-HxCDF	62.5	53.2	53.8	85	86	76-140	0.99	20
2,3,7,8-TCDD	25.0	24.8	26.2	99	105	80-143	5.9	20
1,2,3,7,8-PeCDD	62.5	67.9	70.2	109	112	74-170	3.2	20
1,2,3,6,7,8-HxCDD	62.5	50.5	51.0	81	82	73-157	0.87	20

Surrogate	Concentration Spiked	Concentration Measured DCS1	Concentration Measured DCS2	Accuracy(%) DCS1	Accuracy(%) DCS2	Limits
13C-2,3,7,8-TCDF	25.0	21.0	21.1	84	84	40-120
13C-2,3,7,8-TCDD	25.0	19.4	19.5	78	78	40-120
13C-1,2,3,6,7,8-HxCDD	25.0	27.0	27.4	108	109	40-120
13C-1,2,3,4,6,7,8-HpCDF	50.0	43.7	44.0	87	88	40-120

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

Quanterra

APPENDIX IX DIOXINS/FURANS

Method 8280

Client Name: U.S. Geological Survey
Client ID: Method Blank
Lab ID: 304473-0001-MB
Matrix: AQUEOUS Sampled: NA Received: NA
Authorized: NA Prepared: 22 MAR 99 Analyzed: 31 MAR 99
Dilution Factor: 1.0

Sample Amount 1.0 L
Column Type DB-5

Parameter	Result	Units	Detection Limit	Data Qualifiers
Furans				
TCDFs (total)	ND	ng/L	0.86	
PeCDFs (total)	ND	ng/L	1.7	
HxCDFs (total)	ND	ng/L	0.71	
Dioxins				
TCDDs (total)	ND	ng/L	0.63	
2,3,7,8-TCDD	ND	ng/L	0.63	
PeCDDs (total)	ND	ng/L	16	
HxCDDs (total)	ND	ng/L	1.3	

Internal Standards	% Recovery	Limits
13C-2,3,7,8-TCDF	82	40-120
13C-2,3,7,8-TCDD	75	40-120
13C-1,2,3,6,7,8-HxCDD	112	40-120
13C-1,2,3,4,6,7,8-HpCDF	88	40-120

NA = Not Applicable
ND = Not Detected

Reported By: Maricel Baquerfo Approved By: Robert Hrabak

The cover letter is an integral part of this report.
Rev 230787

Quanterra

MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
S 'al Services - Low Resolution Mass Spectrometry
  ct: 304473

Category: DXNFUR2-A C14-C18 Dioxin and Furans by Low Resolution MS
Test : DXNFUR-AP9-A Method: 8280
Matrix : AQUEOUS
Sample : 304473-0009
MS Run : 01 APR 99-A
Units : ng/L

Analyte	Concentration: Sample Result	Concentration: MS Result	Concentration: MSD Result	Amount Spiked MS	Amount Spiked MSD	%Recovery MS	%Recovery MSD	%RPD	Acceptance Limit Recov.	Acceptance Limit RPD
2,3,7,8-TCDF	ND	22.3	21.8	25.3	25.5	88	85	3.1	83-142	20
1,2,3,7,8-PeCDF	ND	60.0	57.7	63.3	63.7	95	91	4.5	61-191	20
1,2,3,6,7,8-HxCDF	ND	54.6	51.5	63.3	63.7	86	81	6.6	76-140	20
2,3,7,8-TCDD	ND	25.0	24.2	25.3	25.5	99	95	4.2	80-143	20
1,2,3,7,8-PeCDD	ND	66.7	63.8	63.3	63.7	105	100	5.2	74-170	20
1,2,3,6,7,8-HxCDD	ND	49.8	46.2	63.3	63.7	79	73	8.2	73-157	20

Internal Standards	Sample %Recovery	%Recovery MS	%Recovery MSD		Acceptance Limit Recovery
13C-2,3,7,8-TCDF	89	88	94		40-120
13C-2,3,7,8-TCDD	81	83	88		40-120
13C-1,2,3,6,7,8-HxCDD	114	117	122	m	40-120
13C-1,2,3,4,6,7,8-HpCDF	97	91	97		40-120

m = Internal Standard recovery is outside method recovery goal.
N Not Detected

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

Route 5228 Protocol A

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 091550
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by: Fred Gebhardt — Airbill Number: 3476773230
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
1999	0800	CAFB-B-EB	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample Equipment Blank
1999	0730	CAFB-B-TB	"	3	VOCs	Trip

