WSMR 040

DEPARTMENT OF THE ARMY
U.S. ARMY GARRISON WHITE SANDS
100 HEADQUARTERS AVENUE
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-5000

REPLY TO
ATTENTION OF
Environment and Safety Directorate

SEP 2 9 2004

RECEIVED
OCT 2004
NMED Hazardous
Waste Bureau

Ms. Cheryl Frischkorn
Hazardous Waste Bureau
New Mexico Environment Department
2905 East Rodeo Park Road, Building 1
Santa Fe, New Mexico 87505-6303

Dear Ms. Frischkorn:

White Sands Missile Range has been performing groundwater monitoring at the High Energy Laser Systems Test Facility (HELSTF) Cleaning Facility as required. Enclosed for your review are one copy of the report and a CD received from the US Geologic Survey (USGS) concerning recently completed sampling activities at HELSTF. The Report includes a summary of the analytical results as well as all QA/QC lab data for the analytes of concern (volatiles, semi-volatiles, extractable petroleum products, and total metals) based upon available information for April 5, 2004. The report submitted is entitled:

United States Army White Sands Missile Range, Ground Water Monitoring at the High Energy Laser Systems Test Facility (HELSTF), Cleaning Facility RCRA Monitoring Well Sampling, Analytical Results of Samples Collected April 5, 2004 (prepared May 2004).

Copies of this correspondence are also being furnished to Mr. John Kieling, NMED HWB; Ms. Marcie Leavit, GWQB, NMED; and Mr. David Neleigh, Region VI EPA.

We hope that the enclosed report satisfactorily addresses any questions regarding our groundwater monitoring activities at the HELSTF. Should you have any further questions please contact Mr. Robert Peters (505) 678-1007.

Sincerely,

Thomas A. Ladd

Thomas A. Ladd
Director, Environment and Safety Directorate

Enclosure

United States Army White Sands Missile Range

Ground-Water Monitoring at the High Energy Laser Systems Test Facility, Cleaning Facility RCRA Monitoring Well Sampling

Analytical Results of
Samples Collected April 5, 2004

Prepared for

Commander
U.S. Army White Sands Missile Range

May 2004

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EXECUTIVE SUMMARY

The U.S. Geological Survey (USGS), Water Resources Division, has entered into an agreement with the U.S. Army to perform ground-water-quality monitoring at the High Energy Laser Systems Test Facility (HELSTF) Cleaning Facility at White Sands Missile Range (WSMR), New Mexico (fig. 1). The primary objective of the agreement is to monitor the concentrations of hazardous materials in ground water at the HELSTF Cleaning Facility as required by the Resource Conservation and Recovery Act (RCRA). The ground-water monitoring requirements for the HELSTF Cleaning Facility are part of the approved Closure Plan Modification (December 12, 1992), which is a modification to the HELSTF Treatment Tank System Closure Plan. The hydrogeologic investigation, well installation, and monitoring program were originally proposed in the HELSTF Treatment Tank System Closure Plan. The hydrogeologic investigation and well installation were conducted by a contractor for the U.S. Army as part of the Closure Plan Modification.

Four RCRA monitoring wells (CFW1, CFW2, CFW3, and CFW4) installed by the contractor at the Cleaning Facility (fig. 2) have been sampled by the USGS since April 1994. Ground-water samples were collected quarterly until 2004 when the sampling frequency was reduced to semiannual. A background well (HMW31) was added to the monitoring network in March 1995 and was sampled quarterly through July 2003. A second background well, HMW15, located at the northwest corner of HELSTF (fig. 2), was added to the network in July 2003 and replaced background well HMW31 in October 2003 because it is a better indicator of background conditions at the Cleaning Facility. Water from well HMW31 consistently has had small concentrations of volatile organic compounds (VOC) and large concentrations of chromium.

Monitoring wells were sampled on April 5, 2004. Ground-water samples were analyzed for the following: VOC (method SW8260B); semivolatile organic compounds (SVOC) (method SW8270C); extractable petroleum hydrocarbons in the form of diesel range organics (DRO) (method SW8015-modified); total organic carbon (TOC) (method SW9060); total organic halogens (TOX) (method SW9020B); cyanide (method SW9012A); total trace elements (barium, beryllium, and cobalt by method SW6010B; arsenic, cadmium, chromium, lead, and selenium by method SW6020); major ions (calcium, magnesium, potassium, and sodium by method SW6010B; chloride, fluoride, nitrate, orthophosphate, and sulfate by method MCAWW300.0A; and ammonia by method MCAWW350.1); total sulfide (method MCAWW376.2); alkalinity (method MCAWW310.1); and total dissolved solids (TDS) (method MCAWW160.1). Severn Trent Environmental Services Laboratories in Arvada, Colorado, conducted all analyses.

Concentrations of the analytes detected in ground-water samples are presented in table 1. Concentrations that are equal to or greater than the reporting limits are discussed in this summary. Concentrations that are smaller than the reporting limits are estimates and are flagged "J" in table 1. Time-series plots of selected constituents (benzene, xylenes, 2-methylnapthalene, naphthalene, DRO, TOX, and nitrate) (figs. 3-9) show the historical and present constituent concentrations in water from the monitoring wells.

Concentrations of fuel-derived VOC (benzene and xylenes) have decreased substantially in water from wells at the Cleaning Facility since monitoring began (figs. 3 and 4). Xylenes have not been detected above the reporting limit since October 2000 and benzene concentrations have generally stabilized at or below the reporting limit.

In April 2004, small concentrations of various halogenated VOC were detected in water samples from CFW1, CFW2, and background well HMW15 (table 1). Chloroform was detected in CFW2 (1.4 μg/L) and HMW15 (4.2 μg/L). Concentrations of chloroform in these wells were similar to

concentrations in samples collected in October 2003. The compound 1,1-dichloroethane was present in water from wells CFW1 (2.4 μg/L in the environmental sample and 3.6 μg/L in the duplicate) and CFW2 (1.8 μg/L).

Concentrations of fuel-derived SVOC (figs. 5 through 7) were above the reporting limit in samples from CFW2, CFW3, and CFW4 in April 2004. Wells CFW2 and CFW4 contained DRO at concentrations of 0.32 milligrams per liter (mg/L) and 0.47 mg/L, respectively. Well CFW3 had concentrations of 2-methylnaphthalene (12 μg/L) and DRO (450 mg/L). Concentrations of naphthalene, dibenzofuran, fluorine, and phenanthrene were detected in CFW3 at concentration levels larger than the reporting limit in October 2003, but were not detected above the reporting limit in CFW3 in April 2004. Monitoring well CFW3 also continued to exhibit a light, nonaqueous-phase liquid (LNAPL). This well contained 4.03 feet of LNAPL on April 5, 2004, an increase of 1.48 ft from October 7, 2003. Concentration spikes of fuel-derived SVOC (figs. 5-7) are most likely a result of LNAPL in CFW3 mixing with ground water during purging and sampling. Although procedures for purging and sampling CFW3 were altered in April 2000 to reduce the potential for mixing, ground water samples may have been mixed with LNAPL during sampling in April 2004.

TOC was present in water from all wells except HMW15 at concentrations ranging from 2.0 mg/L (CFW2) to 21 mg/L (CFW3). TOX was present above the reporting limit in water from all wells except HMW15 at concentrations ranging from 26 μg/L (CFW2 and CFW3) to 44 μg/L (CFW1). Since April 1999, concentrations of TOX have typically been estimates, ranging from 20 to 58 mg/L, or non-detects because of elevated reporting limits. The elevated reporting limits for TOX are caused by large inorganic chloride concentrations in the samples.

Barium was present in water from all wells at concentrations ranging from 11 μg/L (CFW4 and HMW15) to 25 μg/L (CFW3). Chromium was present in wells CFW2, CFW3, CFW4, at concentrations ranging from 12 μg/L (CFW3) to 26 μg/L (CFW4). Selenium was present in wells CFW1, CFW2, and HMW15 at concentrations ranging from 41 μg/L (CFW1, duplicate sample) to 100 μg/L (HMW15).

Nitrate was present in water from all wells except CFW3 at concentrations ranging from 21 mg/L (CFW1) to 67 mg/L (HMW15). Nitrate concentrations have generally decreased in water from CFW4 since 1994, and in water from wells CFW2 and CFW3 since 1998 (fig. 9). Nitrate concentrations in samples from all wells except HMW15 generally decreased since October 2003. The nitrate concentration in HMW15 increased from 63 mg/L to 67 mg/L between October 2003 and April 2004. Nitrate in water from well CFW3 increased between April 2002 and July 2002 but has since decreased and has remained below its reporting limit since January 2003. There is no obvious trend for nitrate concentration in samples from CFW1 (fig. 9).

The major dissolved cation in water samples from the wells is sodium and the major dissolved anion is sulfate. In April 2004, sodium concentrations ranged from 1,600 mg/L (CFW3) to 2,500 mg/L (HMW15). Sulfate concentrations ranged from 3,200 mg/L (CFW3) to 7,300 mg/L (HMW15).

Ground water from all wells is brackish. TDS ranged from 7,400 mg/L (CFW3) to 14,000 mg/L (HMW15). Total sulfide concentrations were present in water from CFW2 (0.17 mg/L) and CFW3 (13 mg/L). Total alkalinity concentrations ranged from 250 mg/L (CFW2) to 1,600 mg/L (CFW3).

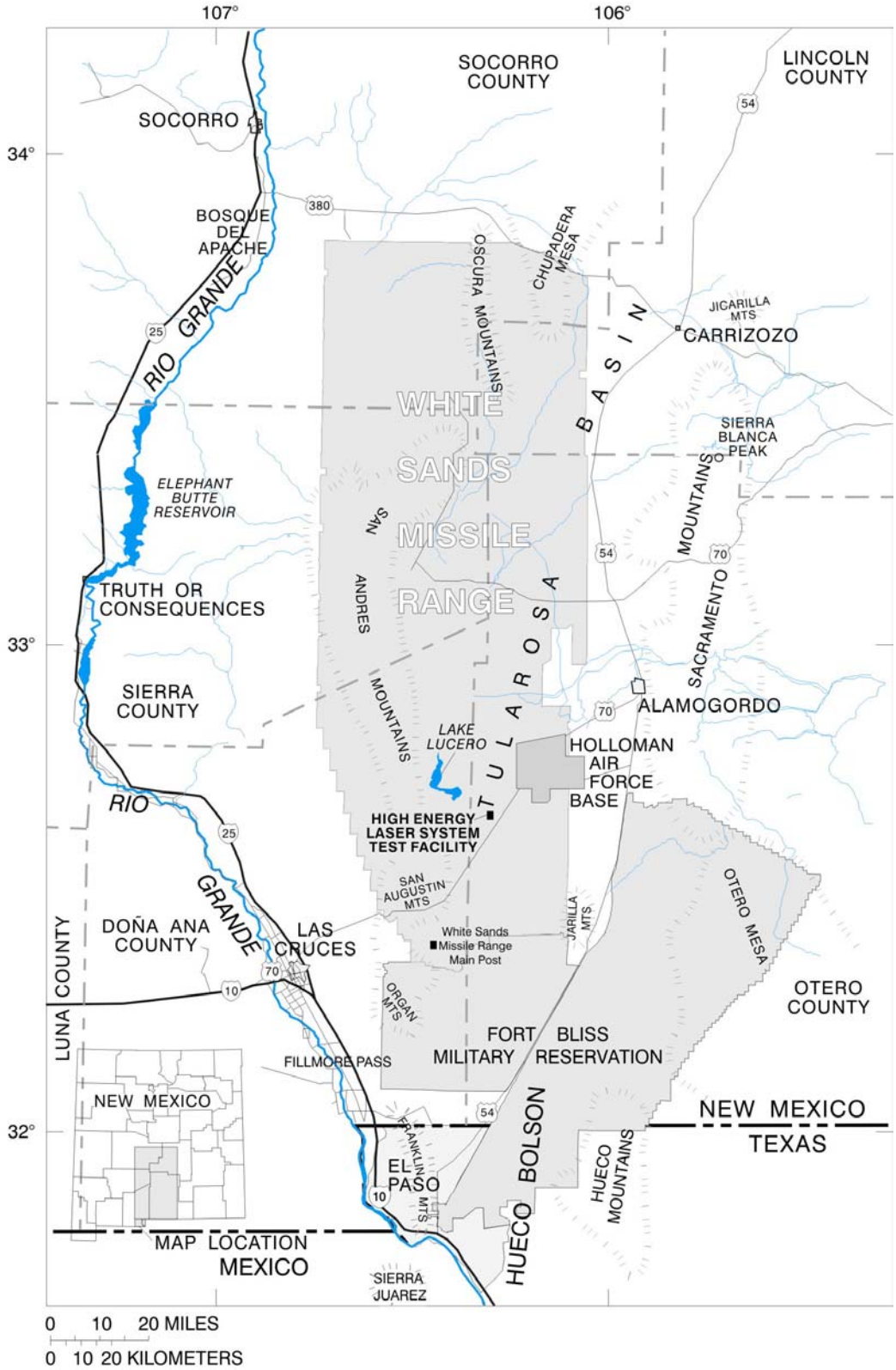


Figure 1. Location of the High Energy Laser System Test Facility site and surrounding area, south-central New Mexico.

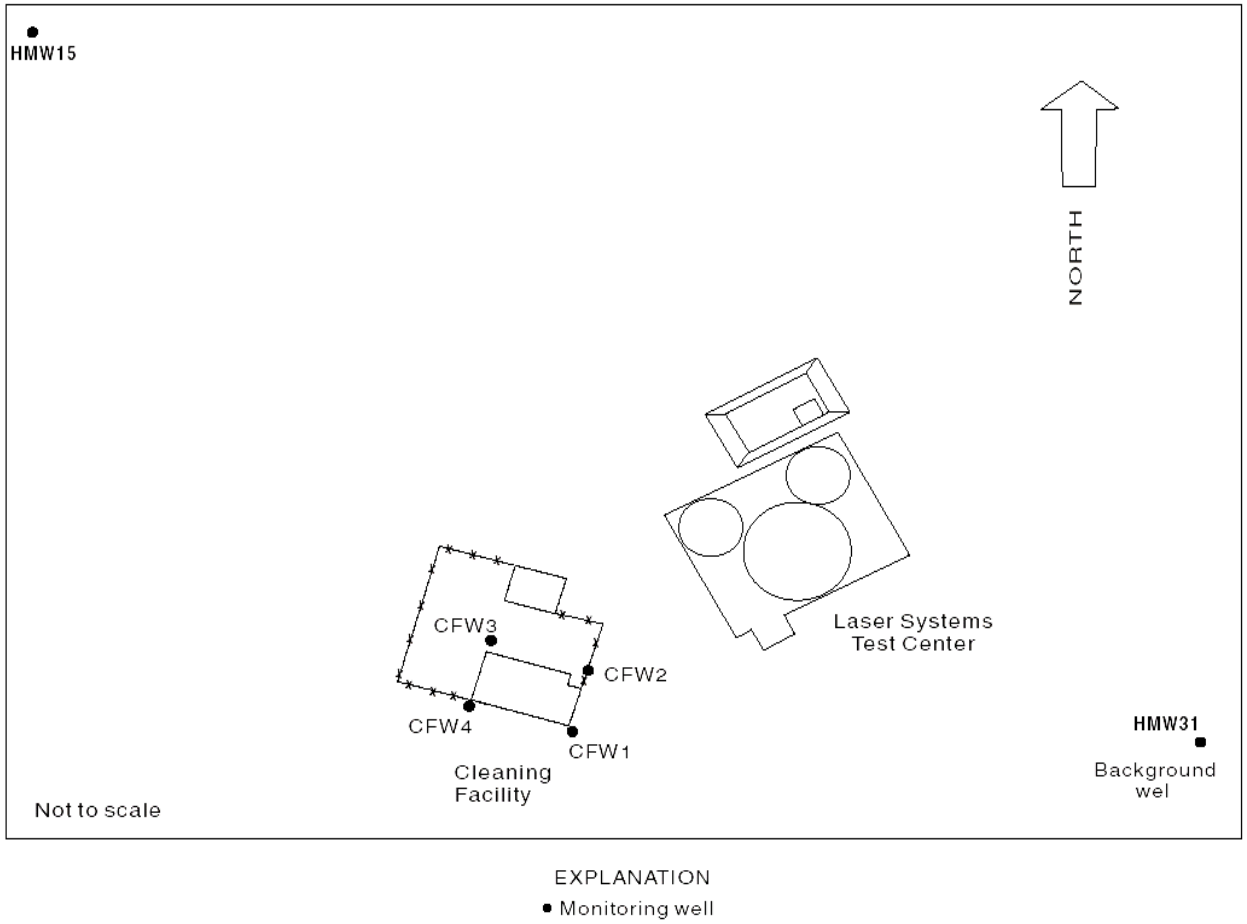


Figure 2. Location of RCRA monitoring wells CFW1, CFW2, CFW3, CFW4 at the HELSTF Cleaning Facility and background monitoring well HMW15, White Sands Missile Range, New Mexico. HMW31 represents background conditions from March 1995 to July 2003 while HMW15 indicates background conditions from July 2003 to present (modified from Advanced Sciences, 1993)

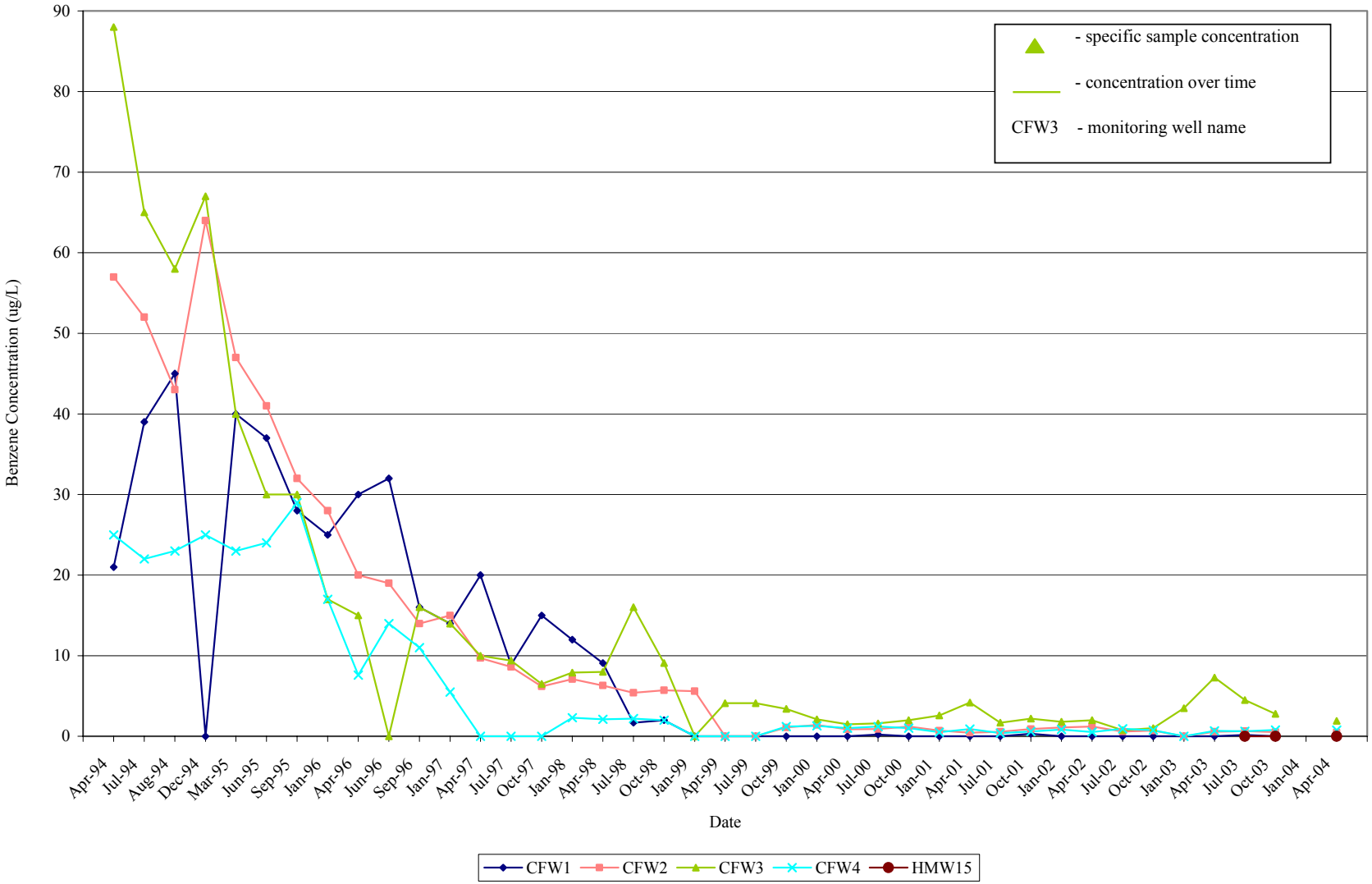
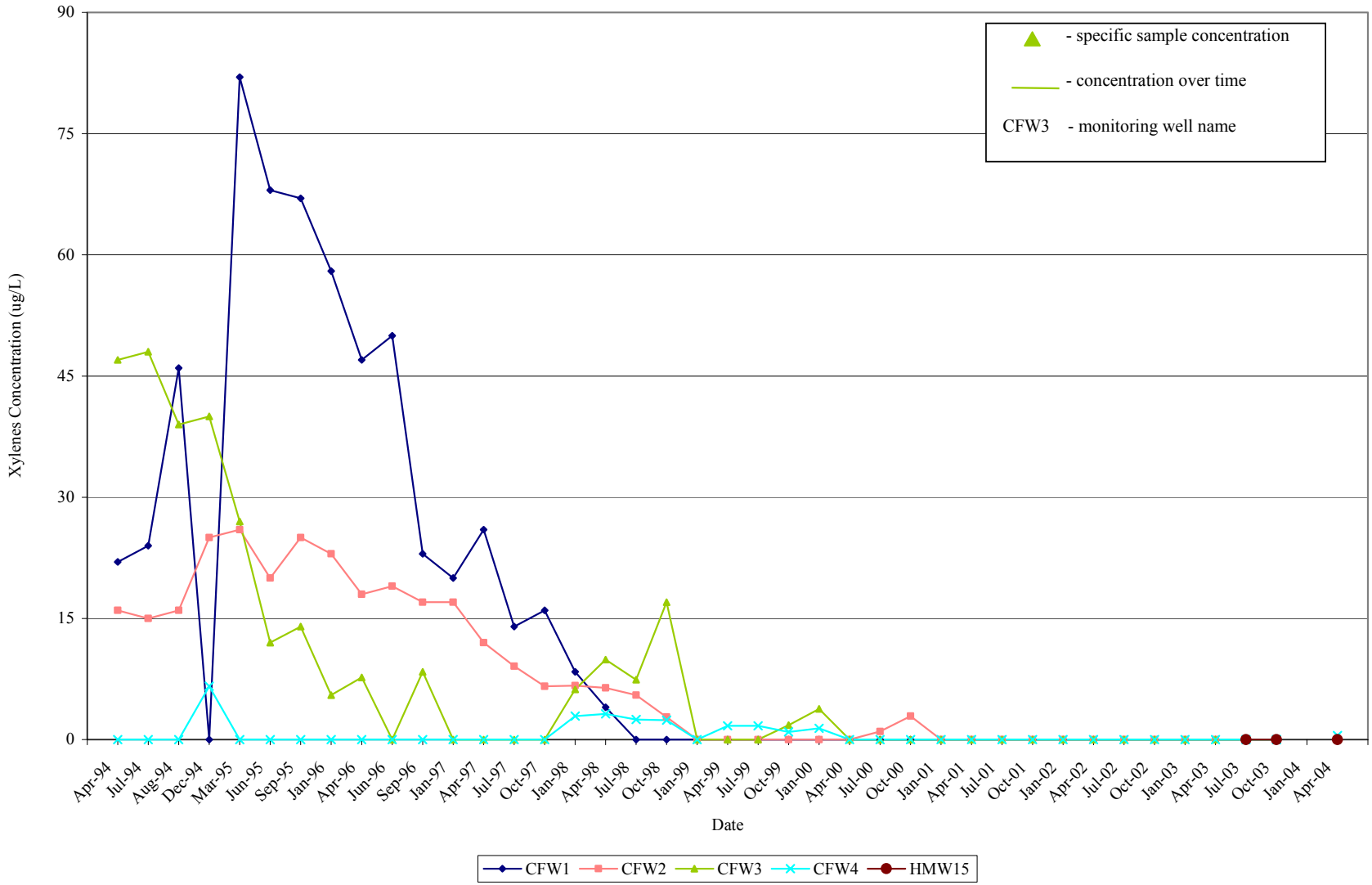


Figure 3. Time-series plot of benzene concentrations, April 1994 to April 2004, for monitoring wells CFW1, CFW2, CFW3, CFW4, and background well HMW15 in the area of the HELSTF Cleaning Facility, U.S. Army White Sands Missile Range, New Mexico.



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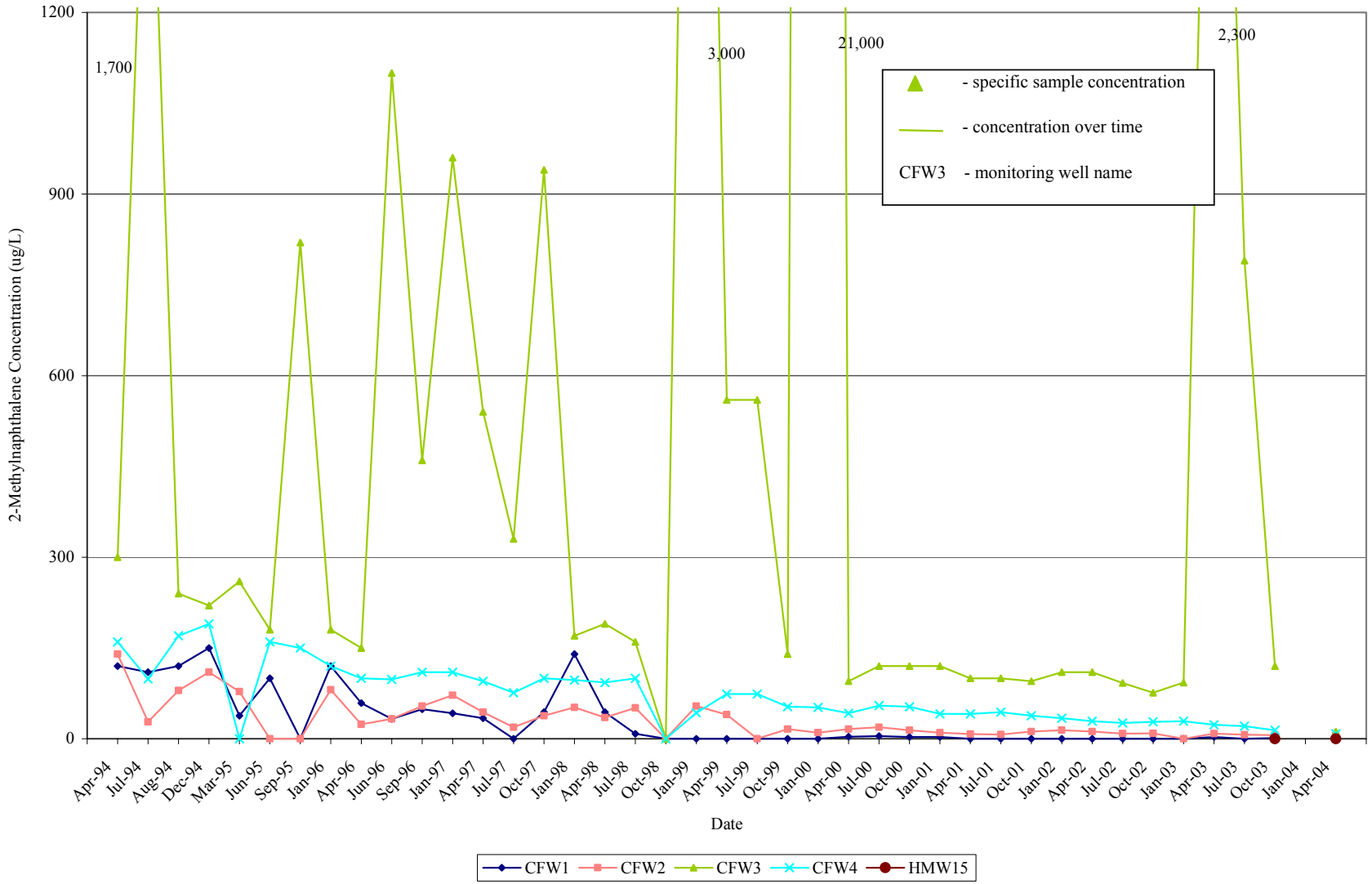

Figure 5. Time-series plot of 2-methylnaphthalene concentrations, April 1994 to April 2004, for monitoring wells CFW1, CFW2, CFW3, CFW4, and background well HMW15 in the area of the HELSTF Cleaning Facility, U.S. Army White Sands Missile Range, New Mexico.

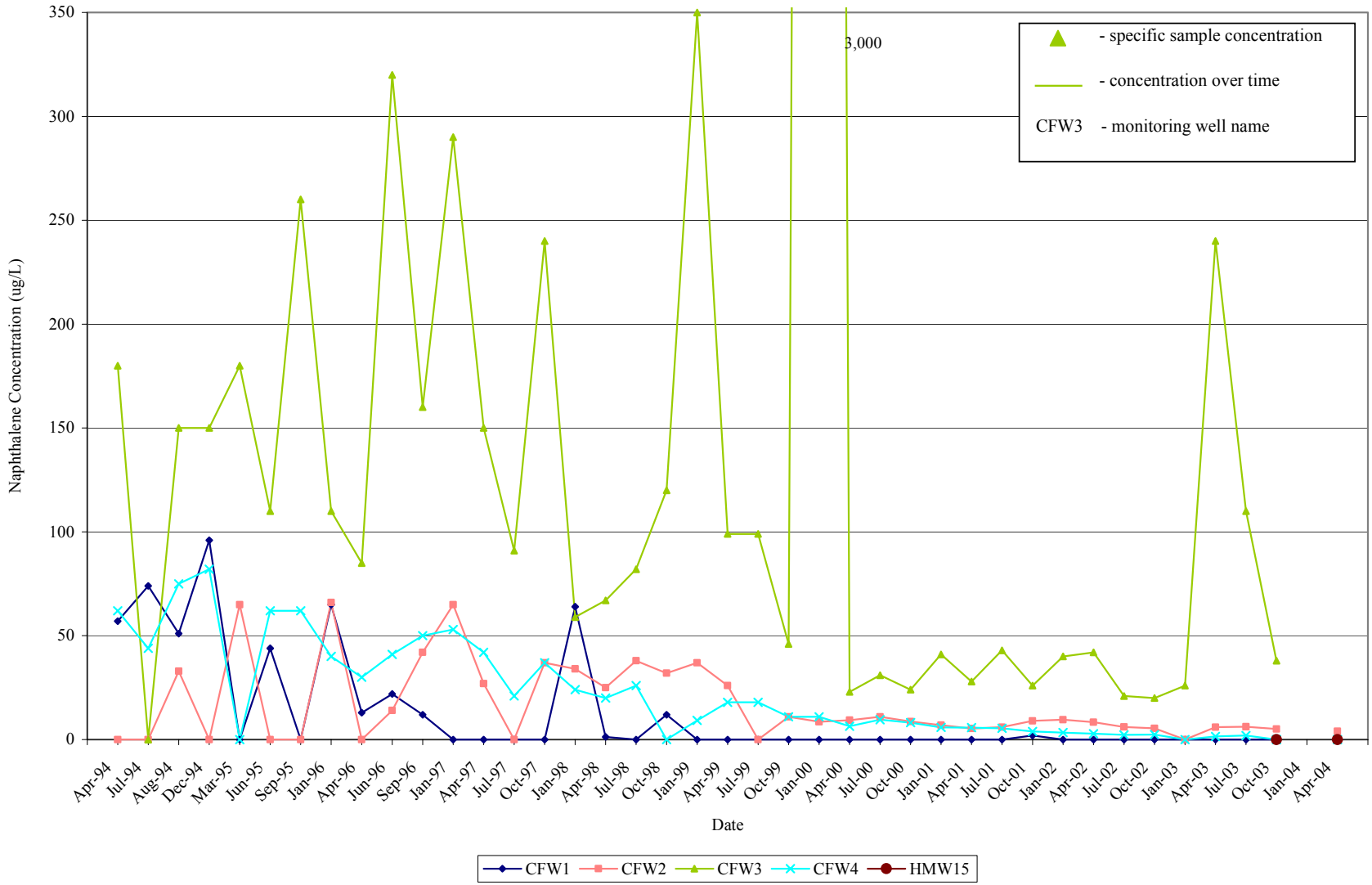

Figure 6. Time-series plot of naphthalene concentrations, April 1994 to April 2004, for monitoring wells CFW1, CFW2, CFW3, CFW4, and background well HMW15 in the area of the HELSTF Cleaning Facility, U.S. Army White Sands Missile Range, New Mexico.