Additional Comments

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Jerry D Larson	Fed ex	3-2-99	1630	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Nicole Summers	3/3/99	0830		Contents Temperature
					Laboratory Project Number: D9C 030208

Quote 25228 Protocol A

U.S. GEOLOGICAL SURVEY, WATE :SOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Packed and Sealed for Shipping by: FRED GEBHARDT — Seal Number: 117509
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Delivered to Shipper by: RICK HUFF — Airbill Number: 3476773285
	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
1999	13:08	CAFB-5	Ground-water	16	All Ap+IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments: VOC SAMPLES IN COOLER WITH SAMPLES FROM CAFB-X

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
[signature]	FedEX	3/3/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	[signature]	3/4/99	0930		Contents Temperature
					Laboratory Project Number: D9C030208

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 117508
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by: Jerry Larson — Airbill Number: 3476773385
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
5 1999	1200	CAFB-X	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments: VOC SAMPLES IN COOLER WITH SAMPLES FROM CAFB-X

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Jerry Larson	Fred ex	3-3-99	1630	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Michele Sommers	3/4/99	0830		Contents Temperature
					Laboratory Project Number: D9C030208

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

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling 463536004	Packed and Sealed for Shipping by FRED GEBHARDT	Seal Number 117512
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by RICK HUFF	Airbill Number 3476773296
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status ☐ Done ☒ Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
1999	14:00	CAFB-B	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments

VOC SAMPLES IN COOLER WITH SAMPLES FROM CAFB-X

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Rick Huff	Fed Ex	3/3/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Karl E. Gloch	3/4/99	0930		Contents Temperature
					Laboratory Project Number D9C030208

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: FRED GEBHARDT — Seal Number: 081558
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by: RICK HUFF — Airbill Number: 3476773311
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
MAR 4 1999	09:44	CAFB-D	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020 ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments: VOC SAMPLES IN COOLER WITH CAFB-D

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Rick Huff	Fed Ex	3/4/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
					Contents Temperature
					Laboratory Project Number: DSC030208

ote: 2-228 Protocol A

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 081568
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by: Fred Gebhardt — Airbill Number: 3476773241
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
1999	1030	CAFB-Q	Ground-water	16	All Apx IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020 ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments: VOC's in cooler 1 with CAFB-B-EB sample

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Jerry D Larson	Fed ex	3-2-99 ~~4-96~~	1630	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Nicole Summers	3/3/99	0830		Contents Temperature
					Laboratory Project Number: D9C030208

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

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: FRED GEBHARDT
	Seal Number: 081557
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by: RICK HUFF
	Airbill Number: 3476773300
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
MAR 4 1999	11:10	CAFB-C	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments: VOC SAMPLES IN COOLER WITH CAFB-D

CHAIN OF CUSTODY RECORD			
Relinquished by (signed)	Received by (signed)	Date	Time
Rick Huff	Fed Ex	3/4/99	16:30

LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Analytical Laboratory: Quanterra Environmental, 4955 Yarrow Street, Arvada, CO 80002, ph: (303) 421-6611, Attention: Christina Mott	Seal Intact upon Receipt: ☐ Yes ☐ No
	Condition of Contents
	Contents Temperature
	Laboratory Project Number: D9C030208

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

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling 463536004	Packed and Sealed for Shipping by FRED GERHARDT	Seal Number 153938
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by ROCK HUFF	Airbill Number 3476773322
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status ☐ Done ☒ Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
MAR 4 1999	13:45	CAFB-U	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060, SW9020	Environmental Sample

Additional Comments

VOC SAMPLES IN COOLER WITH CAFB-D

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
[signature]	Fed Ex	3/4/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
					Contents Temperature
					Laboratory Project Number D9C030208

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

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling 463536004	Packed and Sealed for Shipping by FRED GEBHARDT	Seal Number 048126
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by RICK HUFF	Airbill Number 802748658949
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status ☐ Done ☒ Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
3/4/1999	13:30	CAFB-T	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments