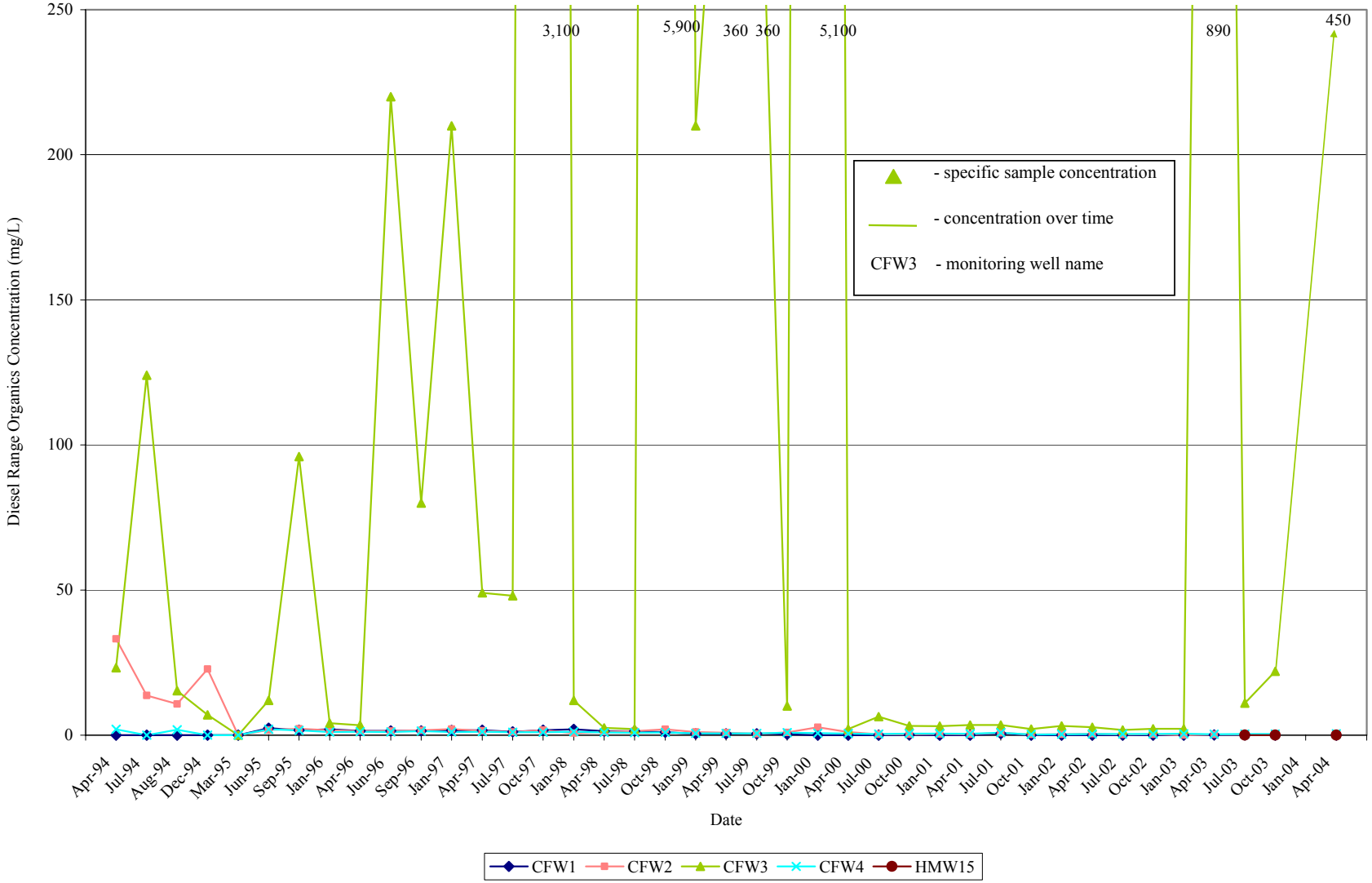

Figure 7. Time-series plot of diesel range organics concentrations, April 1994 to April 2004, for monitoring wells CFW1, CFW2, CFW3, CFW4, and background well HMW15 in the area of the HELSTF Cleaning Facility, U.S. Army White Sands Missile Range, New Mexico.

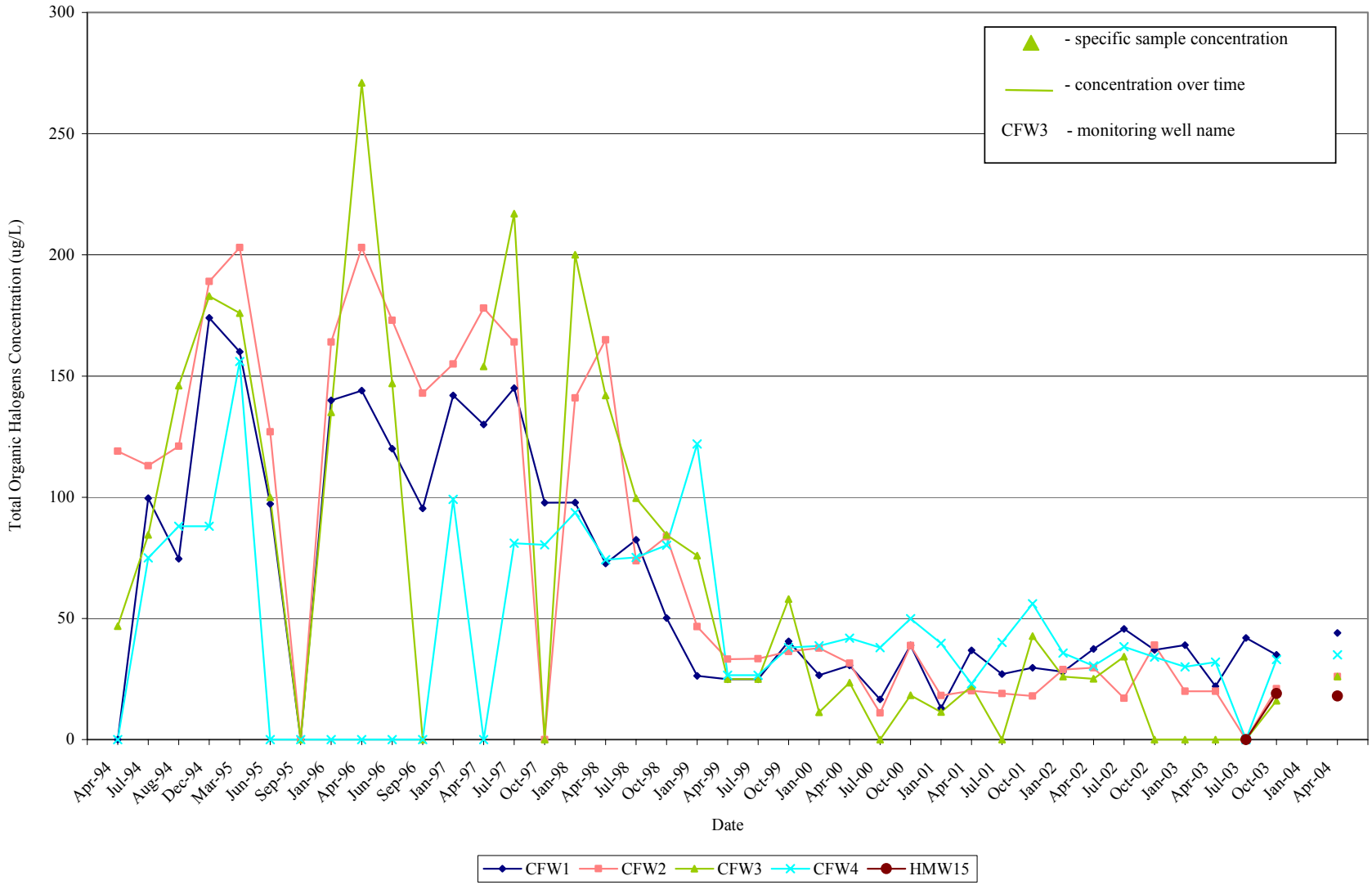

Figure 8. Time-series plot of total organic halogens concentrations, April 1994 to April 2004, for monitoring wells CFW1, CFW2, CFW3, CFW4, and background well HMW15 in the area of the HELSTF Cleaning Facility, U.S. Army White Sands Missile Range, New Mexico.

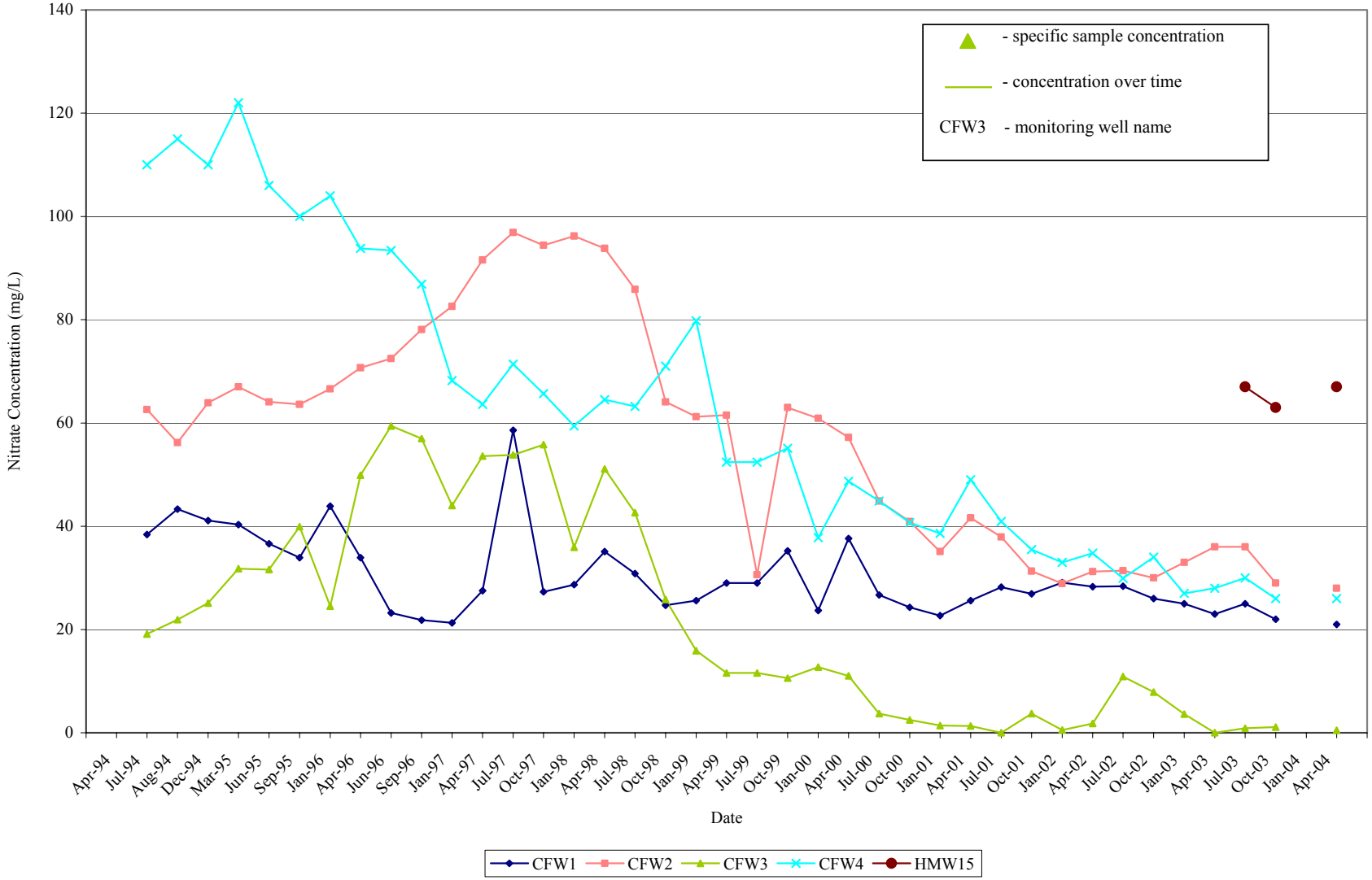

Figure 9. Time-series plot of nitrate (as N) concentrations, July 1994 to April 2004, for monitoring wells CFW1, CFW2, CFW3, CFW4, and background well HMW15 in the area of the HELSTF Cleaning Facility, U.S. Army White Sands Missile Range, New Mexico.

Table 1. Summary of concentrations of analytes detected in ground water from monitoring wells CFW1, CFW2, CFW3, CFW4, and HMW15 for samples collected April 5, 2004, at the HELSTF Cleaning Facility, White Sands Missile Range, New Mexico.

[**RL**, reporting limit; **mg/L**, milligrams per liter; **µg/L**, micrograms per liter; **ND**, not detected; **NR**, analysis not requested; **IC**, diluted due to high inorganic chloride; **G**, elevated reporting limit due to matrix interference; **J**, analyte was detected below the reporting limit and the value is an estimated concentration; **B**, method blank contamination]

Sample ID:	CFW1		Duplicate CFW1-1		Trip Blank CFW1-2		CFW2		CFW3		CFW4		HMW15	
Sample date & time:	4/5/04	1450	4/5/04	1500	4/5/04	1400	4/5/04	1745	4/5/04	1740	4/5/04	1555	4/5/04	1725
Analytes and method:	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Volatile Organics SW8260B (µg/L)														
Benzene	ND	1	ND	1	ND	1	0.45 J	1	1.9 J	10	0.76 J	1	ND	1
Chloroform	0.67 J	1	0.92 J	1	ND	1	1.4	1	ND	10	0.56 J	1	4.2	1
1,1-Dichloroethane	2.4	1	3.6	1	ND	1	1.8	1	4.2 J	10	0.41 J	1	ND	1
Methylene chloride	0.42 J	5	0.55 J	5	0.62 J	5	0.43 J, B	5	5.4 J	50	0.6 J	5	0.43 J, B	5
Trichloroethene	ND	1	0.22 J	1	ND	1	0.39 J	1	ND	10	0.25 J	1	ND	1
Xylenes (total)	ND	2	ND	2	ND	2	ND	2	ND	20	0.5 J	2	ND	2
Semivolatile Organics SW8270C (µg/L)														
Acenaphthene	ND	10	ND	10	NR		ND	10	1.4 J	10	1.5 J	10	ND	10
Carbazole	ND	10	ND	10	NR		ND	10	1.3 J	10	1.3 J	10	ND	10
Dibenzofuran	ND	10	ND	10	NR		ND	10	5.0 J	10	4.8 J	10	ND	10
2-Methylnaphthalene	ND	10	ND	10	NR		5.5 J	10	12	10	8.1 J	10	ND	10
Naphthalene	ND	10	ND	10	NR		4.0 J	10	ND	10	ND	10	ND	10
Phenanthrene	ND	10	ND	10	NR		ND	10	3.5 J	10	3.5 J	10	ND	10
Diesel Range Organics (DRO) SW8015-modified (mg/L)	ND	0.25	ND	0.25	NR		0.32	0.25	450	25	0.47	0.25	ND	0.25
Total Organic Carbon (TOC) SW9060 (mg/L)	2.2	1	2	1	NR		2	1	21 G	2	2.6	1	0.51 J	1
Total Organic Halogen (TOX) SW9020B (µg/L)	44 IC	20	44 IC	20	NR		26 IC	20	26 IC	20	35 IC	20	18 J, IC	20

Table 1. Summary of concentrations of analytes detected in ground water from monitoring wells CFW1, CFW2, CFW3, CFW4, and HMW15 for samples collected April 5, 2004, at the HELSTF Cleaning Facility, White Sands Missile Range, New Mexico – Concluded.

[**RL**, reporting limit; **mg/L**, milligrams per liter; **µg/L**, micrograms per liter; **ND**, not detected; **B**, method blank contamination; **G**, reporting limit elevated due to matrix interference; **J**, analyte was detected below the reporting limit and the value is an estimated concentration; **Q**, reporting limit is elevated due to large analyte concentrations]

Sample ID:	CFW1		Duplicate CFW1-1		CFW2		CFW3		CFW4		HMW15	
Sample date & time:	4/5/04	1450	4/5/04	1500	4/5/04	1745	4/5/04	1740	4/5/04	1555	4/5/04	1725
Analytes and Method:	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
Trace Elements, Total (µg/L)												
Arsenic SW6020	11 J	25	10 J	25	15 J	25	5.5 J	25	11 J	50	10 J	50
Barium SW6010B	13	10	12	10	14	10	25	10	11	10	11	10
Cadmium SW6020	0.36 J	5	0.36 J	5	0.51 J	5	ND	5	0.64 J	10	ND	10
Chromium SW6020	8.8 B, J	10	9.1 B, J	10	14 B	10	12 B	10	26 B	20	10 B, J	20
Lead SW6020	ND	5	ND	5	ND	5	2.3 J	5	ND	10	ND	10
Selenium SW6020	42	25	41	25	47	25	4.8 J	25	49 J	50	100	50
Nutrients (mg/L)												
Ammonia as (N) MCAWW350.1	ND	0.1	ND	0.1	0.14	0.1	0.043 J	0.1	ND	0.1	0.043 J	0.1
Nitrate as (N) MCAWW300.0A	21 Q	2.5	22 Q	2.5	28 Q	2.5	0.47 J, G	2.5	26 Q	2.5	67 Q	5
Major Ions (mg/L)												
Calcium SW6010B	260	5	270	5	180	5	310	5	280	5	400	5
Chloride MCAWW300.0A	760 Q	150	750 Q	150	790 Q	150	670 Q	150	780 Q	150	2,000 Q	300
Fluoride MCAWW300.0A	3.2 J, G	5	3.4 J, G	5	4.0 J, G	5	2.7 J, G	5	3.7 J, G	5	2.2 J, G	10
Magnesium SW6010B	360	5	360	5	360	5	300	5	410	5	720	10
Potassium SW6010B	63	5	64	5	64	5	61	5	78	5	68	5
Sodium SW6010B	1,800	25	1,700	25	1,900	25	1,600	25	2,100	50	2,500	50
Sulfate MCAWW300.0A	5,100 Q	1,000	4,700 Q	1,000	4,700 Q	1,000	3,200 Q	1,000	5,900 Q	1,000	7,300 Q	2,500
Total Dissolved Solids MCAWW160.1 (mg/L)	8,500 Q	40	8,400 Q	40	8,600 Q	40	7,400 Q	40	10,000 Q	40	14,000 Q	50
Total Sulfide MCAWW376.2 (mg/L)	ND	0.05	ND	0.05	0.17	0.05	13 Q	2.5	ND	0.05	ND	0.05
Alkalinity MCAWW310.1 (mg/L)	400	5	400	5	250	5	1,600	5	260	5	110	5

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	High Energy Laser System Test Facility, Cleaning Facility
EPA I.D. NUMBER	NM275021135
COUNTY	Otero
WELL NUMBER	CFW1
WELL LOCATION (LONGITUDE)	106 ° 19 ' 52.11 "
WELL LOCATION (LATITUDE)	32 ° 37 ' 59.07 "
AQUIFER NAME	Alluvium (110AVMB)
AQUIFER CONFINED	_____ UNCONFINED X
WELL INSTALLATION DATE	5 / 4 / 93
DRILLING METHOD	HLWAG - Hollow Stem Auger
INNER CASING DIAMETER	4 INCHES
BOREHOLE DIAMETER	10.75 INCHES
CASING MATERIAL	PVC (Schedule 40)
METHOD OF DEVELOPMENT	Unknown
ELEV BOTTOM OF BOREHOLE	3,890.10 FEET ABOVE MSL
ELEV BOTTOM OF WELL CASING	3,895.10 FEET ABOVE MSL
ELEV BOTTOM OF SCREENED INT	3,900.10 FEET ABOVE MSL
ELEV OF TOP OF SCREENED INT	3,920.10 FEET ABOVE MSL
SURVEYED ELEV OF CASING TOP	3,957.34 FEET ABOVE MSL

Date of Report: 03/26/98 Signature: Jeff Langman

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	High Energy Laser System Test Facility, Cleaning Facility
EPA I.D. NUMBER	NM275021135
COUNTY	Otero
WELL NUMBER	CFW2 (HCF-9)
WELL LOCATION (LONGITUDE)	106 ° 19 ' 52.15 "
WELL LOCATION (LATITUDE)	32 ° 37 ' 59.51 "
AQUIFER NAME	Alluvium (110AVMB)
AQUIFER CONFINED	_____ UNCONFINED X
WELL INSTALLATION DATE	5 / 21 / 93
DRILLING METHOD	HLWAG - Hollow Stem Auger
INNER CASING DIAMETER	4 INCHES
BOREHOLE DIAMETER	~ 11.5 INCHES
CASING MATERIAL	PVC (Schedule 40)
METHOD OF DEVELOPMENT	Unknown
ELEV BOTTOM OF BOREHOLE	3,895.01 FEET ABOVE MSL
ELEV BOTTOM OF WELL CASING	3,895.51 FEET ABOVE MSL
ELEV BOTTOM OF SCREENED INT	3,900.51 FEET ABOVE MSL
ELEV OF TOP OF SCREENED INT	3,920.51 FEET ABOVE MSL
SURVEYED ELEV OF CASING TOP	3,957.47 FEET ABOVE MSL

Date of Report: 03/26/98 Signature: Jeff Langman

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	High Energy Laser System Test Facility, Cleaning Facility
EPA I.D. NUMBER	NM275021135
COUNTY	Otero
WELL NUMBER	CFW3 (HCF-8)
WELL LOCATION (LONGITUDE)	106 ° 19 ' 53.45 "
WELL LOCATION (LATITUDE)	32 ° 37 ' 59.59 "
AQUIFER NAME	Alluvium (110AVMB)
AQUIFER CONFINED	_____ UNCONFINED X
WELL INSTALLATION DATE	5 / 19 / 93
DRILLING METHOD	HLWAG - Hollow Stem Auger
INNER CASING DIAMETER	4 INCHES
BOREHOLE DIAMETER	~ 11.5 INCHES
CASING MATERIAL	PVC (Schedule 40)
METHOD OF DEVELOPMENT	Unknown
ELEV BOTTOM OF BOREHOLE	3,892.63 FEET ABOVE MSL
ELEV BOTTOM OF WELL CASING	3,903.63 FEET ABOVE MSL
ELEV BOTTOM OF SCREENED INT	3,908.63 FEET ABOVE MSL
ELEV OF TOP OF SCREENED INT	3,918.63 FEET ABOVE MSL
SURVEYED ELEV OF CASING TOP	3,955.63 FEET ABOVE MSL

Date of Report: 03/26/98 Signature: Jeff Langman

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	High Energy Laser System Test Facility, Cleaning Facility
EPA I.D. NUMBER	NM275021135
COUNTY	Otero
WELL NUMBER	CFW4
WELL LOCATION (LONGITUDE)	106 ° 19 ' 53.51 "
WELL LOCATION (LATITUDE)	32 ° 37 ' 58.92 "
AQUIFER NAME	Alluvium (110AVMB)
AQUIFER CONFINED	_____ UNCONFINED X
WELL INSTALLATION DATE	4 / 30 / 93
DRILLING METHOD	HLWAG - Hollow Stem Auger
INNER CASING DIAMETER	4 INCHES
BOREHOLE DIAMETER	10.75 INCHES
CASING MATERIAL	PVC (Schedule 40)
METHOD OF DEVELOPMENT	Unknown
ELEV BOTTOM OF BOREHOLE	3,885.43 FEET ABOVE MSL
ELEV BOTTOM OF WELL CASING	3,895.43 FEET ABOVE MSL
ELEV BOTTOM OF SCREENED INT	3,900.43 FEET ABOVE MSL
ELEV OF TOP OF SCREENED INT	3,920.43 FEET ABOVE MSL
SURVEYED ELEV OF CASING TOP	3,958.11 FEET ABOVE MSL

Date of Report: 03/26/98 Signature: Jeff Langman

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	High Energy Laser System Test Facility, Cleaning Facility
EPA I.D. NUMBER	NM275021135
COUNTY	Otero
WELL NUMBER	HMW15
WELL LOCATION (LONGITUDE)	106 ° 20 ' 07.09 "
WELL LOCATION (LATITUDE)	32 ° 37 ' 52.04 "
AQUIFER NAME	unknown
AQUIFER CONFINED	X UNCONFINED
WELL INSTALLATION DATE	unknown
DRILLING METHOD	unknown
INNER CASING DIAMETER	2 INCHES
BOREHOLE DIAMETER	unknown
CASING MATERIAL	PVC (Schedule 40)
METHOD OF DEVELOPMENT	Unknown
ELEV BOTTOM OF BOREHOLE	3,893.39 FEET ABOVE MSL
ELEV BOTTOM OF WELL CASING	3,941.39 FEET ABOVE MSL
ELEV BOTTOM OF SCREENED INT	3,898.39 FEET ABOVE MSL
ELEV OF TOP OF SCREENED INT	3,913.39 FEET ABOVE MSL
SURVEYED ELEV OF CASING TOP	3,958.30 FEET ABOVE MSL

Date of Report: 08/13/03 Signature: Sara Caldwell

MONITORING WELL

QUARTERLY SAMPLING REPORT

SAMPLE COLLECTED BY: Ralph Wilcox

LABORATORY NAME: Severn Trent Services WELL NUMBER: CFW1

WELL DEPTH: 62.24 feet WELL CASING VOLUME (given ground-water elev.): 10.99

DATE SAMPLED: 04/05/04 LABORATORY SAMPLE ID#: D4D080342-001

TIME SAMPLED: 1450 DATE RECEIVED BY LAB: 04/08/04

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Ground water altitude	71993	Feet	3,911.94	04/05/04
Flow Rate	00059	gal/min	0.69	04/05/04
Pump Period	72004	minutes	58	04/05/04
Volume Evacuated	73675	gallons	40	04/05/04
Well Sampling Method	84077	---	BLDRP	N/A

Sampler Material: TEFLON Well Sampling Method: Bladder Pump (BLDRP)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATA ANALYZED	METHOD USED
pH	00400	S.U.	6.96	N/A	04/05/04	field electrometer
Specific Conductance	00095	µS/cm	9,940	N/A	04/05/04	field electrometer
TOX	70354	µg/L	44	20	04/29/04	SW9020B
TOC	00680	mg/L	2.2	1.0	04/22/04	SW9060

SIGNATURE: Sara Caldwell

MONITORING WELL

QUARTERLY SAMPLING REPORT

SAMPLE COLLECTED BY: Ralph Wilcox

LABORATORY NAME: Severn Trent Services WELL NUMBER: CFW2

WELL DEPTH: 61.96 feet WELL CASING VOLUME (given ground-water elev.): 9.26

DATE SAMPLED: 04/05/04 LABORATORY SAMPLE ID#: D4D080342-004

TIME SAMPLED: 1745 DATE RECEIVED BY LAB: 04/08/04

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Ground water altitude	71993	Feet	3,909.7	04/05/04
Flow Rate	00059	gal/min	0.85	04/05/04
Pump Period	72004	minutes	47	04/05/04
Volume Evacuated	73675	gallons	40	04/05/04
Well Sampling Method	84077	---	BLDRP	N/A

Sampler Material: TEFLON Well Sampling Method: Bladder Pump (BLDRP)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATA ANALYZED	METHOD USED
pH	00400	S.U.	7.0	N/A	04/05/04	field electrometer
Specific Conductance	00095	µS/cm	10,130	N/A	04/05/04	field electrometer
TOX	70354	µg/L	26	20	04/29/04	SW9020B
TOC	00680	mg/L	2	1.0	04/22/04	SW9060

SIGNATURE: Sara Cadwell

MONITORING WELL

QUARTERLY SAMPLING REPORT

SAMPLE COLLECTED BY: Jeff Langman

LABORATORY NAME: Severn Trent Services WELL NUMBER: CFW3

WELL DEPTH: 52.0 FEET WELL CASING VOLUME (given ground-water elev.): 3.62

DATE SAMPLED: 04/05/04 LABORATORY SAMPLE ID#: D4D080342-005

TIME SAMPLED: 1740 DATE RECEIVED BY LAB: 04/08/04

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Ground water altitude	71993	Feet	3,909.17	04/05/04
Flow Rate	00059	gal/min	0.15	04/05/04
Pump Period	72004	Minutes	48	04/05/04
Volume Evacuated	73675	Gallons	7	04/05/04
Well Sampling Method	84077	---	BLDRP	N/A

Sampler Material: TEFLON Well Sampling Method: Bladder Pump (BLDRP)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATA ANALYZED	METHOD USED
pH	00400	S.U.	7.0	N/A	04/05/04	field electrometer
Specific Conductance	00095	µS/cm	8,410	N/A	04/05/04	field electrometer
TOX	70354	µg/L	26	20	04/29/04	SW9020B
TOC	00680	mg/L	21	1.0	04/22/04	SW9060

SIGNATURE: Sara Caldwell

MONITORING WELL

QUARTERLY SAMPLING REPORT

SAMPLE COLLECTED BY: Jeff Langman

LABORATORY NAME: Severn Trent Services WELL NUMBER: CFW4

WELL DEPTH: 62.68 feet WELL CASING VOLUME (given ground-water elev.): 10.65 gallons

DATE SAMPLED: 04/05/04 LABORATORY SAMPLE ID#: D4D080342-006

TIME SAMPLED: 1555 DATE RECEIVED BY LAB: 04/08/04

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Ground water altitude	71993	Feet	3,911.74	04/05/04
Flow Rate	00059	Gal/min	0.5	04/05/04
Pump Period	72004	minutes	80	04/05/04
Volume Evacuated	73675	gallons	40	04/05/04
Well Sampling Method	84077	---	BLDRP	N/A

Sampler Material: TEFLON Well Sampling Method: Bladder Pump (BLDRP)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATA ANALYZED	METHOD USED
pH	00400	S.U.	7.08	N/A	04/05/04	field electrometer
Specific Conductance	00095	µS/cm	11,440	N/A	04/05/04	field electrometer
TOX	70354	µg/L	35	20	04/29/04	SW9020B
TOC	00680	mg/L	2.6	2.0	04/22/04	SW9060

SIGNATURE: Sara Caldwell

MONITORING WELL
QUARTERLY SAMPLING REPORT

SAMPLE COLLECTED BY: Jeff Langman

LABORATORY NAME: Severn Trent Services WELL NUMBER: HMW15

WELL DEPTH: 68 feet WELL CASING VOLUME (given ground-water elev.): 11.7 gallons

DATE SAMPLED: 04/05/04 LABORATORY SAMPLE ID#: D4D080342-007

TIME SAMPLED: 1725 DATE RECEIVED BY LAB: 04/08/04

PARAMETERS	STORET CODE	UNITS	VALUE	DATE
Ground water altitude	71993	Feet	3,908.23	04/05/04
Flow Rate	00059	gal/min	0.3	04/05/04
Pump Period	72004	Minutes	50	04/05/04
Volume Evacuated	73675	gallons	15	04/05/04
Well Sampling Method	84077	---	BLDRP	N/A

Sampler Material: TEFLON Well Sampling Method: Bladder Pump (BLDRP)

PARAMETERS	STORET CODE	UNITS	VALUE	DETECTION LIMIT	DATA ANALYZED	METHOD USED
pH	00400	S.U.	7.53	N/A	04/05/04	field electrometer
Specific Conductance	00095	µS/cm	15,400	N/A	04/05/04	field electrometer
TOX	70354	µg/L	18	20	04/29/04	SW9020B
TOC	00680	mg/L	0.51	1.0	04/22/04	SW9060

SIGNATURE: Sara Caldwell

APPENDIX I

Analytical Results from Severn Trent Services Laboratory for
Ground-Water Samples Collected April 5, 2004

SEVERN TRENT STL

STL Denver
4955 Yarrow Street
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171
www.stl-inc.com

ANALYTICAL REPORT

White Sands HELSTF

Lot #: D4D080342

Richard Daddow

U.S. Geological Survey

STL DENVER

Susan Decker
Project Manager

April 30, 2004

Leaders in Environmental Testing

Severn Trent Laboratories, Inc.

Case Narrative
D4D080342

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.

The test results presented in this report meet all requirements of NELAC, and any exceptions are noted. This report shall not be reproduced, except in full, without written permission from the laboratory.

Sample Receiving

Seven samples were received under chain of custody on April 8, 2004. The samples were received at the lab in good condition at temperatures of 2.8°C, 5.3°C, 3.1°C, and 4.1°C.

The samples were received past the 48-hour hold time for nitrate and ortho-phosphate. The samples were analyzed as per client instructions.

Due to instrument failures at STL Denver, the method 6010B metal analyses were performed at STL Pittsburgh; 450 William Pitt Way, Building 6; Pittsburgh, PA 15238. All other analyses were performed at STL Denver.

GC/MS Volatiles, SW846 8260B

Sample D4D080342-005 was analyzed at a dilution due to the presence of interfering non-target hydrocarbons in the sample. The reporting limits are elevated accordingly.

Methylene chloride was detected in the method blank associated with batch 4107264 at a concentration below the reporting limit, but above the method detection limit. Associated positive sample results are flagged "B".

The MS/MSD performed on sample D4D080342-002 was in control for all recoveries and RPDs.

The MS/MSD associated with batch 4107264 was performed on a sample from another client and/or lot and was in control for all recoveries and RPDs.

The second source verification of the initial calibration (ICV) associated with samples D4D080342-001 through 003, 005, and 006 demonstrated a difference greater than +25% for vinyl chloride.

GC/MS Semi-Volatiles, SW846 8270C

The MS/MSD performed on sample D4D080342-002 was in control for all recoveries and RPDs.

GC Semi-Volatiles – DRO, SW846 8015 MOD

The extract of sample D4D080342-005 would not concentrate to a volume less than 2 mL, instead of the normal 1 mL. The sample was then analyzed at further dilution due to high concentrations of target compounds in the sample. The reporting limit is elevated accordingly. As a result of the required dilution, the surrogate recoveries could not be calculated.

The MS/MSD performed on sample D4D080342-002 was in control for all recoveries and RPDs.

Total Metals, SW846 6010B/6020

The samples were digested at STL Denver. The digestates were then sent to STL Pittsburgh for analysis by method 6010B. The method 6020 analysis was performed at STL Denver.

Samples D4D080342-001, 002, and 004 through 007 were analyzed by method 6020 at a dilution due to matrix interference. The reporting limits are elevated accordingly.

Samples D4D080342-001, 002, and 004 through 007 were analyzed by method 6010B at a dilution for sodium due to high analyte levels. Sample 007 was also analyzed at a dilution for magnesium due to high analyte levels. The reporting limits are elevated accordingly.

Chromium was detected in the method 6020 blank at a concentration below the reporting limit, but above the method detection limit. Associated positive sample results are flagged "J".

The method 6010B MS/MSD performed on sample D4D080342-002 was in control, however the recoveries of calcium, magnesium, and sodium were not calculated because the concentrations of these metals in the un-spiked parent sample are more than four times greater than the spike amounts.

The method 6020 MS/MSD performed on sample D4D080342-002 was in control.

General Chemistry, Various Methods

As mentioned above, the samples were received in the laboratory past the 48-hour hold time for nitrate and ortho-phosphate. The samples were analyzed as soon as possible.

Samples D4D080342-001, 002, and 004 through 007 were analyzed at a dilution for chloride, sulfate, and TDS due to high analyte levels. The reporting limits are adjusted accordingly and the associated sample data are flagged "Q".

Samples D4D080342-001, 002, and 004 through 007 were analyzed at a dilution for fluoride and ortho-phosphate due to matrix interference. The reporting limits are adjusted accordingly and the associated sample data are flagged "G".

Samples D4D080342-001, 002, and 004 through 007 were analyzed at a dilution for total organic halogens due to high levels inorganic chloride in the samples. The reporting limits are adjusted accordingly and the associated sample data are flagged "IC".

Samples D4D080342-001, 002, 004, 006, and 007 were analyzed at a dilution for nitrate due to high analyte levels. The reporting limits are adjusted accordingly and the associated sample data are flagged "Q".

Sample D4D080342-005 was analyzed at a dilution for nitrate and TOC due to matrix interference. The reporting limits are adjusted accordingly and the associated sample data are flagged "G".

The method 350.1 MS/MSD performed on sample D4D080342-002 was in control for ammonia.

The method 300.0A MS/MSD performed on sample D4D080342-002 was in control for chloride, fluoride, nitrate, ortho-phosphate, and sulfate.

The method 9012A MS/MSD performed on sample D4D080342-002 was in control for total cyanide.

The method 9020 MS/MSD performed on sample D4D080342-002 in control for total organic halogens.

The method 9060 MS/MSD performed on sample D4D080342-002 was in control for total organic carbon.

The method 376.2 MS/MSD performed on sample D4D080342-002 was in control for total sulfides.

All other MS/MSDs were performed on samples from another client and/or lot and were in control.

The method 310.1 duplicate was performed on a sample from another client and/or lot and was in control for total alkalinity.

The method 160.1 duplicate was performed on a sample from another client an/dor lot and was in control for TDS.

Quality Control Definitions of Terms

Term	Definition
Batch	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.
Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD)	A volume of regent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. A LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. An LCSD is a second Laboratory Control Sample.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried throughout he entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.
Sample Duplicate	A second aliquot of an environmental sample, taken form the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative to the precision for other samples in the batch.
Method Detection Limit "MDL"	The method detection limit is defined as the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from replicate analyses of low level standards in a typical representative matrix.
Reporting Limit "RL"	The STL reporting limit is normally the lowest level at which measurements become quantitatively meaningful, ie., the quantitation limit, which is approximately three times the MDL. Some projects require RLs that are less than the quantitation limit to achieve particular maximum contaminant levels (MCLs) or relevant and appropriate requirements (ARARs), but RLs cannot be less than the statistically determined MDL.

Quality Control Definitions of Qualifiers

Qualifier	Definition
*	Surrogate or Relative Percent Difference (RPD) is outside control limits.
a	Spiked analyte recovery is outside control limits.
B	Organics: Method blank contamination. The associated method blank contains the target analyte at a reportable level. Inorganics: Estimated result. Result is less than the RL
COL	More than 40% difference between the primary and confirmation detector results. The lower of the two results is reported.
DIL	The concentration is estimated or not reported due to dilution.
E	Estimated result. Result concentrations exceeds the calibration range.
G	Inorganics: Elevated reporting limit. The reporting limit is elevated due to matrix interference.
J	Organics: Estimated result. Result is less than RL Inorganics: Method blank contamination. The associated method blank contains the target analyte at a reportable level.
L	Serial dilution of a digestate in the analytical batch indicates that physical and chemical interferences are present
N	Spiked analyte recovery is outside stated control limits.
NC	The recovery and/or RPD were not calculated.
ND	The analyte was not detected at the MDL concentration and with a measurable degree of confidence can be said not to be present at or above the RL concentration.
p	Relative percent difference (RPD) is outside stated control limits.
Q	Elevated reporting limit. The reporting limit is elevated due to high analyte levels.
V	General Chemistry: Elevated reporting limit due to limited sample volume.
Wa	Post digestion spike recovery fell between 40-85% due to matrix interference.
Wb	Post digestion spike recovery fell between 115-150% due to matrix interference.
I	Percent recovery is estimated since the results exceeded the calibration range.
T1	A tentatively identified compound that did not generate a spectral match of 80% or greater. Typically called "unknown"
T2	A tentatively identified compound with a spectral match of 80% or better
T3	A tentatively identified compound that was calibrated for by the lab, but not on the client target analyte list.
IC	Diluted due to high inorganic chloride.

EXECUTIVE SUMMARY - Detection Highlights

D4D080342

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CFW1 04/05/04 14:50 001				
Arsenic	11 B	25	ug/L	SW846 6020
Cadmium	0.36 B	5.0	ug/L	SW846 6020
Chromium	8.8 B,J	10	ug/L	SW846 6020
Selenium	42	25	ug/L	SW846 6020
Barium	13	10	ug/L	SW846 6010B
Calcium	260000	5000	ug/L	SW846 6010B
Potassium	63000	5000	ug/L	SW846 6010B
Magnesium	360000	5000	ug/L	SW846 6010B
Sodium	1800000	25000	ug/L	SW846 6010B
Chloroform	0.67 J	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	2.4	1.0	ug/L	SW846 8260B
Methylene chloride	0.42 J	5.0	ug/L	SW846 8260B
Total Dissolved Solids	8500 Q	40	mg/L	MCAWW 160.1
Chloride	760 Q	150	mg/L	MCAWW 300.0A
Sulfate	5100 Q	1000	mg/L	MCAWW 300.0A
Fluoride	3.2 B,G	5.0	mg/L	MCAWW 300.0A
Nitrate	21 Q	2.5	mg/L	MCAWW 300.0A
Total Organic Carbon	2.2	1.0	mg/L	SW846 9060
Total Organic Halogens	44 IC	20	ug/L	SW846 9020B
Total Alkalinity	400	5.0	mg/L	MCAWW 310.1
CFW1-1 04/05/04 15:00 002				
Arsenic	10 B	25	ug/L	SW846 6020
Cadmium	0.36 B	5.0	ug/L	SW846 6020
Chromium	9.1 B,J	10	ug/L	SW846 6020
Selenium	41	25	ug/L	SW846 6020
Barium	12	10	ug/L	SW846 6010B
Calcium	270000	5000	ug/L	SW846 6010B
Potassium	64000	5000	ug/L	SW846 6010B
Magnesium	360000	5000	ug/L	SW846 6010B
Sodium	1700000	25000	ug/L	SW846 6010B
Chloroform	0.92 J	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	3.6	1.0	ug/L	SW846 8260B
Methylene chloride	0.55 J	5.0	ug/L	SW846 8260B
Trichloroethene	0.22 J	1.0	ug/L	SW846 8260B
Total Dissolved Solids	8400 Q	40	mg/L	MCAWW 160.1
Chloride	750 Q	150	mg/L	MCAWW 300.0A
Sulfate	4700 Q	1000	mg/L	MCAWW 300.0A
Fluoride	3.4 B,G	5.0	mg/L	MCAWW 300.0A

(Continue :t page)

EXECUTIVE SUMMARY - Detection Highlights

D4D080342

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CFW1-1 04/05/04 15:00 002				
Nitrate	22 Q	2.5	mg/L	MCAWW 300.0A
Total Organic Carbon	2.0	1.0	mg/L	SW846 9060
Total Organic Halogens	44 IC	20	ug/L	SW846 9020B
Total Alkalinity	400	5.0	mg/L	MCAWW 310.1
CFW1-2 04/05/04 14:00 003				
Methylene chloride	0.62 J	5.0	ug/L	SW846 8260B
CFW2 04/05/04 17:45 004				
Diesel Range Organics	0.32	0.25	mg/L	SW846 8015 MOD
Arsenic	15 B	25	ug/L	SW846 6020
Cadmium	0.51 B	5.0	ug/L	SW846 6020
Chromium	14 J	10	ug/L	SW846 6020
Selenium	47	25	ug/L	SW846 6020
Barium	14	10	ug/L	SW846 6010B
Calcium	180000	5000	ug/L	SW846 6010B
Potassium	64000	5000	ug/L	SW846 6010B
Magnesium	360000	5000	ug/L	SW846 6010B
Sodium	1900000	25000	ug/L	SW846 6010B
2-Methylnaphthalene	5.5 J	10	ug/L	SW846 8270C
Naphthalene	4.0 J	10	ug/L	SW846 8270C
Benzene	0.45 J	1.0	ug/L	SW846 8260B
Chloroform	1.4	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	1.8	1.0	ug/L	SW846 8260B
Methylene chloride	0.43 J,B	5.0	ug/L	SW846 8260B
Trichloroethene	0.39 J	1.0	ug/L	SW846 8260B
Total Dissolved Solids	8600 Q	40	mg/L	MCAWW 160.1
Chloride	790 Q	150	mg/L	MCAWW 300.0A
Sulfate	4700 Q	1000	mg/L	MCAWW 300.0A
Fluoride	4.0 B,G	5.0	mg/L	MCAWW 300.0A
Nitrate	28 Q	2.5	mg/L	MCAWW 300.0A
Total Organic Carbon	2.0	1.0	mg/L	SW846 9060
Total Organic Halogens	26 IC	20	ug/L	SW846 9020B
Total Sulfide	0.17	0.050	mg/L	MCAWW 376.2
Total Alkalinity	250	5.0	mg/L	MCAWW 310.1
Ammonia as N	0.14	0.10	mg/L	MCAWW 350.1

(Continued on next page)

EXECUTIVE SUMMARY - Detection Highlights

D4D080342

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CFW3 04/05/04 17:40 005				
Diesel Range Organics	450	25	mg/L	SW846 8015 MOD
Arsenic	5.5 B	25	ug/L	SW846 6020
Chromium	12 J	10	ug/L	SW846 6020
Lead	2.3 B	5.0	ug/L	SW846 6020
Selenium	4.8 B	25	ug/L	SW846 6020
Barium	25	10	ug/L	SW846 6010B
Calcium	310000	5000	ug/L	SW846 6010B
Potassium	61000	5000	ug/L	SW846 6010B
Magnesium	300000	5000	ug/L	SW846 6010B
Sodium	1600000	25000	ug/L	SW846 6010B
Acenaphthene	1.4 J	10	ug/L	SW846 8270C
Carbazole	1.3 J	10	ug/L	SW846 8270C
Dibenzofuran	5.0 J	10	ug/L	SW846 8270C
2-Methylnaphthalene	12	10	ug/L	SW846 8270C
Phenanthrene	3.5 J	10	ug/L	SW846 8270C
Benzene	1.9 J	10	ug/L	SW846 8260B
1,1-Dichloroethane	4.2 J	10	ug/L	SW846 8260B
Methylene chloride	5.4 J	50	ug/L	SW846 8260B
Total Dissolved Solids	7400 Q	40	mg/L	MCAWW 160.1
Chloride	670 Q	150	mg/L	MCAWW 300.0A
Sulfate	3200 Q	1000	mg/L	MCAWW 300.0A
Fluoride	2.7 B,G	5.0	mg/L	MCAWW 300.0A
Nitrate	0.47 B,G	2.5	mg/L	MCAWW 300.0A
Total Organic Carbon	21 G	2.0	mg/L	SW846 9060
Total Organic Halogens	26 IC	20	ug/L	SW846 9020B
Total Sulfide	13 Q	2.5	mg/L	MCAWW 376.2
Total Alkalinity	1600	5.0	mg/L	MCAWW 310.1
Ammonia as N	0.043 B	0.10	mg/L	MCAWW 350.1
CFW4 04/05/04 15:55 006				
Diesel Range Organics	0.47	0.25	mg/L	SW846 8015 MOD
Arsenic	11 B	50	ug/L	SW846 6020
Cadmium	0.64 B	10	ug/L	SW846 6020
Chromium	26 J	20	ug/L	SW846 6020
Selenium	49 B	50	ug/L	SW846 6020
Barium	11	10	ug/L	SW846 6010B
Calcium	280000	5000	ug/L	SW846 6010B
Potassium	78000	5000	ug/L	SW846 6010B
Magnesium	410000	5000	ug/L	SW846 6010B
Sodium	2100000	50000	ug/L	SW846 6010B

(Continu t page)

EXECUTIVE SUMMARY - Detection Highlights

D4D080342

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
CFW4 04/05/04 15:55 006				
Acenaphthene	1.5 J	10	ug/L	SW846 8270C
Carbazole	1.3 J	10	ug/L	SW846 8270C
Dibenzofuran	4.8 J	10	ug/L	SW846 8270C
2-Methylnaphthalene	8.1 J	10	ug/L	SW846 8270C
Phenanthrene	3.5 J	10	ug/L	SW846 8270C
Benzene	0.76 J	1.0	ug/L	SW846 8260B
Chloroform	0.56 J	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	0.41 J	1.0	ug/L	SW846 8260B
Methylene chloride	0.60 J	5.0	ug/L	SW846 8260B
Trichloroethene	0.25 J	1.0	ug/L	SW846 8260B
Xylenes (total)	0.50 J	2.0	ug/L	SW846 8260B
Total Dissolved Solids	10000 Q	40	mg/L	MCAWW 160.1
Chloride	780 Q	150	mg/L	MCAWW 300.0A
Sulfate	5900 Q	1000	mg/L	MCAWW 300.0A
Fluoride	3.7 B,G	5.0	mg/L	MCAWW 300.0A
Nitrate	26 Q	2.5	mg/L	MCAWW 300.0A
Total Organic Carbon	2.6	1.0	mg/L	SW846 9060
Total Organic Halogens	35 IC	20	ug/L	SW846 9020B
Total Alkalinity	260	5.0	mg/L	MCAWW 310.1
HMW15 04/05/04 17:25 007				
Arsenic	10 B	50	ug/L	SW846 6020
Chromium	10 B,J	20	ug/L	SW846 6020
Selenium	100	50	ug/L	SW846 6020
Barium	11	10	ug/L	SW846 6010B
Calcium	400000	5000	ug/L	SW846 6010B
Potassium	68000	5000	ug/L	SW846 6010B
Magnesium	720000	10000	ug/L	SW846 6010B
Sodium	2500000	50000	ug/L	SW846 6010B
Chloroform	4.2	1.0	ug/L	SW846 8260B
Methylene chloride	0.43 J,B	5.0	ug/L	SW846 8260B
Total Dissolved Solids	14000 Q	50	mg/L	MCAWW 160.1
Chloride	2000 Q	300	mg/L	MCAWW 300.0A
Sulfate	7300 Q	2500	mg/L	MCAWW 300.0A
Fluoride	2.2 B,G	10	mg/L	MCAWW 300.0A
Nitrate	67 Q	5.0	mg/L	MCAWW 300.0A
Total Organic Carbon	0.51 B	1.0	mg/L	SW846 9060
Total Organic Halogens	18 B,IC	20	ug/L	SW846 9020B

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EXECUTIVE SUMMARY - Detection Highlights

D4D080342

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
HMW15 04/05/04 17:25 007				
Total Alkalinity	110	5.0	mg/L	MCAWW 310.1
Ammonia as N	0.043 B	0.10	mg/L	MCAWW 350.1

METHODS SUMMARY

D4D080342

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Alkalinity	MCAWW 310.1	MCAWW 310.1
Chloride	MCAWW 300.0A	MCAWW 300.0A
Cyanide, Total	SW846 9012A	SW846 9012A
Extractable Petroleum Hydrocarbons	SW846 8015 MOD	SW846 3510
Filterable Residue (TDS)	MCAWW 160.1	MCAWW 160.1
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
ICP-MS (6020)	SW846 6020	SW846 3020A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrogen, Ammonia	MCAWW 350.1	MCAWW 350.1
Phosphate as P, Ortho	MCAWW 300.0A	MCAWW 300.0A
Semivolatile Organic Compounds by GC/MS	SW846 8270C	SW846 3520C
Sulfate	MCAWW 300.0A	MCAWW 300.0A
Sulfide (Colorimetric,MB)	MCAWW 376.2	MCAWW 376.2
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:

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

D4D080342

ANALYTICAL METHOD	ANALYST	ANALYST ID
MCAWW 160.1	Jean Carrier	008763
MCAWW 300.0A	Andrita Scofield	004409
MCAWW 310.1	Maria Fayard	002596
MCAWW 350.1	Claire Likar	004382
MCAWW 376.2	Maria Fayard	002596
SW846 6010B	Debra Bowen	400883
SW846 6020	Thomas Lill	006929
SW846 8015 MOD	Sonya Dacar	011595
SW846 8260B	Hauqing Zhou	005417
SW846 8270C	David Kidd	007536
SW846 9012A	Ewa Kudla	001167
SW846 9020B	Duane Allee	001470
SW846 9060	Duane Allee	001470

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

D4D080342

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
GDTEV	001	CFW1	04/05/04	14:50
GDTE9	002	CFW1-1	04/05/04	15:00
GDTFD	003	CFW1-2	04/05/04	14:00
GDTFH	004	CFW2	04/05/04	17:45
GDTFK	005	CFW3	04/05/04	17:40
GDTFM	006	CFW4	04/05/04	15:55
GDTFQ	007	HMW15	04/05/04	17:25

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: CFW1

GC/MS Volatiles

Lot-Sample #...: D4D080342-001 **Work Order #...:** GDTEV1AM **Matrix.....:** WATER
Date Sampled...: 04/05/04 14:50 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 14:32
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	2.5
Benzene	ND	1.0	ug/L	0.17
Bromodichloromethane	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.23
Bromomethane	ND	2.0	ug/L	0.22
2-Butanone (MEK)	ND	5.0	ug/L	2.0
Carbon disulfide	ND	1.0	ug/L	0.24
Carbon tetrachloride	ND	1.0	ug/L	0.20
Chlorobenzene	ND	1.0	ug/L	0.13
Dibromochloromethane	ND	1.0	ug/L	0.19
Chloroethane	ND	2.0	ug/L	0.18
Chloroform	**0.67 J**	**1.0**	**ug/L**	**0.17**
Chloromethane	ND	2.0	ug/L	0.91
1,1-Dichloroethane	**2.4**	**1.0**	**ug/L**	**0.22**
1,2-Dichloroethane	ND	1.0	ug/L	0.26
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.14
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.15
1,1-Dichloroethene	ND	1.0	ug/L	0.23
1,2-Dichloroethene (total)	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.19
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.12
2-Hexanone	ND	5.0	ug/L	1.7
Methylene chloride	**0.42 J**	**5.0**	**ug/L**	**0.21**
4-Methyl-2-pentanone	ND	5.0	ug/L	0.98
Styrene	ND	1.0	ug/L	0.14
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.21
Tetrachloroethene	ND	1.0	ug/L	0.26
Toluene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.16
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.16
Vinyl chloride	ND	2.0	ug/L	0.19
Xylenes (total)	ND	2.0	ug/L	0.41

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US GEOLOGICAL SURVEY

Client Sample ID: CFW1

GC/MS Volatiles

Lot-Sample #...: D4D080342-001 **Work Order #...:** GDTEV1AM **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(76 - 116)
1,2-Dichloroethane-d4	99	(59 - 129)
4-Bromofluorobenzene	94	(74 - 114)
Toluene-d8	96	(76 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW1

GC/MS Volatiles

Lot-Sample #: D4D080342-001 **Work Order #:** GDTEV1AM **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		3.5 J	M	16.625	ug/L
Unknown		2.2 J	M	18.471	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

GC/MS Volatiles

Lot-Sample #...: D4D080342-002 **Work Order #...:** GDTE91AV **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 14:58
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	2.5
Benzene	ND	1.0	ug/L	0.17
Bromodichloromethane	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.23
Bromomethane	ND	2.0	ug/L	0.22
2-Butanone (MEK)	ND	5.0	ug/L	2.0
Carbon disulfide	ND	1.0	ug/L	0.24
Carbon tetrachloride	ND	1.0	ug/L	0.20
Chlorobenzene	ND	1.0	ug/L	0.13
Dibromochloromethane	ND	1.0	ug/L	0.19
Chloroethane	ND	2.0	ug/L	0.18
Chloroform	**0.92 J**	**1.0**	**ug/L**	**0.17**
Chloromethane	ND	2.0	ug/L	0.91
1,1-Dichloroethane	**3.6**	**1.0**	**ug/L**	**0.22**
1,2-Dichloroethane	ND	1.0	ug/L	0.26
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.14
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.15
1,1-Dichloroethene	ND	1.0	ug/L	0.23
1,2-Dichloroethene (total)	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.19
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.12
2-Hexanone	ND	5.0	ug/L	1.7
Methylene chloride	**0.55 J**	**5.0**	**ug/L**	**0.21**
4-Methyl-2-pentanone	ND	5.0	ug/L	0.98
Styrene	ND	1.0	ug/L	0.14
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.21
Tetrachloroethene	ND	1.0	ug/L	0.26
Toluene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.16
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	**0.22 J**	**1.0**	**ug/L**	**0.16**
Vinyl chloride	ND	2.0	ug/L	0.19
Xylenes (total)	ND	2.0	ug/L	0.41

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US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

GC/MS Volatiles

Lot-Sample #...: D4D080342-002 **Work Order #...:** GDTE91AV **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	107	(76 - 116)
1,2-Dichloroethane-d4	104	(59 - 129)
4-Bromofluorobenzene	100	(74 - 114)
Toluene-d8	96	(76 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW1-1

GC/MS Volatiles

Lot-Sample #: D4D080342-002 **Work Order #:** GDTE91AV **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		3.5 J	M	16.625	ug/L
Unknown		2.3 J	M	18.471	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-2

GC/MS Volatiles

Lot-Sample #...: D4D080342-003 **Work Order #...:** GDTFD1AA **Matrix.....:** WATER
Date Sampled...: 04/05/04 14:00 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 16:16
Dilution Factor: 1
Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	2.5
Benzene	ND	1.0	ug/L	0.17
Bromodichloromethane	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.23
Bromomethane	ND	2.0	ug/L	0.22
2-Butanone (MEK)	ND	5.0	ug/L	2.0
Carbon disulfide	ND	1.0	ug/L	0.24
Carbon tetrachloride	ND	1.0	ug/L	0.20
Chlorobenzene	ND	1.0	ug/L	0.13
Dibromochloromethane	ND	1.0	ug/L	0.19
Chloroethane	ND	2.0	ug/L	0.18
Chloroform	ND	1.0	ug/L	0.17
Chloromethane	ND	2.0	ug/L	0.91
1,1-Dichloroethane	ND	1.0	ug/L	0.22
1,2-Dichloroethane	ND	1.0	ug/L	0.26
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.14
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.15
1,1-Dichloroethene	ND	1.0	ug/L	0.23
1,2-Dichloroethene (total)	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.19
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.12
2-Hexanone	ND	5.0	ug/L	1.7
Methylene chloride	**0.62 J**	**5.0**	**ug/L**	**0.21**
4-Methyl-2-pentanone	ND	5.0	ug/L	0.98
Styrene	ND	1.0	ug/L	0.14
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.21
Tetrachloroethene	ND	1.0	ug/L	0.26
Toluene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.16
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.16
Vinyl chloride	ND	2.0	ug/L	0.19
Xylenes (total)	ND	2.0	ug/L	0.41

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-2

GC/MS Volatiles

Lot-Sample #...: D4D080342-003 **Work Order #...:** GDTFD1AA **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	109	(76 - 116)
1,2-Dichloroethane-d4	103	(59 - 129)
4-Bromofluorobenzene	94	(74 - 114)
Toluene-d8	90	(76 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW1-2

GC/MS Volatiles

Lot-Sample #: D4D080342-003 **Work Order #:** GDTFD1AA **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT	RETENTION TIME	UNITS
None			16.608	ug/L
None			18.454	ug/L

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

GC/MS Volatiles

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH1AV **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:45 **Date Received..:** 04/08/04
Prep Date.....: 04/15/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4107264 **Analysis Time..:** 12:09
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	2.5
Benzene	**0.45 J**	**1.0**	**ug/L**	**0.17**
Bromodichloromethane	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.23
Bromomethane	ND	2.0	ug/L	0.22
2-Butanone (MEK)	ND	5.0	ug/L	2.0
Carbon disulfide	ND	1.0	ug/L	0.24
Carbon tetrachloride	ND	1.0	ug/L	0.20
Chlorobenzene	ND	1.0	ug/L	0.13
Dibromochloromethane	ND	1.0	ug/L	0.19
Chloroethane	ND	2.0	ug/L	0.18
Chloroform	**1.4**	**1.0**	**ug/L**	**0.17**
Chloromethane	ND	2.0	ug/L	0.91
1,1-Dichloroethane	**1.8**	**1.0**	**ug/L**	**0.22**
1,2-Dichloroethane	ND	1.0	ug/L	0.26
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.14
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.15
1,1-Dichloroethene	ND	1.0	ug/L	0.23
1,2-Dichloroethene (total)	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.19
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.12
2-Hexanone	ND	5.0	ug/L	1.7
Methylene chloride	**0.43 J,B**	**5.0**	**ug/L**	**0.21**
4-Methyl-2-pentanone	ND	5.0	ug/L	0.98
Styrene	ND	1.0	ug/L	0.14
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.21
Tetrachloroethene	ND	1.0	ug/L	0.26
Toluene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.16
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	**0.39 J**	**1.0**	**ug/L**	**0.16**
Vinyl chloride	ND	2.0	ug/L	0.19
Xylenes (total)	ND	2.0	ug/L	0.41

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

GC/MS Volatiles

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH1AV **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	88	(76 - 116)
1,2-Dichloroethane-d4	76	(59 - 129)
4-Bromofluorobenzene	90	(74 - 114)
Toluene-d8	96	(76 - 116)

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

CFW2

GC/MS Volatiles

Lot-Sample #: D4D080342-004 **Work Order #:** GDTFH1AV **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Benzene, 1-ethyl-2-methyl-	611-14-3	3.52 T2	M	13.46	ug/L
Unknown		3.7 J	M	14.977	ug/L
Benzene, (2-methyl-1-propenyl)	768-49-0	1.42 T2	M	15.253	ug/L
Acetic acid, 2-ethylhexyl este	103-09-3	162 T2	M	15.765	ug/L
1H-indene, 2,3-dihydro-4-methy	824-22-6	1.62 T2	M	16.455	ug/L
1H-indene, 2,3-dihydro-1,6-dim	17059-48-2	2.12 T2	M	17.283	ug/L
Unknown		1.9 J	M	17.352	ug/L
1,2-dichloro-1,1,2-triflour-		17	Q	6.161	ug/L
trichlorotrifluorethane		2.0	Q	6.446	ug/L

NOTE(S):

Q: Result was quantitated against the response factor of a calibration standard.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

GC/MS Volatiles

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK1AV **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:40 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 17:09
Dilution Factor: 10

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	100	ug/L	25
Benzene	**1.9 J**	**10**	**ug/L**	**1.7**
Bromodichloromethane	ND	10	ug/L	2.0
Bromoform	ND	10	ug/L	2.3
Bromomethane	ND	20	ug/L	2.2
2-Butanone (MEK)	ND	50	ug/L	20
Carbon disulfide	ND	10	ug/L	2.4
Carbon tetrachloride	ND	10	ug/L	2.0
Chlorobenzene	ND	10	ug/L	1.3
Dibromochloromethane	ND	10	ug/L	1.9
Chloroethane	ND	20	ug/L	1.8
Chloroform	ND	10	ug/L	1.7
Chloromethane	ND	20	ug/L	9.1
1,1-Dichloroethane	**4.2 J**	**10**	**ug/L**	**2.2**
1,2-Dichloroethane	ND	10	ug/L	2.6
cis-1,2-Dichloroethene	ND	10	ug/L	1.4
trans-1,2-Dichloroethene	ND	10	ug/L	1.5
1,1-Dichloroethene	ND	10	ug/L	2.3
1,2-Dichloroethene (total)	ND	10	ug/L	2.4
1,2-Dichloropropane	ND	10	ug/L	1.8
cis-1,3-Dichloropropene	ND	10	ug/L	1.9
trans-1,3-Dichloropropene	ND	10	ug/L	2.0
Ethylbenzene	ND	10	ug/L	1.2
2-Hexanone	ND	50	ug/L	17
Methylene chloride	**5.4 J**	**50**	**ug/L**	**2.1**
4-Methyl-2-pentanone	ND	50	ug/L	9.8
Styrene	ND	10	ug/L	1.4
1,1,2,2-Tetrachloroethane	ND	10	ug/L	2.1
Tetrachloroethene	ND	10	ug/L	2.6
Toluene	ND	10	ug/L	1.5
1,1,1-Trichloroethane	ND	10	ug/L	1.6
1,1,2-Trichloroethane	ND	10	ug/L	2.7
Trichloroethene	ND	10	ug/L	1.6
Vinyl chloride	ND	20	ug/L	1.9
Xylenes (total)	ND	20	ug/L	4.1

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

GC/MS Volatiles

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK1AV **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(76 - 116)
1,2-Dichloroethane-d4	106	(59 - 129)
4-Bromofluorobenzene	92	(74 - 114)
Toluene-d8	91	(76 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW3

GC/MS Volatiles

Lot-Sample #: D4D080342-005 **Work Order #:** GDTFK1AV **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Benzene, 1-ethyl-2-methyl-	611-14-3	40 J	M	15.126	ug/L
Unknown		30 J	M	16.293	ug/L
Unknown		61 J	M	16.415	ug/L
Unknown		33 J	M	16.606	ug/L
Unknown		170 J	M	16.815	ug/L
Unknown		62 J	M	17.303	ug/L
Unknown		170 J	M	17.373	ug/L
Undecane, 2,6-dimethyl-	17301-23-4	200 J	M	17.442	ug/L
Unknown		100 J	M	17.547	ug/L
Tridecane	629-50-5	88 J	M	18.365	ug/L
Unknown		36 J	M	18.505	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW4