VOC SAMPLES IN COOLER WITH CAFB-D

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Rick Huff	Fed Ex	3/4/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
					Contents Temperature
					Laboratory Project Number D9C030208

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

Project Name & Number	PACKING AND SHIPPING DETAILS	
Cannon Air Force Base, Ground Water Sampling 463536004	Packed and Sealed for Shipping by FRED GEBHARDT	Seal Number 048856
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by RICK HUFF	Airbill Number 8027486 58950
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status ☐ Done ☒ Continuing	

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
3/4/ 1999	13:30	CAFB-T-MS	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg); SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments

VOC SAMPLES IN COOLER WITH CAFB-D

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
Rick Huff	Fed Ex	3/4/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
					Contents Temperature
					Laboratory Project Number DICO3020B

U.S. GEOLOGICAL SURVEY, WATE :SOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
	Packed and Sealed for Shipping by: FRED GEBHARDT — Seal Number: 048116
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Delivered to Shipper by: RICK HUFF — Airbill Number: 802748658960
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
3/4/ 1999	13:30	CAFB-T-5D	Ground-water	16	All Apx-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample

Additional Comments

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt ☐ Yes ☐ No
[signature]	Fed Ex	3/4/99	16:30	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
					Contents Temperature
					Laboratory Project Number: DAC030208

U.S. GEOLOGICAL SURVEY, WATE :SOURCES DIVISION, NEW MEXICO DISTRICT
ANALYTICAL REQUEST/CHAIN OF CUSTODY

Project Name & Number: Cannon Air Force Base, Ground Water Sampling 463536004	PACKING AND SHIPPING DETAILS
Sampling Location: Landfill-5, Cannon Air Force Base, NM	Packed and Sealed for Shipping by: Fred Gebardt — Seal Number: 031962
Team Leader: Jerry Larson / Project chief -- Eileen (Miko) Roybal	Delivered to Shipper by: Jerry D. Larson — Airbill Number: 9027496598771
	Sampling Status: [X] Done [ ] Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
1999	0945	CAFB-I	Ground-water	16	All Apr-IX: SW8260B, SW8270C, SW8280, SW8310, SW8081, SW8082, SW8151, Total-METALS: SW6010 (Al,Ba,Be, Ca, Co, Cu, Fe, Mg, Mn, Mo, Ni, K, Na, Sn, V, Zn), SW6020-ICP-MS (Sb, Ag, Cd, As, Cr, Pb, Se, Tl), SW7470 (Hg), SW9012, SW9030, SW9060 ,SW9020	Environmental Sample
		Trip Blank		3		

Additional Comments

CHAIN OF CUSTODY RECORD				LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER	
Relinquished by (signed)	Received by (signed)	Date	Time	Analytical Laboratory	Seal Intact upon Receipt: [ ] Yes [ ] No
Jerry D Larson	Fed ex	3-5-99	1200	Quanterra Environmental 4955 Yarrow Street Arvada, CO 80002 ph: (303) 421-6611 Attention: Christina Mott	Condition of Contents
	Chris Samuels	3/6/99	1030		Contents Temperature
					Laboratory Project Number: D9C030208

Sample Receiving Checklist

Lot #: D9C030208 Date/Time Received: 0830 3/3/99

Company Name & Sampling Site: USGS

*Cooler #(s): ____ ____ ____ ____ ____ ____ ____ ____

Temperatures: 4.9 5.3 4.3 ____ ____ ____ ____ ____

Unpacking & Labeling Check Points:

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

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Sample Receiving Checklist

Lot #: D9C030208 Date/Time Received: 3/4/99 0830

Company Name & Sampling Site: USGS

*Cooler #(s): 1

Temperatures: 1.2 7.4 6.6

Unpacking & Labeling Check Points:

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

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Sample Receiving Checklist

Lot #: D9C030208 Date/Time Received: 0900 3/5/99

Company Name & Sampling Site:

*Cooler #(s):	1	2	3	4	5	6		
Temperatures:	9.8	7.4	12.6	7.9	8.6	10.2		

Unpacking & Labeling Check Points:

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

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Sample Receiving Checklist

Lot #: D9C030208 Date/Time Received: 1030 3/6/99

ompany Name & Sampling Site: USGS - Landfill 5

*Cooler #(s): 1

Temperatures: 3.9

Unpacking & Labeling Check Points:

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

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR)

Quanterra - Denver
Condition Upon Receipt Anomaly Report (CUR)

Client: USGS

Date/Time: 0830 3/3/99

Lot No: D9C030208

Initiated by: Nicole S

Affected Samples

COC#

Client ID	Lab ID	Analyses Requested
CAFB-EB		
TB		

CONDITION/ANOMALY/VARIANCE (CHECK ALL THAT APPLY):

❑ **COOLERS**
- ❑ Not Received, No Chain of Custody (COC)
- ❑ Not Received but COC(s) Available
- ❑ Leaking
- ❑ Other: _____

❑ **TEMPERATURE (greater than 6° C)**
- ❑ Cooler Temp _____
- ❑ Temperature Blank _____

❑ **CONTAINERS**
- ❑ Leaking
- ☑ Broken
- ❑ Extra
- ❑ Without Labels
- ❑ VOA Vials with Headspace _____ mm
- ❑ Other: _____

❑ **CUSTODY SEALS (COOLER(S)/CONTAINER(S)**
- ❑ None
- ❑ Not Intact
- ❑ Other: _____

❑ **CHAIN OF CUSTODY (COCs)**
- ❑ Not relinquished by Client; No date/time Relinq.
- ❑ Incomplete Information
- ❑ Other: _____

❑ **CONTAINER LABELS**
- ❑ Not the same ID/info as in COC
- ❑ Incomplete
- ❑ ID ❑ COLLECTION ❑ Time ❑ Date ❑ PRESERVATIVE
- ❑ Markings/Info smeared or illegible
- ❑ Torn
- ❑ Other: _____

❑ **SAMPLES**
- ☑ Samples NOT RECEIVED but listed on COC ------ ❑ will be noted on COC Client to send samples with new COC
- ❑ Samples received but NOT LISTED on COC
  - ❑ Logged based on Label Information
  - ❑ Logged based on info from other samples on COC
  - ❑ Logged according to Work Plan
  - ❑ Logged on HOLD UNTIL FURTHER NOTICE
  - ❑ Other: _____
- ❑ Mislabeled as to tests, preservatives, etc.
- ❑ Holding time expired
- ❑ Improper container used
- ❑ Not preserved / Improper preservative used
- ❑ Improper pH _____ Lab to preserve sample
- ❑ Insufficient quantities for analysis

Comments: * 1 VOA broken from CAFB-EB
* only 2 TB's received.

Corrective Action:

☑ Client Informed: verbally on: _____ By: _____ : In writing on: 3-4-99 (by fax) By: Chott

❑ Sample(s) processed "as is". _____

❑ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: _____ Date: _____

Project Management Review: Chris M. Chott Date: 3-4-99

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

N:\QA\Forms\Sample Receiving\ Condition Upon Receipt Report 1/4/99 version

Quanterra - Denver
Condition Upon Receipt Anomaly Report (CUR)

Client: USGS

Date/Time: 0830 3/4/99

Lot No: D9C030708

Initiated by: Nicole S

Affected Samples

COC#

Client ID	Lab ID	Analyses Requested

CONDITION/ANOMALY/VARIANCE (CHECK ALL THAT APPLY):

❑COOLERS
- ❑Not Received, No Chain of Custody (COC)
- ❑Not Received but COC(s) Available
- ❑Leaking
- ❑Other:

☒TEMPERATURE (greater than 6° C)
- ☒Cooler Temp
- ❑Temperature Blank

❑CUSTODY SEALS (COOLER(S)/CONTAINER(S)
- ❑None
- ❑ Not Intact
- ❑Other:

❑CHAIN OF CUSTODY (COCs)
- ❑Not relinquished by Client; No date/time Relinq.
- ❑ Incomplete Information
- ❑Other:

❑CONTAINERS
- ❑Leaking
- ❑Broken
- ❑Extra
- ❑Without Labels
- ❑VOA Vials with Headspace _____mm
- ❑Other:

❑ CONTAINER LABELS
- ❑Not the same ID/info as in COC
- ❑ Incomplete
- ❑ID COLLECTION ❑Time ❑Date ❑PRESERVATIVE
- ❑ Markings/Info smeared or illegible
- ❑Torn
- ❑Other:

❑ SAMPLES
- ❑Samples NOT RECEIVED but listed on COC ------ ❑will be noted on COC Client to send samples with new COC
- ❑Samples received but NOT LISTED on COC
- ❑Logged based on Label Information
- ❑Logged based on info from other samples on COC
- ❑ Logged according to Work Plan
- ❑Logged on HOLD UNTIL FURTHER NOTICE
- ❑ Other:
- ❑ Mislabeled as to tests, preservatives, etc.
- ❑Holding time expired
- ❑ Improper container used
- ❑Not preserved / Improper preservative used
- ❑ Improper pH _____ Lab to preserve sample
- ❑ Insufficient quantities for analysis

Comments: cooler temps were all above 6° (7.2, 7.4, 6.6).

Process samples as is per Mike Roybal.

Corrective Action:
- ☑ Client Informed: verbally on: 3·4·99 By: CMott : In writing on: _____ By: _____
- ❑ Sample(s) processed "as is".
- ❑ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: _____ Date: _____

Project Management Review: CM M. Mott Date: 3·4·99

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

N:\QA\Forms\Sample Receiving\ Condition Upon Receipt Report 1/4/99 version

Quanterra - Denver
Condition Upon Receipt Anomaly Report (CUR)

Client: 11568 Date/Time: 0900 3/5/99

Lot No: D9C030208 Initiated by: T. Hole

Affected Samples COC# _____

Client ID	Lab ID	Analyses Requested
CAFB-D		

CONDITION/ANOMALY/VARIANCE (CHECK ALL THAT APPLY):

❑COOLERS
- ❑Not Received, No Chain of Custody (COC)
- ❑Not Received but COC(s) Available
- ❑Leaking
- ❑Other: _____

❑ TEMPERATURE (greater than 6° C)
- ❑Cooler Temp _____
- ❑Temperature Blank _____

❑CONTAINERS
- ❑Leaking
- ❑Broken
- ❑Extra
- ❑Without Labels
- ❑VOA Vials with Headspace _____mm
- ❑Other: _____

❑CUSTODY SEALS (COOLER(S)/CONTAINER(S)
- ❑None
- ❑ Not Intact
- ❑Other: _____

❑CHAIN OF CUSTODY (COCs)
- ❑Not relinquished by Client; No date/time Relinq.
- ❑ Incomplete Information
- ❑Other: _____

❑ CONTAINER LABELS
- ❑Not the same ID/info as in COC
- ❑ Incomplete
- ❑ID COLLECTION ❑Time ❑Date ❑PRESERVATIVE
- ❑ Markings/Info smeared or illegible
- ❑Torn
- ❑Other: _____

❑ SAMPLES
- ❑Samples NOT RECEIVED but listed on COC ------ ❑will be noted on COC Client to send samples with new COC
- ❑Samples received but NOT LISTED on COC
- ❑Logged based on Label Information
- ❑Logged based on info from other samples on COC
- ❑ Logged according to Work Plan
- ❑Logged on HOLD UNTIL FURTHER NOTICE
- ❑ Other: _____

- ❑ Mislabeled as to tests, preservatives, etc.
- ❑Holding time expired
- ❑ Improper container used
- ❑Not preserved / Improper preservative used
- ❑ Improper pH _____ Lab to preserve sample
- ❑ Insufficient quantities for analysis

Comments: COC says 09:44 time, bottles say 09:40.
Samples rec'd @ 9.8, 7.6, 12.6, 7.9, 8.6, and 10.2 degrees C.