GC/MS Volatiles

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM1AV **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:55 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 17:35
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	2.5
Benzene	**0.76 J**	**1.0**	**ug/L**	**0.17**
Bromodichloromethane	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.23
Bromomethane	ND	2.0	ug/L	0.22
2-Butanone (MEK)	ND	5.0	ug/L	2.0
Carbon disulfide	ND	1.0	ug/L	0.24
Carbon tetrachloride	ND	1.0	ug/L	0.20
Chlorobenzene	ND	1.0	ug/L	0.13
Dibromochloromethane	ND	1.0	ug/L	0.19
Chloroethane	ND	2.0	ug/L	0.18
Chloroform	**0.56 J**	**1.0**	**ug/L**	**0.17**
Chloromethane	ND	2.0	ug/L	0.91
1,1-Dichloroethane	**0.41 J**	**1.0**	**ug/L**	**0.22**
1,2-Dichloroethane	ND	1.0	ug/L	0.26
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.14
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.15
1,1-Dichloroethene	ND	1.0	ug/L	0.23
1,2-Dichloroethene (total)	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.19
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.12
2-Hexanone	ND	5.0	ug/L	1.7
Methylene chloride	**0.60 J**	**5.0**	**ug/L**	**0.21**
4-Methyl-2-pentanone	ND	5.0	ug/L	0.98
Styrene	ND	1.0	ug/L	0.14
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.21
Tetrachloroethene	ND	1.0	ug/L	0.26
Toluene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.16
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	**0.25 J**	**1.0**	**ug/L**	**0.16**
Vinyl chloride	ND	2.0	ug/L	0.19
Xylenes (total)	**0.50 J**	**2.0**	**ug/L**	**0.41**

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US GEOLOGICAL SURVEY

Client Sample ID: CFW4

GC/MS Volatiles

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM1AV **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	107	(76 - 116)
1,2-Dichloroethane-d4	106	(59 - 129)
4-Bromofluorobenzene	89	(74 - 114)
Toluene-d8	92	(76 - 116)

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW4

GC/MS Volatiles

Lot-Sample #: D4D080342-006 **Work Order #:** GDTFM1AV **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Benzene, 1-ethyl-2-methyl-	611-14-3	5.0 J	M	15.126	ug/L
Unknown		7.2 J	M	16.293	ug/L
Pentadecane	629-62-9	16 J	M	16.502	ug/L
Unknown		2.0 J	M	16.781	ug/L
Unknown		5.2 J	M	17.373	ug/L
Benzene, 1,4-diethyl-2-methyl-	13632-94-5	5.0 J	M	17.756	ug/L
Naphthalene, 1,2,3,4-tetrahydr	1559-81-5	6.1 J	M	17.878	ug/L
Unknown		3.7 J	M	18.453	ug/L
Naphthalene, 1,2,3,4-tetrahydr	1559-81-5	3.1 J	M	18.749	ug/L
Unknown		2.4 J	M	18.889	ug/L
Unknown		1.9 J	M	18.993	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: HMW15

GC/MS Volatiles

Lot-Sample #...: D4D080342-007 **Work Order #...:** GDTFQ1AV **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:25 **Date Received..:** 04/08/04
Prep Date.....: 04/15/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4107264 **Analysis Time..:** 12:33
Dilution Factor: 1

Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acetone	ND	10	ug/L	2.5
Benzene	ND	1.0	ug/L	0.17
Bromodichloromethane	ND	1.0	ug/L	0.20
Bromoform	ND	1.0	ug/L	0.23
Bromomethane	ND	2.0	ug/L	0.22
2-Butanone (MEK)	ND	5.0	ug/L	2.0
Carbon disulfide	ND	1.0	ug/L	0.24
Carbon tetrachloride	ND	1.0	ug/L	0.20
Chlorobenzene	ND	1.0	ug/L	0.13
Dibromochloromethane	ND	1.0	ug/L	0.19
Chloroethane	ND	2.0	ug/L	0.18
Chloroform	**4.2**	**1.0**	**ug/L**	**0.17**
Chloromethane	ND	2.0	ug/L	0.91
1,1-Dichloroethane	ND	1.0	ug/L	0.22
1,2-Dichloroethane	ND	1.0	ug/L	0.26
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.14
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.15
1,1-Dichloroethene	ND	1.0	ug/L	0.23
1,2-Dichloroethene (total)	ND	1.0	ug/L	0.24
1,2-Dichloropropane	ND	1.0	ug/L	0.18
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.19
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.12
2-Hexanone	ND	5.0	ug/L	1.7
Methylene chloride	**0.43 J,B**	**5.0**	**ug/L**	**0.21**
4-Methyl-2-pentanone	ND	5.0	ug/L	0.98
Styrene	ND	1.0	ug/L	0.14
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.21
Tetrachloroethene	ND	1.0	ug/L	0.26
Toluene	ND	1.0	ug/L	0.15
1,1,1-Trichloroethane	ND	1.0	ug/L	0.16
1,1,2-Trichloroethane	ND	1.0	ug/L	0.27
Trichloroethene	ND	1.0	ug/L	0.16
Vinyl chloride	ND	2.0	ug/L	0.19
Xylenes (total)	ND	2.0	ug/L	0.41

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US GEOLOGICAL SURVEY

Client Sample ID: HMW15

GC/MS Volatiles

Lot-Sample #...: D4D080342-007 **Work Order #...:** GDTFQ1AV **Matrix.....:** WATER

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	97	(76 - 116)
1,2-Dichloroethane-d4	84	(59 - 129)
4-Bromofluorobenzene	92	(74 - 114)
Toluene-d8	92	(76 - 116)

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

HMW15

GC/MS Volatiles

Lot-Sample #: D4D080342-007 **Work Order #:** GDTFQ1AV **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		1.9 J	M	14.975	ug/L
Acetic acid, 2-ethylhexyl este	103-09-3	20 J	M	15.764	ug/L
Unknown		2.2 J	M	17.35	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-001 **Work Order #...:** GDTEV1AN **Matrix.....:** WATER
Date Sampled...: 04/05/04 14:50 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 18:32
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	10	ug/L	0.60
Acenaphthylene	ND	10	ug/L	0.60
Anthracene	ND	10	ug/L	3.0
Benzo(a)anthracene	ND	10	ug/L	0.80
Benzo(b)fluoranthene	ND	10	ug/L	0.90
Benzo(k)fluoranthene	ND	10	ug/L	2.0
Benzo(ghi)perylene	ND	10	ug/L	1.0
Benzo(a)pyrene	ND	10	ug/L	0.80
bis(2-Chloroethoxy) methane	ND	10	ug/L	0.90
bis(2-Chloroethyl)-ether	ND	10	ug/L	3.0
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	0.90
4-Bromophenyl phenyl ether	ND	10	ug/L	0.70
Butyl benzyl phthalate	ND	10	ug/L	1.0
Carbazole	ND	10	ug/L	0.90
4-Chloroaniline	ND	10	ug/L	3.0
4-Chloro-3-methylphenol	ND	10	ug/L	0.80
2-Chloronaphthalene	ND	10	ug/L	0.70
2-Chlorophenol	ND	10	ug/L	0.80
4-Chlorophenyl phenyl ether	ND	10	ug/L	0.60
Chrysene	ND	10	ug/L	0.80
Dibenz(a,h)anthracene	ND	10	ug/L	0.90
Dibenzofuran	ND	10	ug/L	0.60
Di-n-butyl phthalate	ND	10	ug/L	0.80
1,2-Dichlorobenzene	ND	10	ug/L	0.80
1,3-Dichlorobenzene	ND	10	ug/L	0.80
1,4-Dichlorobenzene	ND	10	ug/L	1.0
3,3'-Dichlorobenzidine	ND	50	ug/L	8.0
2,4-Dichlorophenol	ND	10	ug/L	0.70
Diethyl phthalate	ND	10	ug/L	0.70
2,4-Dimethylphenol	ND	10	ug/L	4.0
Dimethyl phthalate	ND	10	ug/L	0.80
4,6-Dinitro-2-methylphenol	ND	50	ug/L	6.0

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US GEOLOGICAL SURVEY

Client Sample ID: CFW1

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-001 **Work Order #...:** GDTEV1AN **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2,4-Dinitrophenol	ND	50	ug/L	6.0
2,4-Dinitrotoluene	ND	10	ug/L	1.0
2,6-Dinitrotoluene	ND	10	ug/L	0.80
Di-n-octyl phthalate	ND	10	ug/L	1.0
Fluoranthene	ND	10	ug/L	0.70
Fluorene	ND	10	ug/L	0.60
Hexachlorobenzene	ND	10	ug/L	0.80
Hexachlorobutadiene	ND	10	ug/L	1.0
Hexachlorocyclopenta-diene	ND	50	ug/L	5.0
Hexachloroethane	ND	10	ug/L	0.80
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	0.80
Isophorone	ND	10	ug/L	0.90
2-Methylnaphthalene	ND	10	ug/L	0.80
2-Methylphenol	ND	10	ug/L	0.90
4-Methylphenol	ND	10	ug/L	0.80
Naphthalene	ND	10	ug/L	0.80
2-Nitroaniline	ND	50	ug/L	0.90
3-Nitroaniline	ND	50	ug/L	0.90
4-Nitroaniline	ND	50	ug/L	6.0
Nitrobenzene	ND	10	ug/L	2.0
2-Nitrophenol	ND	10	ug/L	0.80
4-Nitrophenol	ND	50	ug/L	7.0
N-Nitrosodiphenylamine	ND	10	ug/L	1.0
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	0.70
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L	0.70
Pentachlorophenol	ND	50	ug/L	5.0
Phenanthrene	ND	10	ug/L	0.70
Phenol	ND	10	ug/L	0.90
Pyrene	ND	10	ug/L	0.80
1,2,4-Trichloro-benzene	ND	10	ug/L	0.90
2,4,5-Trichloro-phenol	ND	10	ug/L	1.0
2,4,6-Trichloro-phenol	ND	10	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	82	(32 - 116)
Phenol-d5	83	(40 - 111)
Nitrobenzene-d5	79	(53 - 107)
2-Fluorobiphenyl	74	(31 - 105)
2,4,6-Tribromophenol	96	(42 - 122)
Terphenyl-d14	91	(21 - 125)

US GEOLOGICAL SURVEY

CFW1

GC/MS Semivolatiles

Lot-Sample #: D4D080342-001 **Work Order #:** GDTEV1AN **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		190 J	M	2.7703	ug/L
Unknown		19 J	M	5.097	ug/L
2H-indol-2-one, 1,3-dihydro-	59-48-3	9.5 J	M	8.3109	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-002 **Work Order #...:** GDTE91AW **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 18:55
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	10	ug/L	0.60
Acenaphthylene	ND	10	ug/L	0.60
Anthracene	ND	10	ug/L	3.0
Benzo(a)anthracene	ND	10	ug/L	0.80
Benzo(b)fluoranthene	ND	10	ug/L	0.90
Benzo(k)fluoranthene	ND	10	ug/L	2.0
Benzo(ghi)perylene	ND	10	ug/L	1.0
Benzo(a)pyrene	ND	10	ug/L	0.80
bis(2-Chloroethoxy) methane	ND	10	ug/L	0.90
bis(2-Chloroethyl)-ether	ND	10	ug/L	3.0
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	0.90
4-Bromophenyl phenyl ether	ND	10	ug/L	0.70
Butyl benzyl phthalate	ND	10	ug/L	1.0
Carbazole	ND	10	ug/L	0.90
4-Chloroaniline	ND	10	ug/L	3.0
4-Chloro-3-methylphenol	ND	10	ug/L	0.80
2-Chloronaphthalene	ND	10	ug/L	0.70
2-Chlorophenol	ND	10	ug/L	0.80
4-Chlorophenyl phenyl ether	ND	10	ug/L	0.60
Chrysene	ND	10	ug/L	0.80
Dibenz(a,h)anthracene	ND	10	ug/L	0.90
Dibenzofuran	ND	10	ug/L	0.60
Di-n-butyl phthalate	ND	10	ug/L	0.80
1,2-Dichlorobenzene	ND	10	ug/L	0.80
1,3-Dichlorobenzene	ND	10	ug/L	0.80
1,4-Dichlorobenzene	ND	10	ug/L	1.0
3,3'-Dichlorobenzidine	ND	50	ug/L	8.0
2,4-Dichlorophenol	ND	10	ug/L	0.70
Diethyl phthalate	ND	10	ug/L	0.70
2,4-Dimethylphenol	ND	10	ug/L	4.0
Dimethyl phthalate	ND	10	ug/L	0.80
4,6-Dinitro-2-methylphenol	ND	50	ug/L	6.0

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US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-002 **Work Order #...:** GDTE91AW **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2,4-Dinitrophenol	ND	50	ug/L	6.0
2,4-Dinitrotoluene	ND	10	ug/L	1.0
2,6-Dinitrotoluene	ND	10	ug/L	0.80
Di-n-octyl phthalate	ND	10	ug/L	1.0
Fluoranthene	ND	10	ug/L	0.70
Fluorene	ND	10	ug/L	0.60
Hexachlorobenzene	ND	10	ug/L	0.80
Hexachlorobutadiene	ND	10	ug/L	1.0
Hexachlorocyclopenta-diene	ND	50	ug/L	5.0
Hexachloroethane	ND	10	ug/L	0.80
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	0.80
Isophorone	ND	10	ug/L	0.90
2-Methylnaphthalene	ND	10	ug/L	0.80
2-Methylphenol	ND	10	ug/L	0.90
4-Methylphenol	ND	10	ug/L	0.80
Naphthalene	ND	10	ug/L	0.80
2-Nitroaniline	ND	50	ug/L	0.90
3-Nitroaniline	ND	50	ug/L	0.90
4-Nitroaniline	ND	50	ug/L	6.0
Nitrobenzene	ND	10	ug/L	2.0
2-Nitrophenol	ND	10	ug/L	0.80
4-Nitrophenol	ND	50	ug/L	7.0
N-Nitrosodiphenylamine	ND	10	ug/L	1.0
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	0.70
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L	0.70
Pentachlorophenol	ND	50	ug/L	5.0
Phenanthrene	ND	10	ug/L	0.70
Phenol	ND	10	ug/L	0.90
Pyrene	ND	10	ug/L	0.80
1,2,4-Trichloro-benzene	ND	10	ug/L	0.90
2,4,5-Trichloro-phenol	ND	10	ug/L	1.0
2,4,6-Trichloro-phenol	ND	10	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	75	(32 - 116)
Phenol-d5	77	(40 - 111)
Nitrobenzene-d5	73	(53 - 107)
2-Fluorobiphenyl	73	(31 - 105)
2,4,6-Tribromophenol	90	(42 - 122)
Terphenyl-d14	85	(21 - 125)

US GEOLOGICAL SURVEY

CFW1-1

GC/MS Semivolatiles

Lot-Sample #: D4D080342-002 **Work Order #:** GDTE91AW **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		160 J	M	2.7703	ug/L
Unknown		18 J	M	5.097	ug/L
Unknown		8.4 J	M	8.3109	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH1AW **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:45 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 20:07
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	10	ug/L	0.60
Acenaphthylene	ND	10	ug/L	0.60
Anthracene	ND	10	ug/L	3.0
Benzo(a)anthracene	ND	10	ug/L	0.80
Benzo(b)fluoranthene	ND	10	ug/L	0.90
Benzo(k)fluoranthene	ND	10	ug/L	2.0
Benzo(ghi)perylene	ND	10	ug/L	1.0
Benzo(a)pyrene	ND	10	ug/L	0.80
bis(2-Chloroethoxy) methane	ND	10	ug/L	0.90
bis(2-Chloroethyl)-ether	ND	10	ug/L	3.0
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	0.90
4-Bromophenyl phenyl ether	ND	10	ug/L	0.70
Butyl benzyl phthalate	ND	10	ug/L	1.0
Carbazole	ND	10	ug/L	0.90
4-Chloroaniline	ND	10	ug/L	3.0
4-Chloro-3-methylphenol	ND	10	ug/L	0.80
2-Chloronaphthalene	ND	10	ug/L	0.70
2-Chlorophenol	ND	10	ug/L	0.80
4-Chlorophenyl phenyl ether	ND	10	ug/L	0.60
Chrysene	ND	10	ug/L	0.80
Dibenz(a,h)anthracene	ND	10	ug/L	0.90
Dibenzofuran	ND	10	ug/L	0.60
Di-n-butyl phthalate	ND	10	ug/L	0.80
1,2-Dichlorobenzene	ND	10	ug/L	0.80
1,3-Dichlorobenzene	ND	10	ug/L	0.80
1,4-Dichlorobenzene	ND	10	ug/L	1.0
3,3'-Dichlorobenzidine	ND	50	ug/L	8.0
2,4-Dichlorophenol	ND	10	ug/L	0.70
Diethyl phthalate	ND	10	ug/L	0.70
2,4-Dimethylphenol	ND	10	ug/L	4.0
Dimethyl phthalate	ND	10	ug/L	0.80
4,6-Dinitro-2-methylphenol	ND	50	ug/L	6.0

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH1AW **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2,4-Dinitrophenol	ND	50	ug/L	6.0
2,4-Dinitrotoluene	ND	10	ug/L	1.0
2,6-Dinitrotoluene	ND	10	ug/L	0.80
Di-n-octyl phthalate	ND	10	ug/L	1.0
Fluoranthene	ND	10	ug/L	0.70
Fluorene	ND	10	ug/L	0.60
Hexachlorobenzene	ND	10	ug/L	0.80
Hexachlorobutadiene	ND	10	ug/L	1.0
Hexachlorocyclopenta-diene	ND	50	ug/L	5.0
Hexachloroethane	ND	10	ug/L	0.80
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	0.80
Isophorone	ND	10	ug/L	0.90
2-Methylnaphthalene	**5.5 J**	**10**	**ug/L**	**0.80**
2-Methylphenol	ND	10	ug/L	0.90
4-Methylphenol	ND	10	ug/L	0.80
Naphthalene	**4.0 J**	**10**	**ug/L**	**0.80**
2-Nitroaniline	ND	50	ug/L	0.90
3-Nitroaniline	ND	50	ug/L	0.90
4-Nitroaniline	ND	50	ug/L	6.0
Nitrobenzene	ND	10	ug/L	2.0
2-Nitrophenol	ND	10	ug/L	0.80
4-Nitrophenol	ND	50	ug/L	7.0
N-Nitrosodiphenylamine	ND	10	ug/L	1.0
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	0.70
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L	0.70
Pentachlorophenol	ND	50	ug/L	5.0
Phenanthrene	ND	10	ug/L	0.70
Phenol	ND	10	ug/L	0.90
Pyrene	ND	10	ug/L	0.80
1,2,4-Trichloro-benzene	ND	10	ug/L	0.90
2,4,5-Trichloro-phenol	ND	10	ug/L	1.0
2,4,6-Trichloro-phenol	ND	10	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	80	(32 - 116)
Phenol-d5	83	(40 - 111)
Nitrobenzene-d5	77	(53 - 107)
2-Fluorobiphenyl	74	(31 - 105)
2,4,6-Tribromophenol	102	(42 - 122)
Terphenyl-d14	92	(21 - 125)

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US GEOLOGICAL SURVEY

Client Sample ID: CFW2

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH1AW **Matrix.....:** WATER

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW2

GC/MS Semivolatiles

Lot-Sample #: D4D080342-004 **Work Order #:** GDTFH1AW **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		190 J	M	2.7704	ug/L
Unknown		7.1 J	M	8.3111	ug/L
Unknown		4.7 J	M	8.4639	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK1AW **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:40 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 20:30
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	**1.4 J**	**10**	**ug/L**	**0.60**
Acenaphthylene	ND	10	ug/L	0.60
Anthracene	ND	10	ug/L	3.0
Benzo(a)anthracene	ND	10	ug/L	0.80
Benzo(b)fluoranthene	ND	10	ug/L	0.90
Benzo(k)fluoranthene	ND	10	ug/L	2.0
Benzo(ghi)perylene	ND	10	ug/L	1.0
Benzo(a)pyrene	ND	10	ug/L	0.80
bis(2-Chloroethoxy) methane	ND	10	ug/L	0.90
bis(2-Chloroethyl)-ether	ND	10	ug/L	3.0
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	0.90
4-Bromophenyl phenyl ether	ND	10	ug/L	0.70
Butyl benzyl phthalate	ND	10	ug/L	1.0
Carbazole	**1.3 J**	**10**	**ug/L**	**0.90**
4-Chloroaniline	ND	10	ug/L	3.0
4-Chloro-3-methylphenol	ND	10	ug/L	0.80
2-Chloronaphthalene	ND	10	ug/L	0.70
2-Chlorophenol	ND	10	ug/L	0.80
4-Chlorophenyl phenyl ether	ND	10	ug/L	0.60
Chrysene	ND	10	ug/L	0.80
Dibenz(a,h)anthracene	ND	10	ug/L	0.90
Dibenzofuran	**5.0 J**	**10**	**ug/L**	**0.60**
Di-n-butyl phthalate	ND	10	ug/L	0.80
1,2-Dichlorobenzene	ND	10	ug/L	0.80
1,3-Dichlorobenzene	ND	10	ug/L	0.80
1,4-Dichlorobenzene	ND	10	ug/L	1.0
3,3'-Dichlorobenzidine	ND	50	ug/L	8.0
2,4-Dichlorophenol	ND	10	ug/L	0.70
Diethyl phthalate	ND	10	ug/L	0.70
2,4-Dimethylphenol	ND	10	ug/L	4.0
Dimethyl phthalate	ND	10	ug/L	0.80
4,6-Dinitro-2-methylphenol	ND	50	ug/L	6.0

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK1AW **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2,4-Dinitrophenol	ND	50	ug/L	6.0
2,4-Dinitrotoluene	ND	10	ug/L	1.0
2,6-Dinitrotoluene	ND	10	ug/L	0.80
Di-n-octyl phthalate	ND	10	ug/L	1.0
Fluoranthene	ND	10	ug/L	0.70
Fluorene	ND	10	ug/L	0.60
Hexachlorobenzene	ND	10	ug/L	0.80
Hexachlorobutadiene	ND	10	ug/L	1.0
Hexachlorocyclopenta-diene	ND	50	ug/L	5.0
Hexachloroethane	ND	10	ug/L	0.80
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	0.80
Isophorone	ND	10	ug/L	0.90
2-Methylnaphthalene	**12**	**10**	**ug/L**	**0.80**
2-Methylphenol	ND	10	ug/L	0.90
4-Methylphenol	ND	10	ug/L	0.80
Naphthalene	ND	10	ug/L	0.80
2-Nitroaniline	ND	50	ug/L	0.90
3-Nitroaniline	ND	50	ug/L	0.90
4-Nitroaniline	ND	50	ug/L	6.0
Nitrobenzene	ND	10	ug/L	2.0
2-Nitrophenol	ND	10	ug/L	0.80
4-Nitrophenol	ND	50	ug/L	7.0
N-Nitrosodiphenylamine	ND	10	ug/L	1.0
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	0.70
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L	0.70
Pentachlorophenol	ND	50	ug/L	5.0
Phenanthrene	**3.5 J**	**10**	**ug/L**	**0.70**
Phenol	ND	10	ug/L	0.90
Pyrene	ND	10	ug/L	0.80
1,2,4-Trichloro-benzene	ND	10	ug/L	0.90
2,4,5-Trichloro-phenol	ND	10	ug/L	1.0
2,4,6-Trichloro-phenol	ND	10	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	73	(32 - 116)
Phenol-d5	77	(40 - 111)
Nitrobenzene-d5	72	(53 - 107)
2-Fluorobiphenyl	71	(31 - 105)
2,4,6-Tribromophenol	94	(42 - 122)
Terphenyl-d14	89	(21 - 125)

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US GEOLOGICAL SURVEY

Client Sample ID: CFW3

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK1AW **Matrix.....:** WATER

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW3

GC/MS Semivolatiles

Lot-Sample #: D4D080342-005 **Work Order #:** GDTFK1AW **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		160 J	M	2.7704	ug/L
Unknown		14 J	M	5.0971	ug/L
Unknown		4.2 J	M	6.284	ug/L
Unknown		4.5 J	M	7.1888	ug/L
Naphthalene, 1-ethyl-	1127-76-0	4.8 J	M	7.7411	ug/L
Naphthalene, 1,7-dimethyl-	575-37-1	14 J	M	7.794	ug/L
Naphthalene, 2,6-dimethyl-	581-42-0	21 J	M	7.8763	ug/L
Naphthalene, 2,3-dimethyl-	581-40-8	9.1 J	M	7.982	ug/L
Naphthalene, 1,3-dimethyl-	575-41-7	5.6 J	M	8.0055	ug/L
Naphthalene, 1,3-dimethyl-	575-41-7	6.5 J	M	8.0702	ug/L
Unknown		18 J	M	8.4697	ug/L
Naphthalene, 1,4,5-trimethyl-	2131-41-1	5.1 J	M	8.5402	ug/L
Ethanone, 1-naphthalenyl-	1333-52-4	5.0 J	M	8.7576	ug/L
6'-Methyl-2'-acetonaphthone	24875-94-3	6.2 J	M	9.2159	ug/L
Unknown		4.6 J	M	9.4862	ug/L
1-Methylnaphthalene		27	Q	7.324	ug/L

NOTE(S):

Q: Result was quantitated against the response factor of a calibration standard.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW4

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM1AW **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:55 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 20:54
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	**1.5 J**	**10**	**ug/L**	**0.60**
Acenaphthylene	ND	10	ug/L	0.60
Anthracene	ND	10	ug/L	3.0
Benzo(a)anthracene	ND	10	ug/L	0.80
Benzo(b)fluoranthene	ND	10	ug/L	0.90
Benzo(k)fluoranthene	ND	10	ug/L	2.0
Benzo(ghi)perylene	ND	10	ug/L	1.0
Benzo(a)pyrene	ND	10	ug/L	0.80
bis(2-Chloroethoxy) methane	ND	10	ug/L	0.90
bis(2-Chloroethyl)-ether	ND	10	ug/L	3.0
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	0.90
4-Bromophenyl phenyl ether	ND	10	ug/L	0.70
Butyl benzyl phthalate	ND	10	ug/L	1.0
Carbazole	**1.3 J**	**10**	**ug/L**	**0.90**
4-Chloroaniline	ND	10	ug/L	3.0
4-Chloro-3-methylphenol	ND	10	ug/L	0.80
2-Chloronaphthalene	ND	10	ug/L	0.70
2-Chlorophenol	ND	10	ug/L	0.80
4-Chlorophenyl phenyl ether	ND	10	ug/L	0.60
Chrysene	ND	10	ug/L	0.80
Dibenz(a,h)anthracene	ND	10	ug/L	0.90
Dibenzofuran	**4.8 J**	**10**	**ug/L**	**0.60**
Di-n-butyl phthalate	ND	10	ug/L	0.80
1,2-Dichlorobenzene	ND	10	ug/L	0.80
1,3-Dichlorobenzene	ND	10	ug/L	0.80
1,4-Dichlorobenzene	ND	10	ug/L	1.0
3,3'-Dichlorobenzidine	ND	50	ug/L	8.0
2,4-Dichlorophenol	ND	10	ug/L	0.70
Diethyl phthalate	ND	10	ug/L	0.70
2,4-Dimethylphenol	ND	10	ug/L	4.0
Dimethyl phthalate	ND	10	ug/L	0.80
4,6-Dinitro-2-methylphenol	ND	50	ug/L	6.0

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US GEOLOGICAL SURVEY

Client Sample ID: CFW4

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM1AW **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2,4-Dinitrophenol	ND	50	ug/L	6.0
2,4-Dinitrotoluene	ND	10	ug/L	1.0
2,6-Dinitrotoluene	ND	10	ug/L	0.80
Di-n-octyl phthalate	ND	10	ug/L	1.0
Fluoranthene	ND	10	ug/L	0.70
Fluorene	ND	10	ug/L	0.60
Hexachlorobenzene	ND	10	ug/L	0.80
Hexachlorobutadiene	ND	10	ug/L	1.0
Hexachlorocyclopenta-diene	ND	50	ug/L	5.0
Hexachloroethane	ND	10	ug/L	0.80
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	0.80
Isophorone	ND	10	ug/L	0.90
2-Methylnaphthalene	**8.1 J**	**10**	**ug/L**	**0.80**
2-Methylphenol	ND	10	ug/L	0.90
4-Methylphenol	ND	10	ug/L	0.80
Naphthalene	ND	10	ug/L	0.80
2-Nitroaniline	ND	50	ug/L	0.90
3-Nitroaniline	ND	50	ug/L	0.90
4-Nitroaniline	ND	50	ug/L	6.0
Nitrobenzene	ND	10	ug/L	2.0
2-Nitrophenol	ND	10	ug/L	0.80
4-Nitrophenol	ND	50	ug/L	7.0
N-Nitrosodiphenylamine	ND	10	ug/L	1.0
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	0.70
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L	0.70
Pentachlorophenol	ND	50	ug/L	5.0
Phenanthrene	**3.5 J**	**10**	**ug/L**	**0.70**
Phenol	ND	10	ug/L	0.90
Pyrene	ND	10	ug/L	0.80
1,2,4-Trichloro-benzene	ND	10	ug/L	0.90
2,4,5-Trichloro-phenol	ND	10	ug/L	1.0
2,4,6-Trichloro-phenol	ND	10	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	75	(32 - 116)
Phenol-d5	80	(40 - 111)
Nitrobenzene-d5	76	(53 - 107)
2-Fluorobiphenyl	74	(31 - 105)
2,4,6-Tribromophenol	98	(42 - 122)
Terphenyl-d14	91	(21 - 125)

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US GEOLOGICAL SURVEY

Client Sample ID: CFW4

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM1AW **Matrix.....:** WATER

NOTE(S):

J Estimated result. Result is less than RL.

US GEOLOGICAL SURVEY

CFW4

GC/MS Semivolatiles

Lot-Sample #: D4D080342-006 **Work Order #:** GDTFM1AW **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		190 J	M	2.7704	ug/L
Unknown		14 J	M	5.0971	ug/L
Benzene, 2-ethenyl-1,4-dimethy	2039-89-6	4.2 J	M	6.284	ug/L
Unknown		4.4 J	M	7.1888	ug/L
Naphthalene, 1-ethyl-	1127-76-0	4.3 J	M	7.7411	ug/L
Naphthalene, 2,7-dimethyl-	582-16-1	14 J	M	7.794	ug/L
Naphthalene, 2,6-dimethyl-	581-42-0	22 J	M	7.8763	ug/L
Naphthalene, 1,3-dimethyl-	575-41-7	9.5 J	M	7.982	ug/L
Naphthalene, 1,7-dimethyl-	575-37-1	5.6 J	M	8.0055	ug/L
Naphthalene, 2,3-dimethyl-	581-40-8	6.8 J	M	8.0702	ug/L
Unknown		18 J	M	8.4697	ug/L
Naphthalene, 1,6,7-trimethyl-	2245-38-7	4.4 J	M	8.5402	ug/L
2-Naphthyl methyl ketone	93-08-3	4.9 J	M	8.7576	ug/L
1-Naphthalenecarboxylic acid,	4242-18-6	12 J	M	8.8046	ug/L
6'-Methyl-2'-acetonaphthone	24875-94-3	6.6 J	M	9.2159	ug/L
Unknown		5.5 J	M	9.4862	ug/L
1-Methylnaphthalene		28	Q	7.324	ug/L

NOTE(S):

Q: Result was quantitated against the response factor of a calibration standard.

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

US GEOLOGICAL SURVEY

Client Sample ID: HMW15

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-007 **Work Order #...:** GDTFQ1AW **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:25 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 21:17
Dilution Factor: 1

Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Acenaphthene	ND	10	ug/L	0.60
Acenaphthylene	ND	10	ug/L	0.60
Anthracene	ND	10	ug/L	3.0
Benzo(a)anthracene	ND	10	ug/L	0.80
Benzo(b)fluoranthene	ND	10	ug/L	0.90
Benzo(k)fluoranthene	ND	10	ug/L	2.0
Benzo(ghi)perylene	ND	10	ug/L	1.0
Benzo(a)pyrene	ND	10	ug/L	0.80
bis(2-Chloroethoxy) methane	ND	10	ug/L	0.90
bis(2-Chloroethyl)-ether	ND	10	ug/L	3.0
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	0.90
4-Bromophenyl phenyl ether	ND	10	ug/L	0.70
Butyl benzyl phthalate	ND	10	ug/L	1.0
Carbazole	ND	10	ug/L	0.90
4-Chloroaniline	ND	10	ug/L	3.0
4-Chloro-3-methylphenol	ND	10	ug/L	0.80
2-Chloronaphthalene	ND	10	ug/L	0.70
2-Chlorophenol	ND	10	ug/L	0.80
4-Chlorophenyl phenyl ether	ND	10	ug/L	0.60
Chrysene	ND	10	ug/L	0.80
Dibenz(a,h)anthracene	ND	10	ug/L	0.90
Dibenzofuran	ND	10	ug/L	0.60
Di-n-butyl phthalate	ND	10	ug/L	0.80
1,2-Dichlorobenzene	ND	10	ug/L	0.80
1,3-Dichlorobenzene	ND	10	ug/L	0.80
1,4-Dichlorobenzene	ND	10	ug/L	1.0
3,3'-Dichlorobenzidine	ND	50	ug/L	8.0
2,4-Dichlorophenol	ND	10	ug/L	0.70
Diethyl phthalate	ND	10	ug/L	0.70
2,4-Dimethylphenol	ND	10	ug/L	4.0
Dimethyl phthalate	ND	10	ug/L	0.80
4,6-Dinitro-2-methylphenol	ND	50	ug/L	6.0

(Continued on next page)

US GEOLOGICAL SURVEY

Client Sample ID: HMW15

GC/MS Semivolatiles

Lot-Sample #...: D4D080342-007 **Work Order #...:** GDTFQ1AW **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
2,4-Dinitrophenol	ND	50	ug/L	6.0
2,4-Dinitrotoluene	ND	10	ug/L	1.0
2,6-Dinitrotoluene	ND	10	ug/L	0.80
Di-n-octyl phthalate	ND	10	ug/L	1.0
Fluoranthene	ND	10	ug/L	0.70
Fluorene	ND	10	ug/L	0.60
Hexachlorobenzene	ND	10	ug/L	0.80
Hexachlorobutadiene	ND	10	ug/L	1.0
Hexachlorocyclopenta-diene	ND	50	ug/L	5.0
Hexachloroethane	ND	10	ug/L	0.80
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	0.80
Isophorone	ND	10	ug/L	0.90
2-Methylnaphthalene	ND	10	ug/L	0.80
2-Methylphenol	ND	10	ug/L	0.90
4-Methylphenol	ND	10	ug/L	0.80
Naphthalene	ND	10	ug/L	0.80
2-Nitroaniline	ND	50	ug/L	0.90
3-Nitroaniline	ND	50	ug/L	0.90
4-Nitroaniline	ND	50	ug/L	6.0
Nitrobenzene	ND	10	ug/L	2.0
2-Nitrophenol	ND	10	ug/L	0.80
4-Nitrophenol	ND	50	ug/L	7.0
N-Nitrosodiphenylamine	ND	10	ug/L	1.0
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	0.70
2,2'-oxybis(1-Chloropropane)	ND	10	ug/L	0.70
Pentachlorophenol	ND	50	ug/L	5.0
Phenanthrene	ND	10	ug/L	0.70
Phenol	ND	10	ug/L	0.90
Pyrene	ND	10	ug/L	0.80
1,2,4-Trichloro-benzene	ND	10	ug/L	0.90
2,4,5-Trichloro-phenol	ND	10	ug/L	1.0
2,4,6-Trichloro-phenol	ND	10	ug/L	0.80

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	82	(32 - 116)
Phenol-d5	84	(40 - 111)
Nitrobenzene-d5	80	(53 - 107)
2-Fluorobiphenyl	79	(31 - 105)
2,4,6-Tribromophenol	92	(42 - 122)
Terphenyl-d14	89	(21 - 125)

US GEOLOGICAL SURVEY

HMW15

GC/MS Semivolatiles

Lot-Sample #: D4D080342-007 **Work Order #:** GDTFQ1AW **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		200 J	M	2.7703	ug/L
Unknown		5.3 J	M	8.3051	ug/L

NOTE(S):

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1

GC Semivolatiles

Lot-Sample #...: D4D080342-001 **Work Order #...:** GDTEV1AL **Matrix.....:** WATER
Date Sampled...: 04/05/04 14:50 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 10:58
Dilution Factor: 1

Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	0.25	mg/L	0.043

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	84	(46 - 95)

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

GC Semivolatiles

Lot-Sample #...: D4D080342-002 **Work Order #...:** GDTE91AU **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 11:29
Dilution Factor: 1

Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	0.25	mg/L	0.043

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	87	(46 - 95)

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

GC Semivolatiles

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH1AU **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:45 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 13:01
Dilution Factor: 1

Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**0.32**	**0.25**	**mg/L**	**0.043**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	88	(46 - 95)

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

GC Semivolatiles

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK1AU **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:40 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/16/04
Prep Batch #...: 4100216 **Analysis Time..:** 02:39
Dilution Factor: 100

Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**450**	**25**	**mg/L**	**4.3**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	NC,DIL	(46 - 95)

NOTE(S):

NC The recovery and/or RPD were not calculated.

DIL The concentration is estimated or not reported due to dilution or the presence of interfering analytes.

US GEOLOGICAL SURVEY

Client Sample ID: CFW4

GC Semivolatiles

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM1AU **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:55 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 14:03
Dilution Factor: 1

Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	**0.47**	**0.25**	**mg/L**	**0.043**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	80	(46 - 95)

US GEOLOGICAL SURVEY

Client Sample ID: HMW15

GC Semivolatiles

Lot-Sample #...: D4D080342-007 **Work Order #...:** GDTFQ1AU **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:25 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 14:34
Dilution Factor: 1
Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Diesel Range Organics	ND	0.25	mg/L	0.043

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	87	(46 - 95)

US GEOLOGICAL SURVEY

Client Sample ID: CFW1

TOTAL Metals

Lot-Sample #...: D4D080342-001 **Matrix.....:** WATER
Date Sampled...: 04/05/04 14:50 **Date Received..:** 04/08/04

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4100550						
Arsenic	**11 B**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTEV1AR**
		Dilution Factor: 5		Analysis Time..: 22:40	MDL.....: 0.60	
Cadmium	**0.36 B**	**5.0**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTEV1AT**
		Dilution Factor: 5		Analysis Time..: 22:40	MDL.....: 0.26	
Chromium	**8.8 B,J**	**10**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTEV1AW**
		Dilution Factor: 5		Analysis Time..: 22:40	MDL.....: 0.65	
Lead	ND	5.0	ug/L	SW846 6020	04/12-04/26/04	GDTEV1AU
		Dilution Factor: 5		Analysis Time..: 22:40	MDL.....: 0.95	
Selenium	**42**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTEV1AV**
		Dilution Factor: 5		Analysis Time..: 22:40	MDL.....: 1.2	
Prep Batch #...: 4114298						
Barium	**13**	**10**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTEV1CD**
		Dilution Factor: 1		Analysis Time..: 14:18	MDL.....: 0.36	
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GDTEV1CE
		Dilution Factor: 1		Analysis Time..: 14:18	MDL.....: 1.7	
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GDTEV1A7
		Dilution Factor: 1		Analysis Time..: 14:18	MDL.....: 0.33	
Calcium	**260000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTEV1A8**
		Dilution Factor: 1		Analysis Time..: 14:18	MDL.....: 7.2	
Potassium	**63000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTEV1A9**
		Dilution Factor: 1		Analysis Time..: 14:18	MDL.....: 550	
Magnesium	**360000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTEV1CA**
		Dilution Factor: 1		Analysis Time..: 14:18	MDL.....: 7.6	
Sodium	**1800000**	**25000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTEV1CC**
		Dilution Factor: 5		Analysis Time..: 12:27	MDL.....: 120	

NOTE(S):

B Estimated result. Result is less than RL.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

TOTAL Metals

Lot-Sample #...: D4D080342-002 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4100550						
Arsenic	**10 B**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTE91A1**
		Dilution Factor: 5		Analysis Time..: 22:43	MDL.....: 0.60	
Cadmium	**0.36 B**	**5.0**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTE91A2**
		Dilution Factor: 5		Analysis Time..: 22:43	MDL.....: 0.26	
Chromium	**9.1 B,J**	**10**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTE91A5**
		Dilution Factor: 5		Analysis Time..: 22:43	MDL.....: 0.65	
Lead	ND	5.0	ug/L	SW846 6020	04/12-04/26/04	GDTE91A3
		Dilution Factor: 5		Analysis Time..: 22:43	MDL.....: 0.95	
Selenium	**41**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTE91A4**
		Dilution Factor: 5		Analysis Time..: 22:43	MDL.....: 1.2	
Prep Batch #...: 4114298						
Barium	**12**	**10**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTE91FH**
		Dilution Factor: 1		Analysis Time..: 14:22	MDL.....: 0.36	
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GDTE91FJ
		Dilution Factor: 1		Analysis Time..: 14:22	MDL.....: 1.7	
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GDTE91E1
		Dilution Factor: 1		Analysis Time..: 14:22	MDL.....: 0.33	
Calcium	**270000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTE91E2**
		Dilution Factor: 1		Analysis Time..: 14:22	MDL.....: 7.2	
Potassium	**64000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTE91E3**
		Dilution Factor: 1		Analysis Time..: 14:22	MDL.....: 550	
Magnesium	**360000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTE91E4**
		Dilution Factor: 1		Analysis Time..: 14:22	MDL.....: 7.6	
Sodium	**1700000**	**25000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTE91E5**
		Dilution Factor: 5		Analysis Time..: 12:30	MDL.....: 120	

NOTE(S):

B Estimated result. Result is less than RL.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

TOTAL Metals

Lot-Sample #...: D4D080342-004 **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:45 **Date Received..:** 04/08/04

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4100550						
Arsenic	**15 B**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFH1A1**
		Dilution Factor: 5		Analysis Time..: 23:06	MDL.....: 0.60	
Cadmium	**0.51 B**	**5.0**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFH1A2**
		Dilution Factor: 5		Analysis Time..: 23:06	MDL.....: 0.26	
Chromium	**14 J**	**10**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFH1A5**
		Dilution Factor: 5		Analysis Time..: 23:06	MDL.....: 0.65	
Lead	ND	5.0	ug/L	SW846 6020	04/12-04/26/04	GDTFH1A3
		Dilution Factor: 5		Analysis Time..: 23:06	MDL.....: 0.95	
Selenium	**47**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFH1A4**
		Dilution Factor: 5		Analysis Time..: 23:06	MDL.....: 1.2	
Prep Batch #...: 4114298						
Barium	**14**	**10**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFH1CD**
		Dilution Factor: 1		Analysis Time..: 14:35	MDL.....: 0.36	
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GDTFH1CE
		Dilution Factor: 1		Analysis Time..: 14:35	MDL.....: 1.7	
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GDTFH1A7
		Dilution Factor: 1		Analysis Time..: 14:35	MDL.....: 0.33	
Calcium	**180000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFH1A8**
		Dilution Factor: 1		Analysis Time..: 14:35	MDL.....: 7.2	
Potassium	**64000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFH1A9**
		Dilution Factor: 1		Analysis Time..: 14:35	MDL.....: 550	
Magnesium	**360000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFH1CA**
		Dilution Factor: 1		Analysis Time..: 14:35	MDL.....: 7.6	
Sodium	**1900000**	**25000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTFH1CC**
		Dilution Factor: 5		Analysis Time..: 12:43	MDL.....: 120	

NOTE(S):

B Estimated result. Result is less than RL.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

TOTAL Metals

Lot-Sample #...: D4D080342-005 **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:40 **Date Received..:** 04/08/04

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4100550						
Arsenic	**5.5 B**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFK1A1**
		Dilution Factor: 5		Analysis Time..: 23:09	MDL.....: 0.60	
Cadmium	ND	5.0	ug/L	SW846 6020	04/12-04/26/04	GDTFK1A2
		Dilution Factor: 5		Analysis Time..: 23:09	MDL.....: 0.26	
Chromium	**12 J**	**10**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFK1A5**
		Dilution Factor: 5		Analysis Time..: 23:09	MDL.....: 0.65	
Lead	**2.3 B**	**5.0**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFK1A3**
		Dilution Factor: 5		Analysis Time..: 23:09	MDL.....: 0.95	
Selenium	**4.8 B**	**25**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFK1A4**
		Dilution Factor: 5		Analysis Time..: 23:09	MDL.....: 1.2	
Prep Batch #...: 4114298						
Barium	**25**	**10**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFK1CD**
		Dilution Factor: 1		Analysis Time..: 14:38	MDL.....: 0.36	
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GDTFK1CE
		Dilution Factor: 1		Analysis Time..: 14:38	MDL.....: 1.7	
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GDTFK1A7
		Dilution Factor: 1		Analysis Time..: 14:38	MDL.....: 0.33	
Calcium	**310000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFK1A8**
		Dilution Factor: 1		Analysis Time..: 14:38	MDL.....: 7.2	
Potassium	**61000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFK1A9**
		Dilution Factor: 1		Analysis Time..: 14:38	MDL.....: 550	
Magnesium	**300000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFK1CA**
		Dilution Factor: 1		Analysis Time..: 14:38	MDL.....: 7.6	
Sodium	**1600000**	**25000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTFK1CC**
		Dilution Factor: 5		Analysis Time..: 12:53	MDL.....: 120	

NOTE(S):

B Estimated result. Result is less than RL.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW4

TOTAL Metals

Lot-Sample #...: D4D080342-006 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:55 **Date Received..:** 04/08/04

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4100550						
Arsenic	**11 B**	**50**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFM1A1**
		Dilution Factor: 10		Analysis Time..: 23:13	MDL.....: 1.2	
Cadmium	**0.64 B**	**10**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFM1A2**
		Dilution Factor: 10		Analysis Time..: 23:13	MDL.....: 0.51	
Chromium	**26 J**	**20**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFM1A5**
		Dilution Factor: 10		Analysis Time..: 23:13	MDL.....: 1.3	
Lead	ND	10	ug/L	SW846 6020	04/12-04/26/04	GDTFM1A3
		Dilution Factor: 10		Analysis Time..: 23:13	MDL.....: 1.9	
Selenium	**49 B**	**50**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFM1A4**
		Dilution Factor: 10		Analysis Time..: 23:13	MDL.....: 2.4	
Prep Batch #...: 4114298						
Barium	**11**	**10**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFM1CD**
		Dilution Factor: 1		Analysis Time..: 14:41	MDL.....: 0.36	
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GDTFM1CE
		Dilution Factor: 1		Analysis Time..: 14:41	MDL.....: 1.7	
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GDTFM1A7
		Dilution Factor: 1		Analysis Time..: 14:41	MDL.....: 0.33	
Calcium	**280000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFM1A8**
		Dilution Factor: 1		Analysis Time..: 14:41	MDL.....: 7.2	
Potassium	**78000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFM1A9**
		Dilution Factor: 1		Analysis Time..: 14:41	MDL.....: 550	
Magnesium	**410000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFM1CA**
		Dilution Factor: 1		Analysis Time..: 14:41	MDL.....: 7.6	
Sodium	**2100000**	**50000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTFM1CC**
		Dilution Factor: 10		Analysis Time..: 16:11	MDL.....: 240	

NOTE(S):

B Estimated result. Result is less than RL.

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

US GEOLOGICAL SURVEY

Client Sample ID: HMW15

TOTAL Metals

Lot-Sample #...: D4D080342-007 **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:25 **Date Received..:** 04/08/04

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 4100550						
Arsenic	**10 B**	**50**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFQ1A1**
		Dilution Factor: 10		Analysis Time..: 23:16	MDL.....: 1.2	
Cadmium	ND	10	ug/L	SW846 6020	04/12-04/26/04	GDTFQ1A2
		Dilution Factor: 10		Analysis Time..: 23:16	MDL.....: 0.51	
Chromium	**10 B,J**	**20**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFQ1A5**
		Dilution Factor: 10		Analysis Time..: 23:16	MDL.....: 1.3	
Lead	ND	10	ug/L	SW846 6020	04/12-04/26/04	GDTFQ1A3
		Dilution Factor: 10		Analysis Time..: 23:16	MDL.....: 1.9	
Selenium	**100**	**50**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDTFQ1A4**
		Dilution Factor: 10		Analysis Time..: 23:16	MDL.....: 2.4	
Prep Batch #...: 4114298						
Barium	**11**	**10**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFQ1CD**
		Dilution Factor: 1		Analysis Time..: 14:51	MDL.....: 0.36	
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GDTFQ1CE
		Dilution Factor: 1		Analysis Time..: 14:51	MDL.....: 1.7	
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GDTFQ1A7
		Dilution Factor: 1		Analysis Time..: 14:51	MDL.....: 0.33	
Calcium	**400000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFQ1A8**
		Dilution Factor: 1		Analysis Time..: 14:51	MDL.....: 7.2	
Potassium	**68000**	**5000**	**ug/L**	**SW846 6010B**	**04/09-04/23/04**	**GDTFQ1A9**
		Dilution Factor: 1		Analysis Time..: 14:51	MDL.....: 550	
Magnesium	**720000**	**10000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTFQ1CA**
		Dilution Factor: 2		Analysis Time..: 13:00	MDL.....: 15	
Sodium	**2500000**	**50000**	**ug/L**	**SW846 6010B**	**04/09-04/24/04**	**GDTFQ1CC**
		Dilution Factor: 10		Analysis Time..: 16:15	MDL.....: 240	

NOTE(S):

B Estimated result. Result is less than RL.

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

US GEOLOGICAL SURVEY

Client Sample ID: CFW1

General Chemistry

Lot-Sample #...: D4D080342-001 **Work Order #...:** GDTEV **Matrix.....:** WATER
Date Sampled...: 04/05/04 14:50 **Date Received..:** 04/08/04

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N	ND	0.10	mg/L	MCAWW 350.1	04/15-04/16/04	4107422
		Dilution Factor: 1		Analysis Time..: 01:00	MDL.....: 0.029	
Chloride	**760 Q**	**150**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103615**
		Dilution Factor: 50		Analysis Time..: 03:14	MDL.....: 10	
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1		Analysis Time..: 10:00	MDL.....: 0.0028	
Fluoride	**3.2 B,G**	**5.0**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103616**
		Dilution Factor: 5		Analysis Time..: 02:58	MDL.....: 0.50	
Nitrate	**21 Q**	**2.5**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103613**
		Dilution Factor: 5		Analysis Time..: 02:58	MDL.....: 0.25	
Phosphate as P, Ortho	ND G	2.5	mg/L	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 5		Analysis Time..: 02:58	MDL.....: 0.50	
Sulfate	**5100 Q**	**1000**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103614**
		Dilution Factor: 200		Analysis Time..: 03:29	MDL.....: 40	
Total Alkalinity	**400**	**5.0**	**mg/L**	**MCAWW 310.1**	**04/09/04**	**4103206**
		Dilution Factor: 1		Analysis Time..: 23:00	MDL.....: 1.5	
Total Dissolved Solids	**8500 Q**	**40**	**mg/L**	**MCAWW 160.1**	**04/09/04**	**4100523**
		Dilution Factor: 4		Analysis Time..: 15:30	MDL.....: 14	
Total Organic Carbon	**2.2**	**1.0**	**mg/L**	**SW846 9060**	**04/21-04/22/04**	**4114391**
		Dilution Factor: 1		Analysis Time..: 03:00	MDL.....: 0.50	
Total Organic Halogens	**44 IC**	**20**	**ug/L**	**SW846 9020B**	**04/29/04**	**4120689**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 9.6	
Total Sulfide	ND	0.050	mg/L	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1		Analysis Time..: 14:30	MDL.....: 0.014	

NOTE(S):

RL Reporting Limit

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

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interference.

IC Diluted due to high inorganic chloride.

US GEOLOGICAL SURVEY

Client Sample ID: CFW1-1

General Chemistry

Lot-Sample #...: D4D080342-002 **Work Order #...:** GDTE9 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N	ND	0.10	mg/L	MCAWW 350.1	04/15-04/16/04	4107422
		Dilution Factor: 1		Analysis Time..: 01:00	MDL.....: 0.029	
Chloride	**750 Q**	**150**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103615**
		Dilution Factor: 50		Analysis Time..: 04:32	MDL.....: 10	
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1		Analysis Time..: 10:00	MDL.....: 0.0028	
Fluoride	**3.4 B,G**	**5.0**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103616**
		Dilution Factor: 5		Analysis Time..: 03:45	MDL.....: 0.50	
Nitrate	**22 Q**	**2.5**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103613**
		Dilution Factor: 5		Analysis Time..: 03:45	MDL.....: 0.25	
Phosphate as P, Ortho	ND G	25	mg/L	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 50		Analysis Time..: 04:32	MDL.....: 5.0	
Sulfate	**4700 Q**	**1000**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103614**
		Dilution Factor: 200		Analysis Time..: 05:19	MDL.....: 40	
Total Alkalinity	**400**	**5.0**	**mg/L**	**MCAWW 310.1**	**04/09/04**	**4103206**
		Dilution Factor: 1		Analysis Time..: 23:00	MDL.....: 1.5	
Total Dissolved Solids	**8400 Q**	**40**	**mg/L**	**MCAWW 160.1**	**04/09/04**	**4100523**
		Dilution Factor: 4		Analysis Time..: 15:30	MDL.....: 14	
Total Organic Carbon	**2.0**	**1.0**	**mg/L**	**SW846 9060**	**04/21-04/22/04**	**4114391**
		Dilution Factor: 1		Analysis Time..: 03:00	MDL.....: 0.50	
Total Organic Halogens	**44 IC**	**20**	**ug/L**	**SW846 9020B**	**04/29/04**	**4120689**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 9.6	
Total Sulfide	ND	0.050	mg/L	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1		Analysis Time..: 14:30	MDL.....: 0.014	

NOTE(S):

RL Reporting Limit

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

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interferei

IC Diluted due to high inorganic chloride.

US GEOLOGICAL SURVEY

Client Sample ID: CFW2

General Chemistry

Lot-Sample #...: D4D080342-004 **Work Order #...:** GDTFH **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:45 **Date Received..:** 04/08/04

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N	**0.14**	**0.10**	**mg/L**	**MCAWW 350.1**	**04/15-04/16/04**	**4107422**
		Dilution Factor: 1		Analysis Time..: 01:00	MDL.....: 0.029	
Chloride	**790 Q**	**150**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103615**
		Dilution Factor: 50		Analysis Time..: 06:52	MDL.....: 10	
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1		Analysis Time..: 10:00	MDL.....: 0.0028	
Fluoride	**4.0 B,G**	**5.0**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103616**
		Dilution Factor: 5		Analysis Time..: 06:37	MDL.....: 0.50	
Nitrate	**28 Q**	**2.5**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103613**
		Dilution Factor: 5		Analysis Time..: 06:37	MDL.....: 0.25	
Phosphate as P, Ortho	ND G	2.5	mg/L	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 5		Analysis Time..: 06:37	MDL.....: 0.50	
Sulfate	**4700 Q**	**1000**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103614**
		Dilution Factor: 200		Analysis Time..: 07:08	MDL.....: 40	
Total Alkalinity	**250**	**5.0**	**mg/L**	**MCAWW 310.1**	**04/09/04**	**4103206**
		Dilution Factor: 1		Analysis Time..: 23:00	MDL.....: 1.5	
Total Dissolved Solids	**8600 Q**	**40**	**mg/L**	**MCAWW 160.1**	**04/09/04**	**4100523**
		Dilution Factor: 4		Analysis Time..: 15:30	MDL.....: 14	
Total Organic Carbon	**2.0**	**1.0**	**mg/L**	**SW846 9060**	**04/21-04/22/04**	**4114391**
		Dilution Factor: 1		Analysis Time..: 04:00	MDL.....: 0.50	
Total Organic Halogens	**26 IC**	**20**	**ug/L**	**SW846 9020B**	**04/29/04**	**4120689**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 9.6	
Total Sulfide	**0.17**	**0.050**	**mg/L**	**MCAWW 376.2**	**04/12/04**	**4103699**
		Dilution Factor: 1		Analysis Time..: 14:30	MDL.....: 0.014	

NOTE(S):

RL Reporting Limit

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

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interfere

IC Diluted due to high inorganic chloride.

US GEOLOGICAL SURVEY

Client Sample ID: CFW3

General Chemistry

Lot-Sample #...: D4D080342-005 **Work Order #...:** GDTFK **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:40 **Date Received..:** 04/08/04

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N	**0.043 B**	**0.10**	**mg/L**	**MCAWW 350.1**	**04/15-04/16/04**	**4107422**
		Dilution Factor: 1		Analysis Time..: 01:00	MDL.....: 0.029	
Chloride	**670 Q**	**150**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103615**
		Dilution Factor: 50		Analysis Time..: 07:39	MDL.....: 10	
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1		Analysis Time..: 10:00	MDL.....: 0.0028	
Fluoride	**2.7 B,G**	**5.0**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103616**
		Dilution Factor: 5		Analysis Time..: 07:23	MDL.....: 0.50	
Nitrate	**0.47 B,G**	**2.5**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103613**
		Dilution Factor: 5		Analysis Time..: 07:23	MDL.....: 0.25	
Phosphate as P, Ortho	ND G	2.5	mg/L	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 5		Analysis Time..: 07:23	MDL.....: 0.50	
Sulfate	**3200 Q**	**1000**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103614**
		Dilution Factor: 200		Analysis Time..: 07:55	MDL.....: 40	
Total Alkalinity	**1600**	**5.0**	**mg/L**	**MCAWW 310.1**	**04/09/04**	**4103206**
		Dilution Factor: 1		Analysis Time..: 23:00	MDL.....: 1.5	
Total Dissolved Solids	**7400 Q**	**40**	**mg/L**	**MCAWW 160.1**	**04/09/04**	**4100523**
		Dilution Factor: 4		Analysis Time..: 15:30	MDL.....: 14	
Total Organic Carbon	**21 G**	**2.0**	**mg/L**	**SW846 9060**	**04/21-04/22/04**	**4114391**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 1.0	
Total Organic Halogens	**26 IC**	**20**	**ug/L**	**SW846 9020B**	**04/29/04**	**4120689**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 9.6	
Total Sulfide	**13 Q**	**2.5**	**mg/L**	**MCAWW 376.2**	**04/12/04**	**4103699**
		Dilution Factor: 50		Analysis Time..: 14:30	MDL.....: 0.70	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

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

G Elevated reporting limit. The reporting limit is elevated due to matrix interfere

IC Diluted due to high inorganic chloride.

US GEOLOGICAL SURVEY

Client Sample ID: CFW4

General Chemistry

Lot-Sample #...: D4D080342-006 **Work Order #...:** GDTFM **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:55 **Date Received..:** 04/08/04

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N	ND	0.10	mg/L	MCAWW 350.1	04/15-04/16/04	4107422
		Dilution Factor: 1		Analysis Time..: 01:00	MDL.....: 0.029	
Chloride	**780 Q**	**150**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103615**
		Dilution Factor: 50		Analysis Time..: 08:26	MDL.....: 10	
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1		Analysis Time..: 10:00	MDL.....: 0.0028	
Fluoride	**3.7 B,G**	**5.0**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103616**
		Dilution Factor: 5		Analysis Time..: 08:10	MDL.....: 0.50	
Nitrate	**26 Q**	**2.5**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103613**
		Dilution Factor: 5		Analysis Time..: 08:10	MDL.....: 0.25	
Phosphate as P, Ortho	ND G	2.5	mg/L	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 5		Analysis Time..: 08:10	MDL.....: 0.50	
Sulfate	**5900 Q**	**1000**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103614**
		Dilution Factor: 200		Analysis Time..: 09:13	MDL.....: 40	
Total Alkalinity	**260**	**5.0**	**mg/L**	**MCAWW 310.1**	**04/09/04**	**4103206**
		Dilution Factor: 1		Analysis Time..: 23:00	MDL.....: 1.5	
Total Dissolved Solids	**10000 Q**	**40**	**mg/L**	**MCAWW 160.1**	**04/09/04**	**4100523**
		Dilution Factor: 4		Analysis Time..: 15:30	MDL.....: 14	
Total Organic Carbon	**2.6**	**1.0**	**mg/L**	**SW846 9060**	**04/21-04/22/04**	**4114391**
		Dilution Factor: 1		Analysis Time..: 04:00	MDL.....: 0.50	
Total Organic Halogens	**35 IC**	**20**	**ug/L**	**SW846 9020B**	**04/29/04**	**4120689**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 9.6	
Total Sulfide	ND	0.050	mg/L	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1		Analysis Time..: 14:30	MDL.....: 0.014	

NOTE(S):

RL Reporting Limit

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

B Estimated result. Result is less than RL.

G Elevated reporting limit. The reporting limit is elevated due to matrix interferer

IC Diluted due to high inorganic chloride.

US GEOLOGICAL SURVEY

Client Sample ID: HMW15

General Chemistry

Lot-Sample #...: D4D080342-007 **Work Order #...:** GDTFQ **Matrix.....:** WATER
Date Sampled...: 04/05/04 17:25 **Date Received..:** 04/08/04

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N	**0.043 B**	**0.10**	**mg/L**	**MCAWW 350.1**	**04/15-04/16/04**	**4107422**
		Dilution Factor: 1		Analysis Time..: 01:00	MDL.....: 0.029	
Chloride	**2000 Q**	**300**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103615**
		Dilution Factor: 100		Analysis Time..: 09:59	MDL.....: 20	
Cyanide, Total	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1		Analysis Time..: 10:00	MDL.....: 0.0028	
Fluoride	**2.2 B,G**	**10**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103616**
		Dilution Factor: 10		Analysis Time..: 09:28	MDL.....: 1.0	
Nitrate	**67 Q**	**5.0**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103613**
		Dilution Factor: 10		Analysis Time..: 09:28	MDL.....: 0.50	
Phosphate as P, Ortho	ND G	5.0	mg/L	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 10		Analysis Time..: 09:28	MDL.....: 1.0	
Sulfate	**7300 Q**	**2500**	**mg/L**	**MCAWW 300.0A**	**04/08-04/09/04**	**4103614**
		Dilution Factor: 500		Analysis Time..: 10:15	MDL.....: 100	
Total Alkalinity	**110**	**5.0**	**mg/L**	**MCAWW 310.1**	**04/09/04**	**4103206**
		Dilution Factor: 1		Analysis Time..: 23:00	MDL.....: 1.5	
Total Dissolved Solids	**14000 Q**	**50**	**mg/L**	**MCAWW 160.1**	**04/09/04**	**4100523**
		Dilution Factor: 5		Analysis Time..: 15:30	MDL.....: 18	
Total Organic Carbon	**0.51 B**	**1.0**	**mg/L**	**SW846 9060**	**04/21-04/22/04**	**4114391**
		Dilution Factor: 1		Analysis Time..: 05:00	MDL.....: 0.50	
Total Organic Halogens	**18 B,IC**	**20**	**ug/L**	**SW846 9020B**	**04/29/04**	**4120689**
		Dilution Factor: 2		Analysis Time..: 12:00	MDL.....: 9.6	
Total Sulfide	ND	0.050	mg/L	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1		Analysis Time..: 14:30	MDL.....: 0.014	

NOTE(S):

RL Reporting Limit

B Estimated result. Result is less than RL.

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

G Elevated reporting limit. The reporting limit is elevated due to matrix interfere

IC Diluted due to high inorganic chloride.

APPENDIX II

Laboratory Quality Assurance / Quality Control Results

LABORATORY DATA VALIDATION CHECKLIST

SECTION 1.0: GENERAL INFORMATION

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

Sara Caldwell, USGS-WRD, Hydrologic Technician May 18, 2004

DATA INVENTORY

1.1 Sample project number: Severn Trent Environmental Services Lot # D4D080342

1.2 Operable unit and site: High Energy Laser Systems Test Facility (HELSTF), Cleaning Facility

Sample collection dates: April 5, 2004

1.2 Sample locations (location IDs): CFW1, CFW2, CFW3, CFW4, and HMW15 (background well). CFW1-1 was a field duplicate for CFW1; CFW1-2 was a trip blank for CFW1.

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	5	MS/MSD	0
field duplicate	1	trip blank	1
equipment blank	0	ambient blank	0

Data validation level: Level 1 (note - see Page II-9 for description of different levels)

SECTION 2.0: DATA REPORTS AND COMPLETENESS

Name of reviewer(s) and review date: Sara Caldwell May 18, 2004

LABORATORY DATA REPORTS

2.1 Analytical Results Report--report date: April 30, 2004

2.2 Raw Data Report--number of volumes: Raw data not reviewed

2.3 Was completeness of lab reports acceptable? Yes √ No ____

(overview, analytical results, quality-control report)

DATA COMPLETENESS

2.4 Were all samples requested on chain of custody form analyzed by lab? Yes √ No ____

	VOC	SVOC	DRO	Total Metals	Anions
requested:	7	6	6	6	6
analyzed:	7	6	6	6	6

	Cyanide	Sulfide	TOC	TOX	TDS	Alkalinity
requested:	6	6	6	6	6	6
analyzed:	6	6	6	6	6	6

2.5 List cancelled analyses on cancelled-data worksheet: None

2.6 Were sample cooler seals intact upon receipt by lab? Yes

2.7 What were the sample cooler temperatures upon receipt by lab? 2.8-4.1° C @ Severn Trent Services

2.8 Additional comments:
The samples were received by the laboratory past the 48-hour hold time for nitrate and ortho-phosphate, but were analyzed as soon as possible.

SECTION 3.0: DATA VALIDATION REVIEW

In the following table (Table II-1), the data from the April 5, 2004 sampling round is reviewed for the following data validation parameters: holding times, surrogate spike recovery, project reporting limits, field duplicates, trip blanks, tentatively identified compounds, lab control samples, lab method blanks, matrix spike and duplicates, and results over the reporting limits with qualifiers. Data validation parameters are reviewed for compliance with individual requirements for each parameter specific to the individual analyses of volatiles (Method SW8260B), semivolatiles (SW8270C), extractable petroleum hydrocarbons (SW8015-modified), total metals (SW6010B and SW6020), common anions and ammonia (MCAWW300.0A and MCAWW350.1), cyanide and sulfide (SW9012A and MCAWW376.2), total organic carbon (SW9060), total organic halogens (SW9020B), and total dissolved solids and alkalinity (MCAWW160.1 and MCAWW310.1).