Corrective Action:
- ☒ Client Informed: verbally on: _____ By: _____ : by fax in writing on: 3.5.99 By: Chett
- ❑ Sample(s) processed "as is". _____
- ❑ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: _____ Date: _____

Project Management Review: Chett M. Chett Date: 3.5.99

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

N:\QA\Forms\Sample Receiving\ Condition Upon Receipt Report 1/4/99 version

APPENDIX III

Field Data

Sample container and preservation requirements
Sewage Lagoon

Parameters and methods	Bottle Size and Type	Preservatives
Appendix-IX, Volatile Organic Compounds SW8260b	Three 40 ml glass vials	200 uL 50 % Hydrochloric Acid, Chilled to maintain 4 degrees Celsius
Appendix-IX, Pesticides and PCB's SW8081A/8082	Two 32 oz. glass	None, Chilled to maintain 4 degrees Celsius
Appendix-IX, Total Metals: 16 metals by SW6010B, 8 by SW6020, and mercury by SW7470A	16 oz. polyethylene	10 mL 20% Nitric Acid, pH<2
Nitrate, MCAWW353.2	16 oz. glass	2 mL 50% Sulfuric Acid, pH<2, Chilled to maintain 4 degrees Celsius
Nitrite , MCAWW354.1 Sulfate, MCAWW300.0A Total dissolved solids (TDS), MCAWW160.1	32 oz. polyethylene	None, Chilled to maintain 4 degrees Celsius
Sulfide, SW9030B/9034	8 oz. polyethylene	1 mL 1N Zinc Acetate, plus 1 mL 50% Sodium Hydroxide, pH>9, Chilled to maintain 4 degrees Celsius

Sample container and preservation requirements
Landfill 5

Parameters and methods	Bottle Size and Type	Preservatives
Appendix-IX, Volatile Organic Compounds SW8260B	Three 40 ml glass vials	200 uL 50 % Hydrochloric Acid, Chilled to maintain 4 degrees Celsius
Appendix-IX, Semivolatile Organic Compounds SW8270C	Two 32 oz. glass (amber)	None, Chilled to maintain 4 degrees Celsius
Appendix-IX, Pesticides and PCB's SW8081A/8082	Two 32 oz. glass	None, Chilled to maintain 4 degrees Celsius
Appendix-IX, Dioxins and Furans SW8280	Two 32 oz. glass (amber)	None, Chilled to maintain 4 degrees Celsius
Polynuclear Aromatic Hydrocarbons SW8310	Two 32 oz. glass (amber)	None, Chilled to maintain 4 degrees Celsius
Appendix-IX, Herbicides SW8151A	32 oz. glass	None, Chilled to maintain 4 degrees Celsius
Appendix-IX, Total Metals: 16 metals by SW6010B, 8 metals by SW6020, and mercury by SW7470A	16 oz. polyethylene	10 mL 20% Nitric Acid, pH<2
Cyanide, SW9012A	8 oz. polyethylene	2 mL 50% Sodium Hydroxide, pH>12, Chilled to maintain 4 degrees Celsius
Sulfide, SW9030B/9030	8 oz. polyethylene	1 mL 1N Zinc Acetate, plus 1 mL 50% Sodium Hydroxide, pH>9, Chilled to maintain 4 degrees Celsius
Total Organic Carbon (TOC) SW9060	16 oz. glass	2 mL 50% Sulfuric Acid, pH<2, Chilled to maintain 4 degrees Celsius
Total Organic Halogen, (TOX), SW9020B	8 oz. glass (amber)	1 mL 50% Sulfuric Acid, pH<2, Chilled to maintain 4 degrees Celsius

3-1-98

1230 Larson & Gebhardt arrive at Landfill 5. Dropped storage tanks off at well E, 5, and B.

1255 Well B PID = 0.0

water level 290.65 ft blw MP which is Top of steel well protector

Hold 295.00
Cut 4.35
290.65
2.80
287.85 WL

1530 depart site

3-2-99

0715 Larson, Gebhardt, Huff and Waltemeyer arrive at well B.

3-2-99 meter calibration (Huff)
meter N- 597214 ; replaced 9V battery (3/2/99)
buffer temp 12.6°C

Buffer	Calibrated reading	slope = 93.7
7.04	7.09	
10.15	10.16	

Recalibrate buffer temp = 11.5°C

Buffer	calibrated reading	slope = 92.4
7.05	7.05	
10.16	10.16	

3-2-99 meter calibration (Huff)
meter W- 493926
buffer temp = 11.5°C ; replace 9V battery (3/2/99)

Buffer	calibrated reading	slope =
7.05		
10.17	10.17	

3-2-99 10

conductance meter calibration
meter # / serial # 51449005

std	~~calib reading~~
746	748
1010	1009

conductance meter calibration
meter # W-597220

std	calib. reading
746	746
1010	1009

WELL CAFB-B-EB EQUIPMENT BLANK @ 08:00

0925 Larson arrives at well 9
PID = 0 WL = 283.38 blw top of PVC 284.32 ft blw top of steel well protector. Begin Sampling