Table II-1. Data validation worksheet table for ground-water samples collected April 5, 2004, sampling round at HELSTF - validation parameters, analytes, and methods.

Data Validation Parameters	**Volatiles SW8260B**	**Semivolatiles SW8270C**	**Extractable Petroleum Hydrocarbons SW8015 Modified**	**Total Metals SW6010B**	**Common Anions and Nitrogen MCAWW300A MCAWW350.1**	**Cyanide and Sulfide SW9012 and MCAWW376.2**	**Total Organic Carbon SW9060**	**Total Organic Halogens SW9020B**	**Total Dissolved Solids and Alkalinity MCAWW160.1 and MCAWW310.1**
Holding times **Met**	14-day limit ☑ Yes ☐ No, see notes	7 days to extract, 40-day from extraction to analysis ☑ Yes ☐ No, see notes	7 days to extract, 40-day from extraction to analysis ☑ Yes ☐ No, see notes	180-day limit ☑ Yes ☐ No, see notes	48-hours for NO3 and PO4. 28-days for all others ☐ Yes ☑ No, see notes	14 days for cyanide, 7 days for sulfide ☑ Yes ☐ No, see notes	28-day limit ☑ Yes ☐ No, see notes	28-day limit ☑ Yes ☐ No, see notes	7 days for TDS, 14 days for alkalinity ☑ Yes ☐ No, see notes
Surrogate Spike Recovery **Met**	%R varies for surrogates ☑ Yes ☐ No, see notes	%R varies for surrogates ☑ Yes ☐ No, see notes	%R varies for surrogates ☐ Yes ☑ No, see notes	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Project Reporting limit **Met**	No limits provided Not Applicable	No limits provided Not Applicable	Severn Trent RL: 0.1 mg/L ☐ Yes ☑ No, see notes	No limits provided Not Applicable	No limits provided Not Applicable	Severn Trent: 0.01 mg/L cyanide, 0.05 mg/L sulfide ☐ Yes ☑ No, see notes	Severn Trent: 1.0 mg/L ☐ Yes ☑ No, see notes	Severn Trent: 30 µg/L ☐ Yes ☑ No, see notes	Severn Trent: 10 mg/L TDS, 5.0 mg/L alkalinity ☐ Yes ☑ No, see notes
Field Duplicates **Met**	RPD < 30% ☐ Yes ☑ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes	RPD < 30% ☑ Yes ☐ No, see notes
Trip Blanks **Met**	Presence of contaminants ☑ No ☐ Yes, see notes	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Table II-1. Data validation worksheet table for ground-water samples collected April 5, 2004, sampling round at HELSTF - validation parameters, analytes, and methods—continued.

Data Validation Parameters	**Volatiles SW8260B**	**Semivolatiles SW8270C**	**Extractable Petroleum Hydrocarbons SW8015 Modified**	**Total Metals SW6010B**	**Common Anions and Nitrogen MCAWW3000A MCAWW350.1**	**Cyanide and Sulfide SW9012 and MCAWW376.2**	**Total Organic Carbon SW9060**	**Total Organic Halogens SW9020B**	**Total Dissolved Solids and Alkalinity MCAWW160.1 MCAWW310.1**
Tentatively Identified Comps.	Number of compounds per site	Number of compounds per site	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Presence	HMW15: 3 CFW1: 2 CFW2: 9 CFW3: 11 CFW4: 11	HMW15: 2 CFW1: 3 CFW2: 3 CFW3: 16 CFW4: 17	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Lab Control Samples	%R and RPD within 3 SD of historical	%R and RPD within 3 SD of historical	%R and RPD within 3 SD of historical	%R and RPD within 3 SD of historical	%R and RPD within 3 SD of historical performance	%R and RPD within 3 SD of historical performance	%R and RPD within 3 SD of historical performance	%R within 80 to 120% and RPD < 20%	%R between 87 and 107%, RPD < 10%
Met	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes
Lab Method Blanks	< RL except for common lab contaminants, then < 5 x RL	< RL except for common lab contaminants, then < 5 x RL	< 2 x RL	< RL except for common lab contaminants, then < 2 x RL	< 2 x RL	< 2 x RL	Non-detect	Non-detect	< 2 x RL
Met	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes	☑ Yes ☐ No, see notes

Table II-1. Data validation worksheet table for ground-water samples collected April 5, 2004, sampling round at HELSTF - validation parameters, analytes, and methods—concluded.

Data Validation Parameters	**Volatiles SW8260B**	**Semivolatiles SW8270C**	**Extractable Petroleum Hydrocarbons SW8015 Modified**	**Total Metals SW6010B**	**Common Anions and Nitrogen MCAWW3000A MCAWW350.1**	**Cyanide and Sulfide SW9012 and MCAWW376.2**	**Total Organic Carbon SW9060**	**Total Organic Halogens SW9020B**	**Total Dissolved Solids and Alkalinity MCAWW160.1 MCAWW310.1**
Matrix Spike and Duplicates **Met**	Met various %R and RPD requirements ☑ Yes ☐ No, see notes	Met various %R and RPD requirements ☑ Yes ☐ No, see notes	Met various %R and RPD requirements ☑ Yes ☐ No, see notes	Met various %R and RPD requirements ☐ Yes ☑ No, see notes	Met various %R and RPD requirements ☑ Yes ☐ No, see notes	Met various %R and RPD requirements ☑ Yes ☐ No, see notes	Meet %R and RPD requirements ☑ Yes ☐ No, see notes	%R within 80 to 120% and RPD < 20% ☑ Yes ☐ No, see notes	%R between 87 and 107%, RPD < 10% ☑ Yes ☐ No, see notes
Results over RL with Qualifiers	None	None	None	Associated method blanks for chromium in samples from wells CFW2, CFW3, and CFW4 contained target analytes at a reportable level.	Elevated RL of chloride, nitrate, sulfate, and TDS for all wells, and of total sulfides for CFW3; elevated RL of fluoride for all wells and of phosphate for all wells except CFW2; elevated RL of ntrate and TOC for CFW3.	Elevated reporting limit for sulfide in CFW3 due to high analyte levels.	Elevated reporting limit for CFW3 due to matrix interference.	All samples were diluted because of large levels of inorganic chloride.	All samples had elevated reporting limits because of large analyte levels for TDS.

Table II-1. Data validation worksheet table for ground-water samples collected April 5, 2004, sampling round at HELSTF - notes.

Analyte and Method:	Notes of Data Validation Parameters:
Volatiles SW8260B	Field duplicate, CFW1-1, RPD was greater than 30% for 1,1-Dichloroethane and Trichloroethene.
Semivolatiles SW8270C	None
Extractable Petroleum Hydrocarbons SW8015 Modified	Surrogate spike recovery for CFW3 was not calculated due to dilution or the presence of interfering analytes. Project reporting limit for CFW1, CFW1-1, CFW2, CFW4, and HMW15 was 0.25 mg/L; project reporting limit for CFW3 was 25 mg/L
Total Metals SW6010B and SW6020	Matrix spike recovery and RPD were not calculated for calcium, magnesium, and sodium because sample amounts were greater than four times the spike amount.
Common Anions and Nitrogen MCAWW3000A MCAWW350.1	All samples were received past the 48-hour hold time for nitrate and ortho-phosphate; the samples were analyzed by Severn Trent Laboratory as soon as possible.
Cyanide and Sulfide SW9012 and MCAWW376.2	Reporting limit for total sulfide in the sample from CFW3 was 2.5 mg/L.
Total Organic Carbon SW9060	Project reporting limit for CFW3 was 2.0 mg/L
Total Organic Halogens SW9020B	Project reporting limit for all wells was 20 µg/L.
Total Dissolved Solids and Alkalinity MCAWW160.1 and MCAWW310.1	Project reporting limit of total dissolved solids for CFW1, CFW1-1, CFW2, CFW3, and CFW4 was 40 mg/L; reporting limit of total dissolved solids for HMW15 was 50 mg/L.

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 that 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.

Checklist Abbreviations, Acronyms, and Notes
Abbreviations:

As	arsenic
Ba	barium
Be	beryllium
Ca	calcium
CCV	continuing calibration verification
Cd	cadmium
CFW	cleaning facility well
Cl	chloride

Checklist Abbreviations, Acronyms, and Notes -- continued

Abbreviations:

Co cobalt
Conc. concentration
Cr chromium
DCS duplicate control sample
Diss. dissolved
DRO diesel range organics with GC/FID analysis C10-C28
DUP duplicate environmental sample
EB equipment blank
FG-INORG Functional guidelines (EPA) for evaluating inorganic analyses (USEPA contract laboratory program national functional guidelines for inorganic data review, February, 1994, Publication 9240.1-05-01, Document number PB94-963502, 42 p.)
FG-ORG Functional guidelines (EPA) for evaluating organic analyses (USEPA Contract laboratory program national functional guidelines for organic data review, February, 1994, Publication 9240.1-05, Document number PB94-963501, 124 p.)
Fl fluoride
GFAA graphite furnace atomic absorption
HELSTF High Energy Laser Systems Test Facility
ICP inductively coupled plasma
ID identification
IS internal standards
J estimated value qualifier
K potassium
LCS laboratory control sample
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
MS/MSD matrix spike/matrix spike duplicate
MW monitoring well
Na sodium
ND not detected
NMED New Mexico Environment Department
NO2 nitrate
Pb lead
PO4 orthophosphate
PRL project reporting limit
QC quality control
RCLs Recovery Control Limits
RCRA Resource Conservation and Recovery Act
RL reporting limits
RPD relative percent difference
SA environmental sample

Checklist Abbreviations, Acronyms, and Notes -- continued
Abbreviations:

SAP Sampling and Analysis Plan
SCS single control sample
SD standard deviation
SO4 sulfate
SVOC semivolatile organic compounds
TB trip blank
TDS total dissolved solids
TIC tentatively identified compound
TOC total organic carbon
Tot. total
TOX total organic halogen
TSS total suspended solids
USEPA United States Environmental Protection Agency
USGS/WRD United States Geological Survey, Water Resources Division
VOC volatile organic compounds
mg/L microgram per liter
%R percent recovery

References

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.

QC DATA ASSOCIATION SUMMARY

D4D080342

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	MCAWW 160.1		4100523	4104066
	WATER	MCAWW 300.0A		4103615	4106227
	WATER	MCAWW 300.0A		4103614	4106251
	WATER	MCAWW 300.0A		4103616	4106220
	WATER	MCAWW 300.0A		4103613	4106240
	WATER	MCAWW 300.0A		4103617	4106246
	WATER	SW846 9060		4114391	4114238
	WATER	SW846 8015 MOD		4100216	4100078
	WATER	SW846 6020		4100550	4100283
	WATER	SW846 9020B		4120689	4121087
	WATER	SW846 8260B		4106500	4106257
	WATER	SW846 8270C		4103447	4103227
	WATER	SW846 6010B		4114298	4114131
	WATER	SW846 9012A		4106414	4106196
	WATER	MCAWW 376.2		4103699	4103349
	WATER	MCAWW 310.1		4103206	4103126
	WATER	MCAWW 350.1		4107422	4107191
002	WATER	MCAWW 160.1		4100523	4104066
	WATER	MCAWW 300.0A		4103615	4106227
	WATER	MCAWW 300.0A		4103614	4106251
	WATER	MCAWW 300.0A		4103616	4106220
	WATER	MCAWW 300.0A		4103613	4106240
	WATER	MCAWW 300.0A		4103617	4106246
	WATER	SW846 9060		4114391	4114238
	WATER	SW846 8015 MOD		4100216	4100078
	WATER	SW846 6020		4100550	4100283
	WATER	SW846 9020B		4120689	4121087
	WATER	SW846 8260B		4106500	4106257
	WATER	SW846 8270C		4103447	4103227
	WATER	SW846 6010B		4114298	4114131
	WATER	SW846 9012A		4106414	4106196
	WATER	MCAWW 376.2		4103699	4103349
	WATER	MCAWW 310.1		4103206	4103126
	WATER	MCAWW 350.1		4107422	4107191
003	WATER	SW846 8260B		4106500	4106257
004	WATER	MCAWW 160.1		4100523	4104066
	WATER	MCAWW 300.0A		4103615	4106227
	WATER	MCAWW 300.0A		4103614	4106251
	WATER	MCAWW 300.0A		4103616	4106220
	WATER	MCAWW 300.0A		4103613	4106240

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QC DATA ASSOCIATION SUMMARY

D4D080342

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
004	WATER	MCAWW 300.0A		4103617	4106246
	WATER	SW846 9060		4114391	4114238
	WATER	SW846 8015 MOD		4100216	4100078
	WATER	SW846 6020		4100550	4100283
	WATER	SW846 9020B		4120689	4121087
	WATER	SW846 8260B		4107264	4107190
	WATER	SW846 8270C		4103447	4103227
	WATER	SW846 6010B		4114298	4114131
	WATER	SW846 9012A		4106414	4106196
	WATER	MCAWW 376.2		4103699	4103349
	WATER	MCAWW 310.1		4103206	4103126
	WATER	MCAWW 350.1		4107422	4107191
005	WATER	MCAWW 160.1		4100523	4104066
	WATER	MCAWW 300.0A		4103615	4106227
	WATER	MCAWW 300.0A		4103614	4106251
	WATER	MCAWW 300.0A		4103616	4106220
	WATER	MCAWW 300.0A		4103613	4106240
	WATER	MCAWW 300.0A		4103617	4106246
	WATER	SW846 9060		4114391	4114238
	WATER	SW846 8015 MOD		4100216	4100078
	WATER	SW846 6020		4100550	4100283
	WATER	SW846 9020B		4120689	4121087
	WATER	SW846 8260B		4106500	4106257
	WATER	SW846 8270C		4103447	4103227
	WATER	SW846 6010B		4114298	4114131
	WATER	SW846 9012A		4106414	4106196
	WATER	MCAWW 376.2		4103699	4103349
	WATER	MCAWW 310.1		4103206	4103126
	WATER	MCAWW 350.1		4107422	4107191
006	WATER	MCAWW 160.1		4100523	4104066
	WATER	MCAWW 300.0A		4103615	4106227
	WATER	MCAWW 300.0A		4103614	4106251
	WATER	MCAWW 300.0A		4103616	4106220
	WATER	MCAWW 300.0A		4103613	4106240
	WATER	MCAWW 300.0A		4103617	4106246
	WATER	SW846 9060		4114391	4114238
	WATER	SW846 8015 MOD		4100216	4100078
	WATER	SW846 6020		4100550	4100283
	WATER	SW846 9020B		4120689	4121087
	WATER	SW846 8260B		4106500	4106257
	WATER	SW846 8270C		4103447	4103227

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QC DATA ASSOCIATION SUMMARY

D4D080342

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
006	WATER	SW846 6010B		4114298	4114131
	WATER	SW846 9012A		4106414	4106196
	WATER	MCAWW 376.2		4103699	4103349
	WATER	MCAWW 310.1		4103206	4103126
	WATER	MCAWW 350.1		4107422	4107191
007	WATER	MCAWW 160.1		4100523	4104066
	WATER	MCAWW 300.0A		4103615	4106227
	WATER	MCAWW 300.0A		4103614	4106251
	WATER	MCAWW 300.0A		4103616	4106220
	WATER	MCAWW 300.0A		4103613	4106240
	WATER	MCAWW 300.0A		4103617	4106246
	WATER	SW846 9060		4114391	4114238
	WATER	SW846 8015 MOD		4100216	4100078
	WATER	SW846 6020		4100550	4100283
	WATER	SW846 9020B		4120689	4121087
	WATER	SW846 8260B		4107264	4107190
	WATER	SW846 8270C		4103447	4103227
	WATER	SW846 6010B		4114298	4114131
	WATER	SW846 9012A		4106414	4106196
	WATER	MCAWW 376.2		4103699	4103349
	WATER	MCAWW 310.1		4103206	4103126
	WATER	MCAWW 350.1		4107422	4107191

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GD8MD1AA **Matrix.....:** WATER
MB Lot-Sample #: D4D150000-500

Prep Date.....: 04/14/04 **Analysis Time..:** 11:17
Analysis Date..: 04/14/04 **Prep Batch #...:** 4106500
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	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
2-Butanone (MEK)	ND	5.0	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
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	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
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	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
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Methylene chloride	ND	5.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
Styrene	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
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(76 - 116)
1,2-Dichloroethane-d4	99	(59 - 129)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GD8MD1AA **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
4-Bromofluorobenzene	102	(74 - 114)		
Toluene-d8	100	(76 - 116)		

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GD8MD1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D150000-500 GD8MD1AD-LCSD
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 10:51
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**94**	**(75 - 116)**			**SW846 8260B**
	89	**(75 - 116)**	**5.6**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**95**	**(77 - 117)**			**SW846 8260B**
	90	**(77 - 117)**	**5.5**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**97**	**(67 - 125)**			**SW846 8260B**
	87	**(67 - 125)**	**11**	**(0-20)**	**SW846 8260B**
Toluene	**94**	**(74 - 115)**			**SW846 8260B**
	88	**(74 - 115)**	**6.7**	**(0-20)**	**SW846 8260B**
Trichloroethene	**101**	**(80 - 123)**			**SW846 8260B**
	95	**(80 - 123)**	**6.2**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(76 - 116)
	111	(76 - 116)
1,2-Dichloroethane-d4	111	(59 - 129)
	127	(59 - 129)
4-Bromofluorobenzene	104	(74 - 114)
	107	(74 - 114)
Toluene-d8	102	(76 - 116)
	103	(76 - 116)

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 #...: D4D080342 **Work Order #...:** GD8MD1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D150000-500 GD8MD1AD-LCSD
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 10:51
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**10.0**	**9.41**	**ug/L**	**94**		**SW846 8260B**
	10.0	**8.90**	**ug/L**	**89**	**5.6**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.53**	**ug/L**	**95**		**SW846 8260B**
	10.0	**9.03**	**ug/L**	**90**	**5.5**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**9.74**	**ug/L**	**97**		**SW846 8260B**
	10.0	**8.68**	**ug/L**	**87**	**11**	**SW846 8260B**
Toluene	**10.0**	**9.42**	**ug/L**	**94**		**SW846 8260B**
	10.0	**8.81**	**ug/L**	**88**	**6.7**	**SW846 8260B**
Trichloroethene	**10.0**	**10.1**	**ug/L**	**101**		**SW846 8260B**
	10.0	**9.46**	**ug/L**	**95**	**6.2**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(76 - 116)
	111	(76 - 116)
1,2-Dichloroethane-d4	111	(59 - 129)
	127	(59 - 129)
4-Bromofluorobenzene	104	(74 - 114)
	107	(74 - 114)
Toluene-d8	102	(76 - 116)
	103	(76 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DP-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DQ-MSD
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 15:24
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**106**	**(75 - 116)**			**SW846 8260B**
	108	**(75 - 116)**	**2.6**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**101**	**(77 - 117)**			**SW846 8260B**
	94	**(77 - 117)**	**7.8**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**104**	**(67 - 125)**			**SW846 8260B**
	103	**(67 - 125)**	**1.1**	**(0-20)**	**SW846 8260B**
Toluene	**101**	**(74 - 115)**			**SW846 8260B**
	91	**(74 - 115)**	**11**	**(0-20)**	**SW846 8260B**
Trichloroethene	**110**	**(80 - 123)**			**SW846 8260B**
	113	**(80 - 123)**	**2.9**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(76 - 116)
	112	(76 - 116)
1,2-Dichloroethane-d4	110	(59 - 129)
	110	(59 - 129)
4-Bromofluorobenzene	102	(74 - 114)
	94	(74 - 114)
Toluene-d8	96	(76 - 116)
	91	(76 - 116)

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 #...: D4D080342 **Work Order #...:** GDTE91DP-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DQ-MSD
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/14/04 **Analysis Date..:** 04/14/04
Prep Batch #...: 4106500 **Analysis Time..:** 15:24
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	**ND**	**10.0**	**10.6**	**ug/L**	**106**		**SW846 8260B**
	ND	**10.0**	**10.8**	**ug/L**	**108**	**2.6**	**SW846 8260B**
Chlorobenzene	**ND**	**10.0**	**10.1**	**ug/L**	**101**		**SW846 8260B**
	ND	**10.0**	**9.38**	**ug/L**	**94**	**7.8**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**10.0**	**10.4**	**ug/L**	**104**		**SW846 8260B**
	ND	**10.0**	**10.3**	**ug/L**	**103**	**1.1**	**SW846 8260B**
Toluene	**ND**	**10.0**	**10.1**	**ug/L**	**101**		**SW846 8260B**
	ND	**10.0**	**9.06**	**ug/L**	**91**	**11**	**SW846 8260B**
Trichloroethene	**0.22**	**10.0**	**11.2**	**ug/L**	**110**		**SW846 8260B**
	0.22	**10.0**	**11.5**	**ug/L**	**113**	**2.9**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(76 - 116)
	112	(76 - 116)
1,2-Dichloroethane-d4	110	(59 - 129)
	110	(59 - 129)
4-Bromofluorobenzene	102	(74 - 114)
	94	(74 - 114)
Toluene-d8	96	(76 - 116)
	91	(76 - 116)

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 #...: D4D080342 **Work Order #...:** GEA1T1AA **Matrix.....:** WATER
MB Lot-Sample #: D4D160000-264

Prep Date.....: 04/15/04 **Analysis Time..:** 11:46
Analysis Date..: 04/15/04 **Prep Batch #...:** 4107264
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acetone	ND	10	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
2-Butanone (MEK)	ND	5.0	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
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
Chloromethane	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
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	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
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
2-Hexanone	ND	5.0	ug/L	SW846 8260B
Methylene chloride	**0.25 J**	**5.0**	**ug/L**	**SW846 8260B**
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
Styrene	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
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	95	(76 - 116)
1,2-Dichloroethane-d4	85	(59 - 129)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GEA1T1AA **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
4-Bromofluorobenzene	92	(74 - 114)		
Toluene-d8	96	(76 - 116)		

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 #: D4D160000-264 B **Work Order #:** GEA1T1AA **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
unknown		3.1	M	14.972	ug/L
acetic acid,2-ethylhexyl	103-09-3	13	M	15.77	ug/L
unknown		1.9	M	17.346	ug/L

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GEA1T1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D160000-264 GEA1T1AD-LCSD
Prep Date.....: 04/15/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4107264 **Analysis Time..:** 10:54
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**106**	**(75 - 116)**			**SW846 8260B**
	103	**(75 - 116)**	**2.8**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**98**	**(77 - 117)**			**SW846 8260B**
	104	**(77 - 117)**	**5.6**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**99**	**(67 - 125)**			**SW846 8260B**
	95	**(67 - 125)**	**4.0**	**(0-20)**	**SW846 8260B**
Toluene	**96**	**(74 - 115)**			**SW846 8260B**
	103	**(74 - 115)**	**6.7**	**(0-20)**	**SW846 8260B**
Trichloroethene	**99**	**(80 - 123)**			**SW846 8260B**
	97	**(80 - 123)**	**1.3**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(76 - 116)
	97	(76 - 116)
1,2-Dichloroethane-d4	87	(59 - 129)
	84	(59 - 129)
4-Bromofluorobenzene	89	(74 - 114)
	94	(74 - 114)
Toluene-d8	89	(76 - 116)
	91	(76 - 116)

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 #...: D4D080342 **Work Order #...:** GEA1T1AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D160000-264 GEA1T1AD-LCSD
Prep Date.....: 04/15/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4107264 **Analysis Time..:** 10:54
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Benzene	**10.0**	**10.6**	**ug/L**	**106**		**SW846 8260B**
	10.0	**10.3**	**ug/L**	**103**	**2.8**	**SW846 8260B**
Chlorobenzene	**10.0**	**9.81**	**ug/L**	**98**		**SW846 8260B**
	10.0	**10.4**	**ug/L**	**104**	**5.6**	**SW846 8260B**
1,1-Dichloroethene	**10.0**	**9.90**	**ug/L**	**99**		**SW846 8260B**
	10.0	**9.52**	**ug/L**	**95**	**4.0**	**SW846 8260B**
Toluene	**10.0**	**9.62**	**ug/L**	**96**		**SW846 8260B**
	10.0	**10.3**	**ug/L**	**103**	**6.7**	**SW846 8260B**
Trichloroethene	**10.0**	**9.88**	**ug/L**	**99**		**SW846 8260B**
	10.0	**9.75**	**ug/L**	**97**	**1.3**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	98	(76 - 116)
	97	(76 - 116)
1,2-Dichloroethane-d4	87	(59 - 129)
	84	(59 - 129)
4-Bromofluorobenzene	89	(74 - 114)
	94	(74 - 114)
Toluene-d8	89	(76 - 116)
	91	(76 - 116)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: D4D080342 **Work Order #...:** GDQAV1C3-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D070330-009 GDQAV1C4-MSD
Date Sampled...: 04/06/04 13:15 **Date Received..:** 04/07/04
Prep Date.....: 04/15/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4107264 **Analysis Time..:** 13:43
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Benzene	**103**	**(75 - 116)**			**SW846 8260B**
	103	**(75 - 116)**	**0.11**	**(0-20)**	**SW846 8260B**
Chlorobenzene	**104**	**(77 - 117)**			**SW846 8260B**
	107	**(77 - 117)**	**3.2**	**(0-20)**	**SW846 8260B**
1,1-Dichloroethene	**98**	**(67 - 125)**			**SW846 8260B**
	104	**(67 - 125)**	**6.2**	**(0-20)**	**SW846 8260B**
Toluene	**99**	**(74 - 115)**			**SW846 8260B**
	105	**(74 - 115)**	**5.8**	**(0-20)**	**SW846 8260B**
Trichloroethene	**96**	**(80 - 123)**			**SW846 8260B**
	98	**(80 - 123)**	**1.8**	**(0-20)**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(76 - 116)
	93	(76 - 116)
1,2-Dichloroethane-d4	80	(59 - 129)
	83	(59 - 129)
4-Bromofluorobenzene	90	(74 - 114)
	91	(74 - 114)
Toluene-d8	88	(76 - 116)
	86	(76 - 116)

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 #...: D4D080342 **Work Order #...:** GDQAV1C3-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D070330-009 GDQAV1C4-MSD
Date Sampled...: 04/06/04 13:15 **Date Received..:** 04/07/04
Prep Date.....: 04/15/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4107264 **Analysis Time..:** 13:43
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Benzene	**ND**	**10.0**	**10.3**	**ug/L**	**103**		**SW846 8260B**
	ND	**10.0**	**10.3**	**ug/L**	**103**	**0.11**	**SW846 8260B**
Chlorobenzene	**ND**	**10.0**	**10.4**	**ug/L**	**104**		**SW846 8260B**
	ND	**10.0**	**10.7**	**ug/L**	**107**	**3.2**	**SW846 8260B**
1,1-Dichloroethene	**ND**	**10.0**	**9.78**	**ug/L**	**98**		**SW846 8260B**
	ND	**10.0**	**10.4**	**ug/L**	**104**	**6.2**	**SW846 8260B**
Toluene	**ND**	**10.0**	**9.90**	**ug/L**	**99**		**SW846 8260B**
	ND	**10.0**	**10.5**	**ug/L**	**105**	**5.8**	**SW846 8260B**
Trichloroethene	**ND**	**10.0**	**9.62**	**ug/L**	**96**		**SW846 8260B**
	ND	**10.0**	**9.80**	**ug/L**	**98**	**1.8**	**SW846 8260B**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	96	(76 - 116)
	93	(76 - 116)
1,2-Dichloroethane-d4	80	(59 - 129)
	83	(59 - 129)
4-Bromofluorobenzene	90	(74 - 114)
	91	(74 - 114)
Toluene-d8	88	(76 - 116)
	86	(76 - 116)

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 Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GD1F81AA **Matrix.....:** WATER
MB Lot-Sample #: D4D120000-447

Prep Date.....: 04/12/04 **Analysis Time..:** 18:15
Analysis Date..: 04/22/04 **Prep Batch #...:** 4103447
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Acenaphthene	ND	10	ug/L	SW846 8270C
Acenaphthylene	ND	10	ug/L	SW846 8270C
Anthracene	ND	10	ug/L	SW846 8270C
Benzo(a)anthracene	ND	10	ug/L	SW846 8270C
Benzo(b)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(k)fluoranthene	ND	10	ug/L	SW846 8270C
Benzo(ghi)perylene	ND	10	ug/L	SW846 8270C
Benzo(a)pyrene	ND	10	ug/L	SW846 8270C
bis(2-Chloroethoxy) methane	ND	10	ug/L	SW846 8270C
bis(2-Chloroethyl)-ether	ND	10	ug/L	SW846 8270C
bis(2-Ethylhexyl) phthalate	ND	10	ug/L	SW846 8270C
4-Bromophenyl phenyl ether	ND	10	ug/L	SW846 8270C
Butyl benzyl phthalate	ND	10	ug/L	SW846 8270C
Carbazole	ND	10	ug/L	SW846 8270C
4-Chloroaniline	ND	10	ug/L	SW846 8270C
4-Chloro-3-methylphenol	ND	10	ug/L	SW846 8270C
2-Chloronaphthalene	ND	10	ug/L	SW846 8270C
2-Chlorophenol	ND	10	ug/L	SW846 8270C
4-Chlorophenyl phenyl ether	ND	10	ug/L	SW846 8270C
Chrysene	ND	10	ug/L	SW846 8270C
Dibenz(a,h)anthracene	ND	10	ug/L	SW846 8270C
Dibenzofuran	ND	10	ug/L	SW846 8270C
Di-n-butyl phthalate	ND	10	ug/L	SW846 8270C
1,2-Dichlorobenzene	ND	10	ug/L	SW846 8270C
1,3-Dichlorobenzene	ND	10	ug/L	SW846 8270C
1,4-Dichlorobenzene	ND	10	ug/L	SW846 8270C
3,3'-Dichlorobenzidine	ND	50	ug/L	SW846 8270C
2,4-Dichlorophenol	ND	10	ug/L	SW846 8270C
Diethyl phthalate	ND	10	ug/L	SW846 8270C
2,4-Dimethylphenol	ND	10	ug/L	SW846 8270C
Dimethyl phthalate	ND	10	ug/L	SW846 8270C
4,6-Dinitro-2-methylphenol	ND	50	ug/L	SW846 8270C
2,4-Dinitrophenol	ND	50	ug/L	SW846 8270C
2,4-Dinitrotoluene	ND	10	ug/L	SW846 8270C
2,6-Dinitrotoluene	ND	10	ug/L	SW846 8270C

(Continued on next page)

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GD1F81AA **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Di-n-octyl phthalate	ND	10	ug/L	SW846 8270C
Fluoranthene	ND	10	ug/L	SW846 8270C
Fluorene	ND	10	ug/L	SW846 8270C
Hexachlorobenzene	ND	10	ug/L	SW846 8270C
Hexachlorobutadiene	ND	10	ug/L	SW846 8270C
Hexachlorocyclopenta-diene	ND	50	ug/L	SW846 8270C
Hexachloroethane	ND	10	ug/L	SW846 8270C
Indeno(1,2,3-cd)pyrene	ND	10	ug/L	SW846 8270C
Isophorone	ND	10	ug/L	SW846 8270C
2-Methylnaphthalene	ND	10	ug/L	SW846 8270C
2-Methylphenol	ND	10	ug/L	SW846 8270C
4-Methylphenol	ND	10	ug/L	SW846 8270C
Naphthalene	ND	10	ug/L	SW846 8270C
2-Nitroaniline	ND	50	ug/L	SW846 8270C
3-Nitroaniline	ND	50	ug/L	SW846 8270C
4-Nitroaniline	ND	50	ug/L	SW846 8270C
Nitrobenzene	ND	10	ug/L	SW846 8270C
2-Nitrophenol	ND	10	ug/L	SW846 8270C
4-Nitrophenol	ND	50	ug/L	SW846 8270C
N-Nitrosodiphenylamine	ND	10	ug/L	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	10	ug/L	SW846 8270C
2,2'-oxybis(1-Chloropropa	ND	10	ug/L	SW846 8270C
Pentachlorophenol	ND	50	ug/L	SW846 8270C
Phenanthrene	ND	10	ug/L	SW846 8270C
Phenol	ND	10	ug/L	SW846 8270C
Pyrene	ND	10	ug/L	SW846 8270C
1,2,4-Trichloro-benzene	ND	10	ug/L	SW846 8270C
2,4,5-Trichloro-phenol	ND	10	ug/L	SW846 8270C
2,4,6-Trichloro-phenol	ND	10	ug/L	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	69	(32 - 116)
Phenol-d5	68	(40 - 111)
Nitrobenzene-d5	77	(53 - 107)
2-Fluorobiphenyl	72	(31 - 105)
2,4,6-Tribromophenol	82	(42 - 122)
Terphenyl-d14	86	(21 - 125)

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 #: D4D120000-447 B **Work Order #:** GD1F81AA **Matrix:** WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

PARAMETER	CAS #	ESTIMATED RESULT		RETENTION TIME	UNITS
Unknown		140 J	M	2.8526	ug/L

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GD1F81AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D120000-447 GD1F81AD-LCSD
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 16:33
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Acenaphthene	**92**	**(55 - 97)**			**SW846 8270C**
	82	**(55 - 97)**	**12**	**(0-30)**	**SW846 8270C**
4-Chloro-3-methylphenol	**91**	**(59 - 106)**			**SW846 8270C**
	80	**(59 - 106)**	**14**	**(0-40)**	**SW846 8270C**
2-Chlorophenol	**94**	**(59 - 105)**			**SW846 8270C**
	85	**(59 - 105)**	**11**	**(0-40)**	**SW846 8270C**
1,4-Dichlorobenzene	**76**	**(31 - 98)**			**SW846 8270C**
	69	**(31 - 98)**	**8.9**	**(0-40)**	**SW846 8270C**
2,4-Dinitrotoluene	**94**	**(57 - 113)**			**SW846 8270C**
	86	**(57 - 113)**	**9.0**	**(0-40)**	**SW846 8270C**
4-Nitrophenol	**97**	**(43 - 118)**			**SW846 8270C**
	87	**(43 - 118)**	**11**	**(0-40)**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**83**	**(51 - 99)**			**SW846 8270C**
	76	**(51 - 99)**	**8.8**	**(0-40)**	**SW846 8270C**
Pentachlorophenol	**105**	**(48 - 114)**			**SW846 8270C**
	90	**(48 - 114)**	**15**	**(0-40)**	**SW846 8270C**
Phenol	**91**	**(56 - 106)**			**SW846 8270C**
	83	**(56 - 106)**	**9.0**	**(0-40)**	**SW846 8270C**
Pyrene	**94**	**(51 - 103)**			**SW846 8270C**
	84	**(51 - 103)**	**12**	**(0-40)**	**SW846 8270C**
1,2,4-Trichloro-benzene	**80**	**(36 - 99)**			**SW846 8270C**
	71	**(36 - 99)**	**12**	**(0-40)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	84	(54 - 105)
	75	(54 - 105)
Phenol-d5	86	(55 - 106)
	77	(55 - 106)
Nitrobenzene-d5	82	(58 - 108)
	74	(58 - 108)
2-Fluorobiphenyl	83	(53 - 97)
	75	(53 - 97)
2,4,6-Tribromophenol	101	(62 - 113)
	92	(62 - 113)
Terphenyl-d14	94	(55 - 109)

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GD1F81AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D120000-447 GD1F81AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	85	(55 - 109)

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 Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GD1F81AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D120000-447 GD1F81AD-LCSD
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 16:33
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Acenaphthene	**100**	**92.2**	**ug/L**	**92**		**SW846 8270C**
	100	**81.9**	**ug/L**	**82**	**12**	**SW846 8270C**
4-Chloro-3-methylphenol	**150**	**137**	**ug/L**	**91**		**SW846 8270C**
	150	**119**	**ug/L**	**80**	**14**	**SW846 8270C**
2-Chlorophenol	**150**	**142**	**ug/L**	**94**		**SW846 8270C**
	150	**127**	**ug/L**	**85**	**11**	**SW846 8270C**
1,4-Dichlorobenzene	**100**	**75.8**	**ug/L**	**76**		**SW846 8270C**
	100	**69.4**	**ug/L**	**69**	**8.9**	**SW846 8270C**
2,4-Dinitrotoluene	**100**	**94.3**	**ug/L**	**94**		**SW846 8270C**
	100	**86.2**	**ug/L**	**86**	**9.0**	**SW846 8270C**
4-Nitrophenol	**150**	**146**	**ug/L**	**97**		**SW846 8270C**
	150	**131**	**ug/L**	**87**	**11**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**100**	**82.9**	**ug/L**	**83**		**SW846 8270C**
	100	**75.9**	**ug/L**	**76**	**8.8**	**SW846 8270C**
Pentachlorophenol	**150**	**158**	**ug/L**	**105**		**SW846 8270C**
	150	**135**	**ug/L**	**90**	**15**	**SW846 8270C**
Phenol	**150**	**137**	**ug/L**	**91**		**SW846 8270C**
	150	**125**	**ug/L**	**83**	**9.0**	**SW846 8270C**
Pyrene	**100**	**94.4**	**ug/L**	**94**		**SW846 8270C**
	100	**84.1**	**ug/L**	**84**	**12**	**SW846 8270C**
1,2,4-Trichloro-benzene	**100**	**79.9**	**ug/L**	**80**		**SW846 8270C**
	100	**71.1**	**ug/L**	**71**	**12**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	84	(54 - 105)
	75	(54 - 105)
Phenol-d5	86	(55 - 106)
	77	(55 - 106)
Nitrobenzene-d5	82	(58 - 108)
	74	(58 - 108)
2-Fluorobiphenyl	83	(53 - 97)
	75	(53 - 97)
2,4,6-Tribromophenol	101	(62 - 113)
	92	(62 - 113)
Terphenyl-d14	94	(55 - 109)

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GD1F81AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D120000-447 GD1F81AD-LCSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
	85	(55 - 109)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DR-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DT-MSD
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 19:19
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Acenaphthene	**92**	**(50 - 96)**			**SW846 8270C**
	88	**(50 - 96)**	**8.5**	**(0-40)**	**SW846 8270C**
4-Chloro-3-methylphenol	**91**	**(49 - 102)**			**SW846 8270C**
	88	**(49 - 102)**	**7.0**	**(0-40)**	**SW846 8270C**
2-Chlorophenol	**94**	**(49 - 98)**			**SW846 8270C**
	91	**(49 - 98)**	**7.0**	**(0-40)**	**SW846 8270C**
1,4-Dichlorobenzene	**82**	**(41 - 92)**			**SW846 8270C**
	74	**(41 - 92)**	**15**	**(0-30)**	**SW846 8270C**
2,4-Dinitrotoluene	**98**	**(51 - 106)**			**SW846 8270C**
	92	**(51 - 106)**	**10**	**(0-40)**	**SW846 8270C**
4-Nitrophenol	**98**	**(34 - 116)**			**SW846 8270C**
	96	**(34 - 116)**	**6.5**	**(0-40)**	**SW846 8270C**
N-Nitrosodi-n-propyl-amine	**84**	**(46 - 101)**			**SW846 8270C**
	80	**(46 - 101)**	**8.8**	**(0-40)**	**SW846 8270C**
Pentachlorophenol	**108**	**(34 - 116)**			**SW846 8270C**
	107	**(34 - 116)**	**5.5**	**(0-40)**	**SW846 8270C**
Phenol	**93**	**(46 - 98)**			**SW846 8270C**
	90	**(46 - 98)**	**7.0**	**(0-40)**	**SW846 8270C**
Pyrene	**92**	**(39 - 103)**			**SW846 8270C**
	92	**(39 - 103)**	**4.2**	**(0-40)**	**SW846 8270C**
1,2,4-Trichloro-benzene	**84**	**(46 - 92)**			**SW846 8270C**
	78	**(46 - 92)**	**11**	**(0-40)**	**SW846 8270C**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	83	(32 - 116)
	80	(32 - 116)
Phenol-d5	86	(40 - 111)
	85	(40 - 111)
Nitrobenzene-d5	82	(53 - 107)
	82	(53 - 107)
2-Fluorobiphenyl	80	(31 - 105)
	81	(31 - 105)
2,4,6-Tribromophenol	101	(42 - 122)
	97	(42 - 122)

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MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DR-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	91	(21 - 125)
	90	(21 - 125)

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 Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DR-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DT-MSD
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/12/04 **Analysis Date..:** 04/24/04
Prep Batch #...: 4103447 **Analysis Time..:** 19:19
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Acenaphthene	ND	105	96.7	ug/L	92		SW846 8270C
	ND	101	88.9	ug/L	88	8.5	SW846 8270C
4-Chloro-3-methylphenol	ND	157	143	ug/L	91		SW846 8270C
	ND	151	133	ug/L	88	7.0	SW846 8270C
2-Chlorophenol	ND	157	148	ug/L	94		SW846 8270C
	ND	151	138	ug/L	91	7.0	SW846 8270C
1,4-Dichlorobenzene	ND	105	85.6	ug/L	82		SW846 8270C
	ND	101	74.0	ug/L	74	15	SW846 8270C
2,4-Dinitrotoluene	ND	105	103	ug/L	98		SW846 8270C
	ND	101	92.8	ug/L	92	10	SW846 8270C
4-Nitrophenol	ND	157	155	ug/L	98		SW846 8270C
	ND	151	145	ug/L	96	6.5	SW846 8270C
N-Nitrosodi-n-propyl-amine	ND	105	88.4	ug/L	84		SW846 8270C
	ND	101	81.0	ug/L	80	8.8	SW846 8270C
Pentachlorophenol	ND	157	171	ug/L	108		SW846 8270C
	ND	151	161	ug/L	107	5.5	SW846 8270C
Phenol	ND	157	146	ug/L	93		SW846 8270C
	ND	151	136	ug/L	90	7.0	SW846 8270C
Pyrene	ND	105	96.1	ug/L	92		SW846 8270C
	ND	101	92.1	ug/L	92	4.2	SW846 8270C
1,2,4-Trichloro-benzene	ND	105	87.8	ug/L	84		SW846 8270C
	ND	101	78.5	ug/L	78	11	SW846 8270C

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
2-Fluorophenol	83	(32 - 116)
	80	(32 - 116)
Phenol-d5	86	(40 - 111)
	85	(40 - 111)
Nitrobenzene-d5	82	(53 - 107)
	82	(53 - 107)
2-Fluorobiphenyl	80	(31 - 105)
	81	(31 - 105)
2,4,6-Tribromophenol	101	(42 - 122)
	97	(42 - 122)

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DR-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DT-MSD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Terphenyl-d14	91	(21 - 125)
	90	(21 - 125)

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 #...: D4D080342 **Work Order #...:** GDVN41AA **Matrix.....:** WATER
MB Lot-Sample #: D4D090000-216

Prep Date.....: 04/09/04 **Analysis Time..:** 08:55
Analysis Date..: 04/15/04 **Prep Batch #...:** 4100216
Dilution Factor: 1

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Diesel Range Organics	ND	0.25	mg/L	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	82	(46 - 95)

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDVN41AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D090000-216 GDVN41AD-LCSD
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 09:57
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Diesel Range Organics	**80**	**(53 - 107)**			**SW846 8015 MOD**
	90	**(53 - 107)**	**12**	**(0-40)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	73	(42 - 106)
	81	(42 - 106)

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 Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDVN41AC-LCS **Matrix.....:** WATER
LCS Lot-Sample#: D4D090000-216 GDVN41AD-LCSD
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 09:57
Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Diesel Range Organics	**2.00**	**1.60**	**mg/L**	**80**		**SW846 8015 MOD**
	2.00	**1.80**	**mg/L**	**90**	**12**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	73	(42 - 106)
	81	(42 - 106)

NOTE(S):

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

Bold print denotes control parameters

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DM-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DN-MSD
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 12:00
Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Diesel Range Organics	**86**	**(53 - 107)**			**SW846 8015 MOD**
	89	**(53 - 107)**	**2.0**	**(0-40)**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	77	(46 - 95)
	78	(46 - 95)

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 Semivolatiles

Client Lot #...: D4D080342 **Work Order #...:** GDTE91DM-MS **Matrix.....:** WATER
MS Lot-Sample #: D4D080342-002 GDTE91DN-MSD
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04
Prep Date.....: 04/09/04 **Analysis Date..:** 04/15/04
Prep Batch #...: 4100216 **Analysis Time..:** 12:00
Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Diesel Range Organics	**ND**	**1.96**	**1.70**	**mg/L**	**86**		**SW846 8015 MOD**
	ND	**1.94**	**1.73**	**mg/L**	**89**	**2.0**	**SW846 8015 MOD**

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	77	(46 - 95)
	78	(46 - 95)

NOTE(S):

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

Bold print denotes control parameters

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: D4D090000-550 **Prep Batch #...:** 4100550						
Arsenic	ND	5.0	ug/L	SW846 6020	04/12-04/26/04	GDXP61AA
		Dilution Factor: 1				
		Analysis Time..: 22:30				
Cadmium	ND	1.0	ug/L	SW846 6020	04/12-04/26/04	GDXP61AC
		Dilution Factor: 1				
		Analysis Time..: 22:30				
Chromium	**0.57 B**	**2.0**	**ug/L**	**SW846 6020**	**04/12-04/26/04**	**GDXP61AF**
		Dilution Factor: 1				
		Analysis Time..: 22:30				
Lead	ND	1.0	ug/L	SW846 6020	04/12-04/26/04	GDXP61AD
		Dilution Factor: 1				
		Analysis Time..: 22:30				
Selenium	ND	5.0	ug/L	SW846 6020	04/12-04/26/04	GDXP61AE
		Dilution Factor: 1				
		Analysis Time..: 22:30				
MB Lot-Sample #: C4D230000-298 **Prep Batch #...:** 4114298						
Barium	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GERA61AG
		Dilution Factor: 1				
		Analysis Time..: 14:12				
Cobalt	ND	10	ug/L	SW846 6010B	04/09-04/23/04	GERA61AH
		Dilution Factor: 1				
		Analysis Time..: 14:12				
Beryllium	ND	4.0	ug/L	SW846 6010B	04/09-04/23/04	GERA61AA
		Dilution Factor: 1				
		Analysis Time..: 14:12				
Calcium	ND	5000	ug/L	SW846 6010B	04/09-04/23/04	GERA61AC
		Dilution Factor: 1				
		Analysis Time..: 14:12				
Magnesium	ND	5000	ug/L	SW846 6010B	04/09-04/23/04	GERA61AE
		Dilution Factor: 1				
		Analysis Time..: 14:12				

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METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Potassium	ND	5000	ug/L	SW846 6010B	04/09-04/23/04	GERA61AD
		Dilution Factor: 1				
		Analysis Time..: 14:12				
Sodium	ND	5000	ug/L	SW846 6010B	04/09-04/23/04	GERA61AF
		Dilution Factor: 1				
		Analysis Time..: 14:12				

NOTE(S):

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

B Estimated result. Result is less than RL.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: D4D080342 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP-BATCH #
Arsenic	94	(87 - 109)			SW846 6020	04/12-04/26/04	4100550
	96	(87 - 109)	2.4	(0-20)	SW846 6020	04/12-04/26/04	4100550
		Dilution Factor: 1			Analysis Time..: 22:33		
Cadmium	95	(89 - 110)			SW846 6020	04/12-04/26/04	4100550
	96	(89 - 110)	0.40	(0-20)	SW846 6020	04/12-04/26/04	4100550
		Dilution Factor: 1			Analysis Time..: 22:33		
Chromium	105	(89 - 114)			SW846 6020	04/12-04/26/04	4100550
	106	(89 - 114)	1.0	(0-20)	SW846 6020	04/12-04/26/04	4100550
		Dilution Factor: 1			Analysis Time..: 22:33		
Lead	100	(89 - 114)			SW846 6020	04/12-04/26/04	4100550
	103	(89 - 114)	3.1	(0-20)	SW846 6020	04/12-04/26/04	4100550
		Dilution Factor: 1			Analysis Time..: 22:33		
Selenium	86	(82 - 112)			SW846 6020	04/12-04/26/04	4100550
	90	(82 - 112)	4.0	(0-20)	SW846 6020	04/12-04/26/04	4100550
		Dilution Factor: 1			Analysis Time..: 22:33		

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Lot-Sample #...: D4D080342 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Arsenic	40.0	37.6	ug/L	94		SW846 6020	04/12-04/26/04	4100550
	40.0	38.5	ug/L	96	2.4	SW846 6020	04/12-04/26/04	4100550
			Dilution Factor: 1			Analysis Time..: 22:33		
Cadmium	40.0	38.1	ug/L	95		SW846 6020	04/12-04/26/04	4100550
	40.0	38.2	ug/L	96	0.40	SW846 6020	04/12-04/26/04	4100550
			Dilution Factor: 1			Analysis Time..: 22:33		
Chromium	40.0	42.0	ug/L	105		SW846 6020	04/12-04/26/04	4100550
	40.0	42.5	ug/L	106	1.0	SW846 6020	04/12-04/26/04	4100550
			Dilution Factor: 1			Analysis Time..: 22:33		
Lead	40.0	40.0	ug/L	100		SW846 6020	04/12-04/26/04	4100550
	40.0	41.3	ug/L	103	3.1	SW846 6020	04/12-04/26/04	4100550
			Dilution Factor: 1			Analysis Time..: 22:33		
Selenium	40.0	34.5	ug/L	86		SW846 6020	04/12-04/26/04	4100550
	40.0	35.9	ug/L	90	4.0	SW846 6020	04/12-04/26/04	4100550
			Dilution Factor: 1			Analysis Time..: 22:33		

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: C4D230000-298 **Prep Batch #...:** 4114298					
Barium	98	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AP
		Dilution Factor: 1	Analysis Time..: 14:15		
Cobalt	99	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AQ
		Dilution Factor: 1	Analysis Time..: 14:15		
Beryllium	98	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AJ
		Dilution Factor: 1	Analysis Time..: 14:15		
Calcium	103	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AK
		Dilution Factor: 1	Analysis Time..: 14:15		
Potassium	104	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AL
		Dilution Factor: 1	Analysis Time..: 14:15		
Magnesium	103	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AM
		Dilution Factor: 1	Analysis Time..: 14:15		
Sodium	102	(80 - 120)	SW846 6010B	04/09-04/23/04	GERA61AN
		Dilution Factor: 1	Analysis Time..: 14:15		

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: C4D230000-298 **Prep Batch #...:** 4114298							
Barium	2000	1970	ug/L	98	SW846 6010B	04/09-04/23/04	GERA61AP
			Dilution Factor: 1		Analysis Time..: 14:15		
Cobalt	500	493	ug/L	99	SW846 6010B	04/09-04/23/04	GERA61AQ
			Dilution Factor: 1		Analysis Time..: 14:15		
Beryllium	50.0	49.2	ug/L	98	SW846 6010B	04/09-04/23/04	GERA61AJ
			Dilution Factor: 1		Analysis Time..: 14:15		
Calcium	50000	51700	ug/L	103	SW846 6010B	04/09-04/23/04	GERA61AK
			Dilution Factor: 1		Analysis Time..: 14:15		
Potassium	50000	52100	ug/L	104	SW846 6010B	04/09-04/23/04	GERA61AL
			Dilution Factor: 1		Analysis Time..: 14:15		
Magnesium	50000	51500	ug/L	103	SW846 6010B	04/09-04/23/04	GERA61AM
			Dilution Factor: 1		Analysis Time..: 14:15		
Sodium	50000	51100	ug/L	102	SW846 6010B	04/09-04/23/04	GERA61AN
			Dilution Factor: 1		Analysis Time..: 14:15		

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D4D080342-002 **Prep Batch #...:** 4100550							
Arsenic	99	(87 - 109)			SW846 6020	04/12-04/26/04	GDTE91CA
	101	(87 - 109)	0.97	(0-20)	SW846 6020	04/12-04/26/04	GDTE91CC
		Dilution Factor: 5					
		Analysis Time..: 23:00					
Cadmium	94	(89 - 110)			SW846 6020	04/12-04/26/04	GDTE91CD
	97	(89 - 110)	3.0	(0-20)	SW846 6020	04/12-04/26/04	GDTE91CE
		Dilution Factor: 5					
		Analysis Time..: 23:00					
Chromium	100	(89 - 114)			SW846 6020	04/12-04/26/04	GDTE91CK
	102	(89 - 114)	1.5	(0-20)	SW846 6020	04/12-04/26/04	GDTE91CL
		Dilution Factor: 5					
		Analysis Time..: 23:00					
Lead	96	(89 - 114)			SW846 6020	04/12-04/26/04	GDTE91CF
	98	(89 - 114)	1.4	(0-20)	SW846 6020	04/12-04/26/04	GDTE91CG
		Dilution Factor: 5					
		Analysis Time..: 23:00					
Selenium	99	(82 - 112)			SW846 6020	04/12-04/26/04	GDTE91CH
	105	(82 - 112)	2.5	(0-20)	SW846 6020	04/12-04/26/04	GDTE91CJ
		Dilution Factor: 5					
		Analysis Time..: 23:00					
MS Lot-Sample #: D4D080342-002 **Prep Batch #...:** 4114298							
Barium	92	(75 - 125)			SW846 6010B	04/09-04/23/04	GDTE91FK
	89	(75 - 125)	2.9	(0-20)	SW846 6010B	04/09-04/23/04	GDTE91FL
		Dilution Factor: 1					
		Analysis Time..: 14:28					
Cobalt	86	(75 - 125)			SW846 6010B	04/09-04/23/04	GDTE91FM
	85	(75 - 125)	2.2	(0-20)	SW846 6010B	04/09-04/23/04	GDTE91FN
		Dilution Factor: 1					
		Analysis Time..: 14:28					
Beryllium	87	(75 - 125)			SW846 6010B	04/09-04/23/04	GDTE91E6
	85	(75 - 125)	2.4	(0-20)	SW846 6010B	04/09-04/23/04	GDTE91E7
		Dilution Factor: 1					
		Analysis Time..: 14:28					

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MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Calcium	NC	(75 - 125)			SW846 6010B	04/09-04/23/04	GDTE91E8
	NC	(75 - 125)		(0-20)	SW846 6010B	04/09-04/23/04	GDTE91E9
		Dilution Factor: 1					
		Analysis Time..: 14:28					
Magnesium	NC	(75 - 125)			SW846 6010B	04/09-04/23/04	GDTE91FD
	NC	(75 - 125)		(0-20)	SW846 6010B	04/09-04/23/04	GDTE91FE
		Dilution Factor: 1					
		Analysis Time..: 14:28					
Potassium	108	(75 - 125)			SW846 6010B	04/09-04/23/04	GDTE91FA
	98	(75 - 125)	4.1	(0-20)	SW846 6010B	04/09-04/23/04	GDTE91FC
		Dilution Factor: 1					
		Analysis Time..: 14:28					
Sodium	NC	(75 - 125)			SW846 6010B	04/09-04/24/04	GDTE91FF
	NC	(75 - 125)		(0-20)	SW846 6010B	04/09-04/24/04	GDTE91FG
		Dilution Factor: 5					
		Analysis Time..: 12:37					

NOTE(S):

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

NC The recovery and/or RPD were not calculated.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: D4D080342-002 **Prep Batch #...:** 4100550									
Arsenic									
	10	40.0	49.7	ug/L	99		SW846 6020	04/12-04/26/04	GDTE91CA
	10	40.0	50.2	ug/L	101	0.97	SW846 6020	04/12-04/26/04	GDTE91CC
			Dilution Factor: 5						
			Analysis Time..: 23:00						
Cadmium									
	0.36	40.0	38.0	ug/L	94		SW846 6020	04/12-04/26/04	GDTE91CD
	0.36	40.0	39.2	ug/L	97	3.0	SW846 6020	04/12-04/26/04	GDTE91CE
			Dilution Factor: 5						
			Analysis Time..: 23:00						
Chromium									
	9.1	40.0	49.1	ug/L	100		SW846 6020	04/12-04/26/04	GDTE91CK
	9.1	40.0	49.9	ug/L	102	1.5	SW846 6020	04/12-04/26/04	GDTE91CL
			Dilution Factor: 5						
			Analysis Time..: 23:00						
Lead									
	ND	40.0	38.7	ug/L	96		SW846 6020	04/12-04/26/04	GDTE91CF
	ND	40.0	39.2	ug/L	98	1.4	SW846 6020	04/12-04/26/04	GDTE91CG
			Dilution Factor: 5						
			Analysis Time..: 23:00						
Selenium									
	41	40.0	80.9	ug/L	99		SW846 6020	04/12-04/26/04	GDTE91CH
	41	40.0	82.9	ug/L	105	2.5	SW846 6020	04/12-04/26/04	GDTE91CJ
			Dilution Factor: 5						
			Analysis Time..: 23:00						
MS Lot-Sample #: D4D080342-002 **Prep Batch #...:** 4114298									
Barium									
	12	2000	1850	ug/L	92		SW846 6010B	04/09-04/23/04	GDTE91FK
	12	2000	1790	ug/L	89	2.9	SW846 6010B	04/09-04/23/04	GDTE91FL
			Dilution Factor: 1						
			Analysis Time..: 14:28						
Cobalt									
	ND	500	432	ug/L	86		SW846 6010B	04/09-04/23/04	GDTE91FM
	ND	500	423	ug/L	85	2.2	SW846 6010B	04/09-04/23/04	GDTE91FN
			Dilution Factor: 1						
			Analysis Time..: 14:28						

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MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	WORK ORDER #
Beryllium									
	ND	50.0	43.5	ug/L	87		SW846 6010B	04/09-04/23/04	GDTE91E6
	ND	50.0	42.5	ug/L	85	2.4	SW846 6010B	04/09-04/23/04	GDTE91E7
			Dilution Factor: 1						
			Analysis Time..: 14:28						
Calcium									
	270000	50000	324000	ug/L			SW846 6010B	04/09-04/23/04	GDTE91E8
			Qualifiers: NC						
	270000	50000	312000	ug/L			SW846 6010B	04/09-04/23/04	GDTE91E9
			Qualifiers: NC						
			Dilution Factor: 1						
			Analysis Time..: 14:28						
Magnesium									
	360000	50000	427000	ug/L			SW846 6010B	04/09-04/23/04	GDTE91FD
			Qualifiers: NC						
	360000	50000	409000	ug/L			SW846 6010B	04/09-04/23/04	GDTE91FE
			Qualifiers: NC						
			Dilution Factor: 1						
			Analysis Time..: 14:28						
Potassium									
	64000	50000	117000	ug/L	108		SW846 6010B	04/09-04/23/04	GDTE91FA
	64000	50000	113000	ug/L	98	4.1	SW846 6010B	04/09-04/23/04	GDTE91FC
			Dilution Factor: 1						
			Analysis Time..: 14:28						
Sodium									
	1700000	50000	1850000	ug/L			SW846 6010B	04/09-04/24/04	GDTE91FF
			Qualifiers: NC						
	1700000	50000	1790000	ug/L			SW846 6010B	04/09-04/24/04	GDTE91FG
			Qualifiers: NC						
			Dilution Factor: 5						
			Analysis Time..: 12:37						

NOTE(S):

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

NC The recovery and/or RPD were not calculated.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: D4D080342 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N		Work Order #: GEA481AA		MB Lot-Sample #:	D4D160000-422	
	ND	0.10	mg/L	MCAWW 350.1	04/15/04	4107422
		Dilution Factor: 1				
		Analysis Time..: 23:00				
Chloride		Work Order #: GD8FK1AA		MB Lot-Sample #:	D4D120000-615	
	ND	3.0	mg/L	MCAWW 300.0A	04/08/04	4103615
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Cyanide, Total		Work Order #: GD7XG1AA		MB Lot-Sample #:	D4D150000-414	
	ND	0.010	mg/L	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1				
		Analysis Time..: 10:00				
Fluoride		Work Order #: GD8EF1AA		MB Lot-Sample #:	D4D120000-616	
	ND	1.0	mg/L	MCAWW 300.0A	04/08/04	4103616
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Nitrate		Work Order #: GD8HM1AA		MB Lot-Sample #:	D4D120000-613	
	ND	0.50	mg/L	MCAWW 300.0A	04/08/04	4103613
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Phosphate as P, Ortho		Work Order #: GD8J31AA		MB Lot-Sample #:	D4D120000-617	
	ND	0.50	mg/L	MCAWW 300.0A	04/08/04	4103617
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Sulfate		Work Order #: GD8K81AA		MB Lot-Sample #:	D4D120000-614	
	ND	5.0	mg/L	MCAWW 300.0A	04/08/04	4103614
		Dilution Factor: 1				
		Analysis Time..: 15:47				
Total Alkalinity		Work Order #: GD02D1AA		MB Lot-Sample #:	D4D120000-206	
	ND	5.0	mg/L	MCAWW 310.1	04/09/04	4103206
		Dilution Factor: 1				
		Analysis Time..: 23:00				
Total Dissolved Solids		Work Order #: GD2KX1AA		MB Lot-Sample #:	D4D090000-523	
	ND	10	mg/L	MCAWW 160.1	04/09/04	4100523
		Dilution Factor: 1				
		Analysis Time..: 15:30				

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METHOD BLANK REPORT

General Chemistry

Client Lot #...: D4D080342 **Matrix.....:** WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Organic Halogens		Work Order #: GE9LX1AA		MB Lot-Sample #: D4D290000-689		
	ND	10	ug/L	SW846 9020B	04/29/04	4120689
		Dilution Factor: 1				
		Analysis Time..: 12:00				
Total Organic Carbon		Work Order #: GETJX1AA		MB Lot-Sample #: D4D230000-391		
	ND	1.0	mg/L	SW846 9060	04/21-04/22/04	4114391
		Dilution Factor: 1				
		Analysis Time..: 02:00				
Total Sulfide		Work Order #: GD18G1AA		MB Lot-Sample #: D4D120000-699		
	ND	0.050	mg/L	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1				
		Analysis Time..: 14:30				

NOTE(S):

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

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D4D080342 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N		WO#:GEA481AC-LCS/GEA481AD-LCSD LCS Lot-Sample#: D4D160000-422					
	102	(90 - 110)			MCAWW 350.1	04/15/04	4107422
	103	(90 - 110)	0.68	(0-10)	MCAWW 350.1	04/15/04	4107422
		Dilution Factor: 1			Analysis Time..: 23:00		
Chloride		WO#:GD8FK1AC-LCS/GD8FK1AD-LCSD LCS Lot-Sample#: D4D120000-615					
	102	(90 - 110)			MCAWW 300.0A	04/08/04	4103615
	101	(90 - 110)	0.83	(0-10)	MCAWW 300.0A	04/08/04	4103615
		Dilution Factor: 1			Analysis Time..: 15:16		
Cyanide, Total		WO#:GD7XG1AC-LCS/GD7XG1AD-LCSD LCS Lot-Sample#: D4D150000-414					
	101	(89 - 109)			SW846 9012A	04/14-04/15/04	4106414
	100	(89 - 109)	1.1	(0-20)	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1			Analysis Time..: 10:00		
Fluoride		WO#:GD8EF1AC-LCS/GD8EF1AD-LCSD LCS Lot-Sample#: D4D120000-616					
	104	(90 - 110)			MCAWW 300.0A	04/08/04	4103616
	102	(90 - 110)	1.4	(0-10)	MCAWW 300.0A	04/08/04	4103616
		Dilution Factor: 1			Analysis Time..: 15:16		
Nitrate		WO#:GD8HM1AC-LCS/GD8HM1AD-LCSD LCS Lot-Sample#: D4D120000-613					
	98	(90 - 110)			MCAWW 300.0A	04/08/04	4103613
	97	(90 - 110)	0.77	(0-10)	MCAWW 300.0A	04/08/04	4103613
		Dilution Factor: 1			Analysis Time..: 15:16		
Phosphate as P, Ortho		WO#:GD8J31AC-LCS/GD8J31AD-LCSD LCS Lot-Sample#: D4D120000-617					
	98	(90 - 110)			MCAWW 300.0A	04/08/04	4103617
	98	(90 - 110)	0.25	(0-10)	MCAWW 300.0A	04/08/04	4103617
		Dilution Factor: 1			Analysis Time..: 15:16		
Sulfate		WO#:GD8K81AC-LCS/GD8K81AD-LCSD LCS Lot-Sample#: D4D120000-614					
	101	(90 - 110)			MCAWW 300.0A	04/08/04	4103614
	101	(90 - 110)	0.69	(0-10)	MCAWW 300.0A	04/08/04	4103614
		Dilution Factor: 1			Analysis Time..: 15:16		
Total Alkalinity		WO#:GD02D1AC-LCS/GD02D1AD-LCSD LCS Lot-Sample#: D4D120000-206					
	98	(95 - 110)			MCAWW 310.1	04/09/04	4103206
	99	(95 - 110)	0.27	(0-10)	MCAWW 310.1	04/09/04	4103206
		Dilution Factor: 1			Analysis Time..: 23:00		