Time	Vol	pH	Cond	temp
940	0	7.44	714	14.0
946	5	7.46	709	17.4
951	10	7.52	710	17.1
956	15	7.56	709	17.3
1000	20	7.54	708	17.3
1004	25	7.54	710	17.5

(over)

5-2-99 well Q continued

Time	Vol	pH	Cond	temp
1009	30	7.56	708	17.5
1013	35	7.56	708	17.3

Collected Sample CAFB-Q at 1030

1135 Arrive at well H - Sewage Lagoons PID = 0.0 WL = 289.66 blw ~~top~~ MP which is base of pump base.

Time	Vol	pH	Cond	temp
1150	0	8.17	723	13.0
1200	10	7.65	748	17.0
1210	20	7.47	745	17.1
1220	30	7.48	746	17.5
1230	40	7.53	754	17.3

Sampled CAFB-H at 1230

1250 arrive at well G PID = 0.0 WL = 290.12 ft blw mp which is base of pump base.

Time	Vol	pH	Cond	Temp
1308	0	7.10	1111	14.1
1318	10	7.24	1105	16.8
1328	20	7.32	1101	17.4
1338	30	7.38	1112	17.4
1348	40	7.38	1104	17.4

(over)

3-2-99 well G continued

Time	Vol	pH	cond	Temp	
1358	50	7.43	1134	17.5	900 5a
1408	60	7.43	1176	17.5	
1418	70	7.42	1183	17.5	

1420 collected sample CAFB-G

3-3-99 0715 Larson, Gebhardt Huff and Waltenbaugh arrive at LF 5, Begin calibration

pH meter calibration (Huff) meter W- ~~597214~~ 493926

buffer temp = 5.8 °C slope = 93.8

buffer	calibrated reading
7.08	7.06
10.24	10.25

conductance meter calibration meter W- 597220

std	calibrated reading
746	744
1010	1010

conductance meter calibration meter serial # 51449005
replace 9V battery (3/3/99)

std	calibrated reading
746	743
1010	1011

unable to calibrate pH meter W-597214, ATC probe malfunction

CAFB WELL-S 3/3/1999

START PURG @ 11:55

Time	VOL (gallons)	pH	cond (µs/cm)	temp (°C)
11:55	< 0.5	7.95	719	16.8
12:08	10	7.33	799	17.0
12:16	20	7.31	776	17.5
12:25	30	7.35	766	17.6
12:35	40	7.38	764	17.6
12:43	50	7.39	760	17.5

CAFB - X sampled @ 12:00

CAFB - S " " 13:00

CAFB WELL-B 3/3/1999 WATER LEVEL 287.85

Time	VOL (gallons)	pH	cond (µs/cm)	temp (°C)
13:12	< 0.5	7.06	777	18.2
13:20	10	7.20	781	17.5
13:27	20	7.36	791	17.4
13:34	30	7.36	774	17.3
13:42	40	7.41	770	17.4
13:49	50	7.45	771	17.4
13:56	60	7.42	770	17.5
14:02	70	7.45	768	17.5

CAFB-B sampled @ 14:00

3/4/99 07:10 Larson, Huff, Waltermeyer, and Gebhardt on site

Meter calibrations: (Huff)
Unable to calibrate pH meter W-597214, ATC probe malfunction

pH meter W-493926
buffer temp = 8.0°c slope = 92.9

buffer	calibrated reading
7.07	~~10.20~~ 7.05
10.20	10.21

conductance meter W-597220

std	calibrated reading
746	747
1010	1003

conductance meter serial # 51449005

std	calibrated reading
746	747
1010	1003

CAFB WELL-D 3/4/99

~~START~~

TIME	VOL (GALS)	pH	Cond (µs/cm)	temp (°C)
08:47	<0.5	6.87	567	13.9
08:55	10	7.01	567	16.9
09:03	20	7.11	563	17.5
09:11	30	7.17	563	17.9
09:19	40	7.21	562	17.7
09:27	50	7.22	562	17.9
09:35	60	7.22	563	18.0

SAMPLE CAFB-D @ 09:4~~4~~ 3/4/1999

CAFB-C 3/4/99

Time	VOL (GALS)	pH	COND (µs/cm)	temp (°C)
10:36	<0.5	6.81	621	18.9
10:40	5	6.99	620	18.5
10:44	10	7.11	618	18.6
10:48	15	7.17	622	18.5
10:52	CHANGE N2 TANK ; 10:53 RESUME PURGE			
10:53	20	7.20	625	18.8
10:57	25	7.21	626	18.7
11:02	30	7.25	625	18.7
11:07	35	7.25	624	18.7

CAFB-C sampled @ 11:10 3/4/99

CAFB WELL-U 3/4/1999

Time	Vol (GALS)	pH	Cond (us/cm)	temp (°c)
12:23	<0.5	10.74	970	17.0
12:36	10	8.40	734	18.3
12:49	20	8.18	753	18.3
13:02	30	8.05	757	18.3
13:15	40	7.91	764	18.4
13:27	50	7.87	765	18.4
13:40	60	7.78	765	18.7
~~13:53~~	~~70~~			

CAFB-U sampled @ 13:45

3-5-99 0730 Larson Gebhardt and Waltemeyer arrive at landfill 5
Larson & Waltemeyer put mobile bennett pump down well F.
0749 Larson begins calibration

Time	Vol	pH	Cond	temp
~~0842~~	0	7.61	845	9.8
0849	5	7.62	853	11.6
0853	10	7.53	847	~~14.6~~ 15.2
0857	15	7.50	838	15.8
0901	20	7.48	840	16.3
0905	25	7.51	834	16.8
~~0909~~	~~30~~	well went dry		
~~0913~~	~~35~~			

Sampled when received at 0945
WL = 291.87
sounded bottom at 303

3/2/99 HER.

0745	PID READING WELL	S = 0
0750	PID READING WELL	J = 0
0755	"	C = 0
0800	"	D = 0
0805	"	I = 0
0810	"	M = 0
0820	"	T = 0
0825	"	L = 0
0824	"	U = 0

	level	well
0852	295.96	C
0859	284.11	D
0909	291.06	I
0920	290.57	T
0926	290.60	U
	291.18	S

3/2/99 RM.

WELL E

1120 PID READING = 0

1121 WL 290.76

TIME	VOL (gal)	TEMP	pH	COND
1145	< 0.5	17.6	6.97	650
1150	5	18.2	7.19	649
1155	10	18.3	7.29	647
1205	20	18.2	7.40	703
1215	30	18.2	7.44	790
1225	40	18.3	7.50	757
1235	50	18.3	7.53	730
1245	60	18.3	7.53	716
1255	70	18.3	7.52	711

1300 COLLECTED SAMPLE

3/2/99 KER

WELL F

1329 PID READING = 0

1330 WL 287.87

TIME	VOL (gal)	TEMP	pH	COND
1338	<0.5	17.0	7.92	800
1348	10	17.5	7.57	770
1357	20	16.7	7.48	806
1408	30	17.1	7.47	770
1418	40	17.1	7.50	770
1427	50	17.3	7.48	819

1430 COLLECTED SAMPLE

WELL B 3/3/99 RER

1300 WL 287.85

TIME	VOL	TEMP	pH	COND
1312	<0.5	18.2	7.06	777
1320	10	17.5	7.20	781
1327	20	17.4	7.36	791
1334	30	17.3	7.36	774
1342	40	17.4	7.41	770
1349	50	17.4	7.45	771
1356	60	17.5	7.45	770
1402	70	17.5	7.45	768

Collect sample at 1400 RER

well T 3-4-99

Time	Vol	pH	Cond	temp
1220	0	6.79	789	21.0
1228	10	6.88	781	19.5
1236	20	6.98	779	19.0
1244	30	7.17	777	19.0
1252	40	7.33	778	19.0
1300	50	7.34	775	19.0
1308	60	7.40	777	19.0
1310	Replaced N_2 cylander			
1317	70	7.46	776	19.0
1325	80	7.46	778	19.0
1330	Sampled	CAFB-T		
		CAFB-T-MS		
		CAFB-T-SD		