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LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Lot-Sample #...: D4D080342 **Matrix.....:** WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids		WO#:GD2KX1AC-LCS/GD2KX1AD-LCSD				LCS Lot-Sample#: D4D090000-523	
	104	(86 - 106)			MCAWW 160.1	04/09/04	4100523
	106	(86 - 106)	1.7	(0-20)	MCAWW 160.1	04/09/04	4100523
		Dilution Factor: 1			Analysis Time..: 15:30		
Total Organic Halogens		WO#:GE9LX1AC-LCS/GE9LX1AD-LCSD				LCS Lot-Sample#: D4D290000-689	
	87	(75 - 113)			SW846 9020B	04/29/04	4120689
	93	(75 - 113)	6.7	(0-30)	SW846 9020B	04/29/04	4120689
		Dilution Factor: 1			Analysis Time..: 12:00		
Total Organic Carbon		WO#:GETJX1AC-LCS/GETJX1AD-LCSD				LCS Lot-Sample#: D4D230000-391	
	107	(90 - 110)			SW846 9060	04/21-04/22/04	4114391
	106	(90 - 110)	1.1	(0-10)	SW846 9060	04/21-04/22/04	4114391
		Dilution Factor: 1			Analysis Time..: 02:00		
Total Sulfide		WO#:GD18G1AC-LCS/GD18G1AD-LCSD				LCS Lot-Sample#: D4D120000-699	
	98	(82 - 117)			MCAWW 376.2	04/12/04	4103699
	99	(82 - 117)	1.3	(0-10)	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1			Analysis Time..: 14:30		

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D4D080342 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N			WO#:GEA481AC-LCS/GEA481AD-LCSD			LCS Lot-Sample#: D4D160000-422		
	4.00	4.09	mg/L	102		MCAWW 350.1	04/15/04	4107422
	4.00	4.12	mg/L	103	0.68	MCAWW 350.1	04/15/04	4107422
			Dilution Factor: 1			Analysis Time..: 23:00		
Chloride			WO#:GD8FK1AC-LCS/GD8FK1AD-LCSD			LCS Lot-Sample#: D4D120000-615		
	20.0	20.4	mg/L	102		MCAWW 300.0A	04/08/04	4103615
	20.0	20.3	mg/L	101	0.83	MCAWW 300.0A	04/08/04	4103615
			Dilution Factor: 1			Analysis Time..: 15:16		
Cyanide, Total			WO#:GD7XG1AC-LCS/GD7XG1AD-LCSD			LCS Lot-Sample#: D4D150000-414		
	0.100	0.101	mg/L	101		SW846 9012A	04/14-04/15/04	4106414
	0.100	0.100	mg/L	100	1.1	SW846 9012A	04/14-04/15/04	4106414
			Dilution Factor: 1			Analysis Time..: 10:00		
Fluoride			WO#:GD8EF1AC-LCS/GD8EF1AD-LCSD			LCS Lot-Sample#: D4D120000-616		
	4.00	4.15	mg/L	104		MCAWW 300.0A	04/08/04	4103616
	4.00	4.09	mg/L	102	1.4	MCAWW 300.0A	04/08/04	4103616
			Dilution Factor: 1			Analysis Time..: 15:16		
Nitrate			WO#:GD8HM1AC-LCS/GD8HM1AD-LCSD			LCS Lot-Sample#: D4D120000-613		
	4.00	3.91	mg/L	98		MCAWW 300.0A	04/08/04	4103613
	4.00	3.88	mg/L	97	0.77	MCAWW 300.0A	04/08/04	4103613
			Dilution Factor: 1			Analysis Time..: 15:16		
Phosphate as P, Ortho			WO#:GD8J31AC-LCS/GD8J31AD-LCSD			LCS Lot-Sample#: D4D120000-617		
	4.00	3.94	mg/L	98		MCAWW 300.0A	04/08/04	4103617
	4.00	3.93	mg/L	98	0.25	MCAWW 300.0A	04/08/04	4103617
			Dilution Factor: 1			Analysis Time..: 15:16		
Sulfate			WO#:GD8K81AC-LCS/GD8K81AD-LCSD			LCS Lot-Sample#: D4D120000-614		
	20.0	20.3	mg/L	101		MCAWW 300.0A	04/08/04	4103614
	20.0	20.1	mg/L	101	0.69	MCAWW 300.0A	04/08/04	4103614
			Dilution Factor: 1			Analysis Time..: 15:16		
Total Alkalinity			WO#:GD02D1AC-LCS/GD02D1AD-LCSD			LCS Lot-Sample#: D4D120000-206		
	200	197	mg/L	98		MCAWW 310.1	04/09/04	4103206
	200	197	mg/L	99	0.27	MCAWW 310.1	04/09/04	4103206
			Dilution Factor: 1			Analysis Time..: 23:00		

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: D4D080342 **Matrix.....:** WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids			WO#:GD2KX1AC-LCS/GD2KX1AD-LCSD			LCS Lot-Sample#: D4D090000-523		
	500	519	mg/L	104		MCAWW 160.1	04/09/04	4100523
	500	528	mg/L	106	1.7	MCAWW 160.1	04/09/04	4100523
			Dilution Factor: 1			Analysis Time..: 15:30		
Total Organic Halogens			WO#:GE9LX1AC-LCS/GE9LX1AD-LCSD			LCS Lot-Sample#: D4D290000-689		
	100	87.0	ug/L	87		SW846 9020B	04/29/04	4120689
	100	93.0	ug/L	93	6.7	SW846 9020B	04/29/04	4120689
			Dilution Factor: 1			Analysis Time..: 12:00		
Total Organic Carbon			WO#:GETJX1AC-LCS/GETJX1AD-LCSD			LCS Lot-Sample#: D4D230000-391		
	25.0	26.8	mg/L	107		SW846 9060	04/21-04/22/04	4114391
	25.0	26.6	mg/L	106	1.1	SW846 9060	04/21-04/22/04	4114391
			Dilution Factor: 1			Analysis Time..: 02:00		
Total Sulfide			WO#:GD18G1AC-LCS/GD18G1AD-LCSD			LCS Lot-Sample#: D4D120000-699		
	0.238	0.233	mg/L	98		MCAWW 376.2	04/12/04	4103699
	0.238	0.236	mg/L	99	1.3	MCAWW 376.2	04/12/04	4103699
			Dilution Factor: 1			Analysis Time..: 14:30		

NOTE(S):

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

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N		WO#: GDTE91DU-MS/GDTE91DV-MSD				MS Lot-Sample #: D4D080342-002	
	96	(44 - 130)			MCAWW 350.1	04/15-04/16/04	4107422
	97	(44 - 130)	0.85	(0-30)	MCAWW 350.1	04/15-04/16/04	4107422
		Dilution Factor: 1					
		Analysis Time..: 01:00					
Chloride		WO#: GDRL01AT-MS/GDRL01AU-MSD				MS Lot-Sample #: D4D080225-001	
	104	(80 - 120)			MCAWW 300.0A	04/08/04	4103615
	105	(80 - 120)	0.40	(0-10)	MCAWW 300.0A	04/08/04	4103615
		Dilution Factor: 1					
		Analysis Time..: 17:21					
Chloride		WO#: GDTE91C8-MS/GDTE91C9-MSD				MS Lot-Sample #: D4D080342-002	
	100	(80 - 120)			MCAWW 300.0A	04/08-04/09/04	4103615
	99	(80 - 120)	0.75	(0-10)	MCAWW 300.0A	04/08-04/09/04	4103615
		Dilution Factor: 1					
		Analysis Time..: 04:47					
Cyanide, Total		WO#: GDMQD1C9-MS/GDMQD1DA-MSD				MS Lot-Sample #: D4D060318-001	
	99	(79 - 114)			SW846 9012A	04/14-04/15/04	4106413
	98	(79 - 114)	1.0	(0-20)	SW846 9012A	04/14-04/15/04	4106413
		Dilution Factor: 1					
		Analysis Time..: 10:00					
Cyanide, Total		WO#: GDTE91A8-MS/GDTE91A9-MSD				MS Lot-Sample #: D4D080342-002	
	95	(78 - 120)			SW846 9012A	04/14-04/15/04	4106414
	98	(78 - 120)	2.6	(0-20)	SW846 9012A	04/14-04/15/04	4106414
		Dilution Factor: 1					
		Analysis Time..: 10:00					
Fluoride		WO#: GDTE91DA-MS/GDTE91DC-MSD				MS Lot-Sample #: D4D080342-002	
	99	(80 - 120)			MCAWW 300.0A	04/08-04/09/04	4103616
	98	(80 - 120)	0.49	(0-10)	MCAWW 300.0A	04/08-04/09/04	4103616
		Dilution Factor: 1					
		Analysis Time..: 04:01					
Nitrate		WO#: GDRL01AV-MS/GDRL01AW-MSD				MS Lot-Sample #: D4D080225-001	
	101	(80 - 120)			MCAWW 300.0A	04/08/04	4103613
	101	(80 - 120)	0.59	(0-10)	MCAWW 300.0A	04/08/04	4103613
		Dilution Factor: 1					
		Analysis Time..: 17:21					

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate		WO#: GDTE91DD-MS/GDTE91DE-MSD				MS Lot-Sample #: D4D080342-002	
	105	(80 - 120)			MCAWW 300.0A	04/08-04/09/04	4103613
	104	(80 - 120)	0.43	(0-10)	MCAWW 300.0A	04/08-04/09/04	4103613
		Dilution Factor: 1					
		Analysis Time..: 04:01					
Phosphate as P, Ortho		WO#: GDTE91DF-MS/GDTE91DG-MSD				MS Lot-Sample #: D4D080342-002	
	90	(80 - 120)			MCAWW 300.0A	04/08-04/09/04	4103617
	91	(80 - 120)	0.70	(0-10)	MCAWW 300.0A	04/08-04/09/04	4103617
		Dilution Factor: 1					
		Analysis Time..: 04:47					
Sulfate		WO#: GDRL01AX-MS/GDRL01A0-MSD				MS Lot-Sample #: D4D080225-001	
	102 I	(80 - 120)			MCAWW 300.0A	04/08/04	4103614
	102 I	(80 - 120)	0.29	(0-10)	MCAWW 300.0A	04/08/04	4103614
		Dilution Factor: 1					
		Analysis Time..: 17:21					
Sulfate		WO#: GDTE91DH-MS/GDTE91DJ-MSD				MS Lot-Sample #: D4D080342-002	
	100	(80 - 120)			MCAWW 300.0A	04/08-04/09/04	4103614
	100	(80 - 120)	0.0	(0-10)	MCAWW 300.0A	04/08-04/09/04	4103614
		Dilution Factor: 1					
		Analysis Time..: 06:05					
Total Organic Halogens		WO#: GDTE91C6-MS/GDTE91C7-MSD				MS Lot-Sample #: D4D080342-002	
	85	(75 - 113)			SW846 9020B	04/29/04	4120689
	90	(75 - 113)	4.6	(0-30)	SW846 9020B	04/29/04	4120689
		Dilution Factor: 1					
		Analysis Time..: 12:00					
Total Organic Carbon		WO#: GDTE91CM-MS/GDTE91CN-MSD				MS Lot-Sample #: D4D080342-002	
	107	(85 - 117)			SW846 9060	04/21-04/22/04	4114391
	107	(85 - 117)	0.45	(0-10)	SW846 9060	04/21-04/22/04	4114391
		Dilution Factor: 1					
		Analysis Time..: 03:00					
Total Sulfide		WO#: GDTE91DK-MS/GDTE91DL-MSD				MS Lot-Sample #: D4D080342-002	
	93	(20 - 156)			MCAWW 376.2	04/12/04	4103699
	92	(20 - 156)	0.90	(0-30)	MCAWW 376.2	04/12/04	4103699
		Dilution Factor: 1					
		Analysis Time..: 14:30					

NOTE(S):

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

I Estimated result. Result concentration exceeds the calibration range.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Ammonia as N			WO#: GDTE91DU-MS/GDTE91DV-MSD MS Lot-Sample #: D4D080342-002						
	ND	4.00	3.83	mg/L	96		MCAWW 350.1	04/15-04/16/04	4107422
	ND	4.00	3.86	mg/L	97	0.85	MCAWW 350.1	04/15-04/16/04	4107422
			Dilution Factor: 1						
			Analysis Time..: 01:00						
Chloride			WO#: GDRL01AT-MS/GDRL01AU-MSD MS Lot-Sample #: D4D080225-001						
	11	25.0	37.0	mg/L	104		MCAWW 300.0A	04/08/04	4103615
	11	25.0	37.2	mg/L	105	0.40	MCAWW 300.0A	04/08/04	4103615
			Dilution Factor: 1						
			Analysis Time..: 17:21						
Chloride			WO#: GDTE91C8-MS/GDTE91C9-MSD MS Lot-Sample #: D4D080342-002						
	750	1250	2000	mg/L	100		MCAWW 300.0A	04/08-04/09/04	4103615
	750	1250	1980	mg/L	99	0.75	MCAWW 300.0A	04/08-04/09/04	4103615
			Dilution Factor: 1						
			Analysis Time..: 04:47						
Cyanide, Total			WO#: GDMQD1C9-MS/GDMQD1DA-MSD MS Lot-Sample #: D4D060318-001						
	ND	0.100	0.100	mg/L	99		SW846 9012A	04/14-04/15/04	4106413
	ND	0.100	0.0990	mg/L	98	1.0	SW846 9012A	04/14-04/15/04	4106413
			Dilution Factor: 1						
			Analysis Time..: 10:00						
Cyanide, Total			WO#: GDTE91A8-MS/GDTE91A9-MSD MS Lot-Sample #: D4D080342-002						
	ND	0.100	0.0963	mg/L	95		SW846 9012A	04/14-04/15/04	4106414
	ND	0.100	0.0988	mg/L	98	2.6	SW846 9012A	04/14-04/15/04	4106414
			Dilution Factor: 1						
			Analysis Time..: 10:00						
Fluoride			WO#: GDTE91DA-MS/GDTE91DC-MSD MS Lot-Sample #: D4D080342-002						
	3.4	25.0	28.1	mg/L	99		MCAWW 300.0A	04/08-04/09/04	4103616
	3.4	25.0	28.0	mg/L	98	0.49	MCAWW 300.0A	04/08-04/09/04	4103616
			Dilution Factor: 1						
			Analysis Time..: 04:01						
Nitrate			WO#: GDRL01AV-MS/GDRL01AW-MSD MS Lot-Sample #: D4D080225-001						
	ND	5.00	5.04	mg/L	101		MCAWW 300.0A	04/08/04	4103613
	ND	5.00	5.07	mg/L	101	0.59	MCAWW 300.0A	04/08/04	4103613
			Dilution Factor: 1						
			Analysis Time..: 17:21						

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: D4D080342 **Matrix.....:** WATER
Date Sampled...: 04/05/04 15:00 **Date Received..:** 04/08/04

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Nitrate			WO#: GDTE91DD-MS/GDTE91DE-MSD				MS Lot-Sample #: D4D080342-002		
	22	25.0	47.9	mg/L	105		MCAWW 300.0A	04/08-04/09/04	4103613
	22	25.0	47.7	mg/L	104	0.43	MCAWW 300.0A	04/08-04/09/04	4103613
			Dilution Factor: 1						
			Analysis Time..: 04:01						
Phosphate as P, Ortho			WO#: GDTE91DF-MS/GDTE91DG-MSD				MS Lot-Sample #: D4D080342-002		
	ND	250	226	mg/L	90		MCAWW 300.0A	04/08-04/09/04	4103617
	ND	250	228	mg/L	91	0.70	MCAWW 300.0A	04/08-04/09/04	4103617
			Dilution Factor: 1						
			Analysis Time..: 04:47						
Sulfate			WO#: GDRL01AX-MS/GDRL01A0-MSD				MS Lot-Sample #: D4D080225-001		
	37	25.0	62.0 I	mg/L	102		MCAWW 300.0A	04/08/04	4103614
	37	25.0	62.2 I	mg/L	102	0.29	MCAWW 300.0A	04/08/04	4103614
			Dilution Factor: 1						
			Analysis Time..: 17:21						
Sulfate			WO#: GDTE91DH-MS/GDTE91DJ-MSD				MS Lot-Sample #: D4D080342-002		
	4700	5000	9720	mg/L	100		MCAWW 300.0A	04/08-04/09/04	4103614
	4700	5000	9720	mg/L	100	0.0	MCAWW 300.0A	04/08-04/09/04	4103614
			Dilution Factor: 1						
			Analysis Time..: 06:05						
Total Organic Halogens			WO#: GDTE91C6-MS/GDTE91C7-MSD				MS Lot-Sample #: D4D080342-002		
	44	200	214	ug/L	85		SW846 9020B	04/29/04	4120689
	44	200	224	ug/L	90	4.6	SW846 9020B	04/29/04	4120689
			Dilution Factor: 1						
			Analysis Time..: 12:00						
Total Organic Carbon			WO#: GDTE91CM-MS/GDTE91CN-MSD				MS Lot-Sample #: D4D080342-002		
	2.0	25.0	28.8	mg/L	107		SW846 9060	04/21-04/22/04	4114391
	2.0	25.0	28.7	mg/L	107	0.45	SW846 9060	04/21-04/22/04	4114391
			Dilution Factor: 1						
			Analysis Time..: 03:00						
Total Sulfide			WO#: GDTE91DK-MS/GDTE91DL-MSD				MS Lot-Sample #: D4D080342-002		
	ND	0.476	0.444	mg/L	93		MCAWW 376.2	04/12/04	4103699
	ND	0.476	0.440	mg/L	92	0.90	MCAWW 376.2	04/12/04	4103699
			Dilution Factor: 1						
			Analysis Time..: 14:30						

NOTE(S):

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

I Estimated result. Result concentration exceeds the calibration range.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: D4D080342 **Work Order #...:** GDRL0-SMP **Matrix.....:** WATER
GDRL0-DUP
Date Sampled...: 04/06/04 15:15 **Date Received..:** 04/08/04

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Alkalinity						SD Lot-Sample #:	D4D080225-001	
	89	88	mg/L	1.5	(0-10)	MCAWW 310.1	04/09/04	4103206

Dilution Factor: 1 Analysis Time..: 23:00

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: D4D080342 **Work Order #...:** GDQGA-SMP GDQGA-DUP **Matrix.....:** WATER

Date Sampled...: 04/05/04 16:25 **Date Received..:** 04/07/04

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Total Dissolved Solids						SD Lot-Sample #:	D4D070353-006	
	140	150	mg/L	6.3	(0-20)	MCAWW 160.1	04/09/04	4100523

Dilution Factor: 1 Analysis Time..: 15:30

7.8°C
45-04
PC

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

Project Name & Number: White Sands Missile Range, Ground Water Sampling (86369KY01)

Sampling Location: High Energy Laser System Test Facility (HELSTF), Cleaning Facility

Team Leader: Jeff Langman

PACKING AND SHIPPING DETAILS

Packed and Sealed for Shipping by: Fred Gebhardt

Seal Number: 512586

Delivered to Shipper by: picked up @ Mission Inn

Airbill Number: 842591412940

Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
04/05/04	1450	CFW1	Ground water	12*	E160.1, E300, E310.1, E350.1, E376.2, SW6010 (Ba, Be, Ca, Co, K, Mg, & Na), SW6020 (As, Cd, Cr, Pb, & Se), SW8015 (DRO), SW8260, SW8270, SW9012, SW9020, and SW9060	Environmental Sample
"	1500	CFW1-1	"	36*	"	Environmental Sample plus MS & MSD

Additional Comments: Part of these samples are in another cooler with seal no. 560390.

Please batch the water samples collected April 5 from the HELSTF location into a single STL lot.

CHAIN OF CUSTODY RECORD

Relinquished by (signed)	Received by (signed)	Date	Time
[signature]	to Fed Ex	04/07/04	1200
	[signature]	4/16/04	1015

LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER

Analytical Laboratory:
Severn Trent Lab
4955 Yarrow Street
Arvada, CO 80002
ph: (303) 736-0118

Attention: Susan Decker

Seal Intact upon Receipt: ☐ Yes ☐ No

Condition of Contents

Contents Temperature

Laboratory Project Number

5.3°C
4-8-04
PC

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

Project Name & Number: White Sands Missile Range, Ground Water Sampling (86369KY01)	PACKING AND SHIPPING DETAILS
Sampling Location: High Energy Laser System Test Facility (HELSTF), Cleaning Facility	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 560390
Team Leader: Jeff Langman	Delivered to Shipper by: picked up @ Mission Inn — Airbill Number: 842591412940
	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
04/05/04	1450	CFW1	Ground water	12*	E160.1, E300, E310.1, E350.1, E376.2, SW6010 (Ba, Be, Ca, Co, K, Mg, & Na), SW6020 (As, Cd, Cr, Pb, & Se), SW8015 (DRO), SW8260, SW8270, SW9012, SW9020 and SW9060	Environmental Sample
"	1500	CFW1-1	"	36*	"	Environmental Sample plus MS & MSD
"	1400	CFW1-2	QC Blank	3	SW8260 (only)	Trip blank sample

Additional Comments * Part of these samples are in another cooler with seal no. 512586. This cooler also contains VOC samples for CFW2, CFW3, CFW4, & HMW15.

Please batch the water samples collected April 5 from the HELSTF location into a single STL lot.

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]	4/8/04	1015	Severn Trent Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 736-0118 Attention: Susan Decker	Condition of Contents
					Contents Temperature
					Laboratory Project Number

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

3102.94
4-8-04
TC

Project Name & Number: White Sands Missile Range, Ground Water Sampling (86369KY01)	PACKING AND SHIPPING DETAILS
Sampling Location: High Energy Laser System Test Facility (HELSTF), Cleaning Facility	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 512596
Team Leader: Jeff Langman	Delivered to Shipper by: picked up @ Mission Inn — Airbill Number: 842591412940
	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
04/05/04	1745	CFW2	Ground water	12*	E160.1, E300, E310.1, E350.1, E376.2, SW6010 (Ba, Be, Ca, Co, K, Mg, & Na), SW6020 (As, Cd, Cr, Pb, & Se), SW8015 (DRO), SW8260, SW8270, SW9012, SW9020 and SW9060	Environmental Sample

Additional Comments: The VOC samples are in another cooler with seal no. 560390.

Please batch the water samples collected April 5 from the HELSTF location into a single STL lot.

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	04/07/04	1200	Severn Trent Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 736-0118 Attention: Susan Decker	Condition of Contents
	[signature]	4/8/04	1015		Contents Temperature
					Laboratory Project Number

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

Project Name & Number: White Sands Missile Range, Ground Water Sampling (86369KY01)

Sampling Location: High Energy Laser System Test Facility (HELSTF), Cleaning Facility

Team Leader: Jeff Langman

PACKING AND SHIPPING DETAILS

Packed and Sealed for Shipping by: Fred Gebhardt

Seal Number: 512576

Delivered to Shipper by: picked up @ Mission Inn

Airbill Number: 842591412940

Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
04/05/04	1740	CFW3	Ground water	12*	E160.1, E300, E310.1, E350.1, E376.2, SW6010 (Ba, Be, Ca, Co, K, Mg, & Na), SW6020 (As, Cd, Cr, Pb, & Se), SW8015 (DRO), SW8260, SW8270, SW9012, SW9020 and SW9060	Environmental Sample

Additional Comments: *The VOC samples are in another cooler with seal no. 560390.

Please batch the water samples collected April 5 from the HELSTF location into a single STL lot.

CHAIN OF CUSTODY RECORD

Relinquished by (signed)	Received by (signed)	Date	Time
[signature]	Fed Ex	04/07/04	1200
	[signature]	4/8/04	1015

LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER

Analytical Laboratory:
Severn Trent Lab
4955 Yarrow Street
Arvada, CO 80002
ph: (303) 736-0118

Attention: Susan Decker

Seal Intact upon Receipt: ☐ Yes ☐ No

Condition of Contents:

Contents Temperature:

Laboratory Project Number:

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

1.56

Project Name & Number: White Sands Missile Range, Ground Water Sampling (86369KY01)	PACKING AND SHIPPING DETAILS
Sampling Location: High Energy Laser System Test Facility (HELSTF), Cleaning Facility	Packed and Sealed for Shipping by: Fred Gebhardt — Seal Number: 512566
Team Leader: Jeff Langman	Delivered to Shipper by: picked up @ Mission Inn — Airbill Number: 842591412940
	Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
04/05/04	1555	CFW4	Ground water	12*	E160.1, E300, E310.1, E350.1, E376.2, SW6010 (Ba, Be, Ca, Co, K, Mg, & Na), SW6020 (As, Cd, Cr, Pb, & Se), SW8015 (DRO), SW8260, SW8270, SW9012, SW9020, and SW9060	Environmental Sample

Additional Comments: * The VOC samples are in another cooler with seal no. 560390.

Please batch the water samples collected April 5 from the HELSTF location into a single STL lot.

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	04/05/04	1200	Severn Trent Lab 4955 Yarrow Street Arvada, CO 80002 ph: (303) 736-0118 Attention: Susan Decker	Condition of Contents
	[signature]	4/6/04	1015		Contents Temperature
					Laboratory Project Number

2.3°C, 3.8°C
4-8-04
PC

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

Project Name & Number: White Sands Missile Range, Ground Water Sampling (86369KY01)

Sampling Location: High Energy Laser System Test Facility (HELSTF), Cleaning Facility

Team Leader: Jeff Langman

PACKING AND SHIPPING DETAILS

Packed and Sealed for Shipping by: Fred Gebhardt

Seal Number: 512556

Delivered to Shipper by: picked up @ Mission Inn

Airbill Number: 842591412940

Sampling Status: ☐ Done ☒ Continuing

Sample Date	Sample Time	Field Sample Number	Sample Type	No. of Containers	Analytical Methods (Parameters)	Remarks
04/05/04	1725	HMW15	Ground water	12*	E160.1, E300, E310.1, E350.1, E376.2, SW6010 (Ba, Be, Ca, Co, K, Mg, & Na), SW6020 (As, Cd, Cr, Pb, & Se), SW8015 (DRO), SW8260, SW8270, SW9012, SW9020 and SW9060	Environmental Sample

I-60

Additional Comments: * The VOC samples are in another cooler with seal no. 560390.

Please batch the water samples collected April 5 from the HELSTF location into a single STL lot.

CHAIN OF CUSTODY RECORD

Relinquished by (signed)	Received by (signed)	Date	Time
Ralph Wilcox	to Fed Ex	04/07/04	1200
	[illegible]	4/8/04	1015

LABORATORY LOG-IN OF SAMPLE SHIPPING CONTAINER

Analytical Laboratory:
Severn Trent Lab
4955 Yarrow Street
Arvada, CO 80002
ph: (303) 736-0118

Attention: Susan Decker

Seal Intact upon Receipt: ☐ Yes ☐ No

Condition of Contents:

Contents Temperature:

Laboratory Project Number:

92

200

FedEx Express *USA Airbill*

FedEx Tracking Number 8425 9141 2940

1 From This portion can be removed for Recipient's records.

Date 4-7-04 FedEx Tracking Number 842591412940

Sender's Name Ralph Orr

Phone

Company US GEOLOGICAL SURVEY

Address 2327 MONTGOMERY RD NE STE 400

City ALBUQUERQUE State NM ZIP 87109-1142

Dept./Floor/Suite/Room

2 Your Internal Billing Reference 2004KRPO

3 To

Recipient's Name Sam Dale

Phone

Company Mvcon Tech Lab

Address

To "HOLD" at FedEx location, print FedEx address.

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address 4255 Vasco St

City Aurora State CO ZIP 80012

Dept./Floor/Suite/Room

8425 9141 2940

RECIPIENT: PEEL HERE

NO POUCH NEEDED

See back for peel and stick application instructions

0215

Recipient's Copy

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- [x] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

*Call for Confirmation: _____

5 Packaging — *Declared value limit $500

- [ ] FedEx Envelope*
- [x] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [x] Other

6 Special Handling

- [ ] **SATURDAY Delivery** — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] **HOLD Weekday** at FedEx Location — Not available for FedEx First Overnight
- [ ] **HOLD Saturday** at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods?

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 _____ x _____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:*

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Total Packages 9 Total Weight [redacted] Total Charges

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

Credit Card Auth.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

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STL Denver

Sample Receiving Checklist

Lot #: D4D080342 Date/Time Received: 4/8/04 1015

Company Name & Sampling Site: USGS- HELSTF

*Cooler #(s): 1 2 3 4

Temperatures (°C): 2.8 5.3 3.1 4.1

PM to Complete This Section: *Yes* *No* *Yes* *No*

Residual chlorine check required: ☐ ☒ Quarantined : ☐ ☒ HELSTF

Time Zone: 24682

• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking & Labeling Check Points:

N/A	Yes	No		Initials
☐	☒	☐	1. Cooler seals intact. (N/A if hand delivered)	DS
	☒	☐	2. Chain of custody present.	
☐	☐	☒	3. Bottles broken and/or are leaking, comment if yes.	
	☒	☐	4. Multiphase samples present? If yes, comment below.	
			PHOTOGRAPH BROKEN BOTTLES/MULTIPHASE SAMPLES	
	☒	☐	5. Proper container & preservatives used (ref. Attachment D of SOP# DEN-QA-0003)	
☐	☒	☐	6. pH of all samples checked and meet requirements, note exceptions.	
	☒	☐	7. Chain of custody includes "received by" and "relinquished" by signatures, dates, and times.	
	☒	☐	8. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
	☒	☐	9. Chain of custody agrees with bottle count, comment if no.	
	☒	☐	10. Chain of custody agrees with labels, comment if no.	
☐	☒	☐	11. VOA samples filled completely, comment if no.	
☐	☒	☐	12. VOA vials preserved, check label. Preservative ☒HCl ☒4±2°C ☐Sodium Thiosulfate	
	☐	☒	13. Did samples require preservation with sodium thiosulfate?	
☒	☐	☐	14. If yes to #13, did the samples contain residual chlorine?	
☒	☐	☐	15. Sediment present in dissolved/filtered bottles.	
	☒	☐	16. Are analyses with short holding times requested?	
	☐	☒	17. Was a quick Turn Around (TAT) requested?	
☐	☒	☐	18. Is extra sample volume provided for MS, MSD or matrix duplicates?	
			DOUBLECHECK METALS,SAMPLE LABELS & SUBCONTRACT	
☒	☐	☐	19. Subcontract COC signed and sent with samples to bottle prep?	
	☒	☐	20. Were sample labels double-checked by a second person?	AL
☒	☐	☐	21. Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	DS
☒	☐	☐	22. If applicable, were AFCEE Metals placed in the walkin refrigerator?	
☐	☒	☐	23. Were special instructions read and followed?	

Document any problems or discrepancies and the actions take : them on a Condition Upon Receipt Anomaly Report (CUR).

APPENDIX III

Container and Preservation Requirements

And Field Data

Sample container and preservation requirements

Parameters and Methods	Bottle Size and Type	Preservatives
Volatile Organic Compounds SW8260B	Three 40 ml glass vials	200 mL 50% Hydrochloric Acid, Chilled
Semivolatile Compounds SW8270C	Two 1-liter amber glass	None, Chilled
Extractable Petroleum Hydrocarbons SW8015-Modified	Two 1-liter amber glass	None, Chilled
Metals: Ba, Be, Ca, Co, Mg, K, Na by SW6010B: As, Cd, Cr, Pb, Se by SW6020	500 mL polyethylene	10 ml 20% Nitric Acid, pH<2
Fluoride, chloride, nitrate, orthophosphate, sulfate by MCAWW300.0A; TDS by MCAWW160.1, and alkalinity by MCAWW310.1	1-liter polyethylene	None, Chilled
Total Organic Carbon SW9060, Ammonia MCAWW350.1	250 mL amber glass	2 ml 50% Sulfuric Acid, Chilled, pH<2
Total Organic Halogen SW9020B	250 mL amber glass	4 ml 50% Sulfuric Acid, Chilled, pH<2
Total Cyanide SW9012A	250 mL polyethylene	2 ml 50% Sodium Hydroxide, Chilled, pH>12
Sulfide MCAWW376.2	250 mL polyethylene	1 ml 1N Zinc Acetate, plus 1 ml 50% Sodium Hydroxide, Chilled, pH>9

05 April 2004 (Monday)

1315 Arrive @ well CFW1. Field crew:
Ralph Wilcox
R.K. DeWees
Fred Gebhardt
Jeff Langman
Paul Blanchard

DeWees, Gebhardt, & Wilcox received HELSTF safety briefing from Debbie Williams earlier. Langman & Blanchard are being briefed now.

1300- FRED AND PAUL COLLECTED WL FROM ALL WELLS

1310- LANGMAN SETUP ON CFW-4
CALIBRATION OF PROBES

pH: ORION 250A, SN 012941, 2-PT AUTO CAL
INITIAL= 7.24, ADJ= 7.04 (7.0 STD ~~LOT~~)
" = 10.32, " = 10.15 (10.0 STD)
SLOPE= 98.9 AT 12.5°C

COND: ORION 130A, SN 1348654, 1-PT MANUAL CAL
INITIAL= 9,830 µS/cm, ADJ= 10,000 (10,000 STD, LOT 04004) EXP 10-04
CELL= 0.633

DO: YSI 95, SN 99A0237 AUTO CAL AT
4500' ELEV AND 10 PPT SALINITY

4/5/04

CFW-3: PRODUCT AT 42.43' BELOW TOC, WL= 46.46', HNU= 4ppm

CFW-4

TIME	GAL VOL	pH	°C TEMP	mS/cm COND	mg/L DO
1430	<1	6.97	21.1	10.14	2.14
1440	5	6.88	22.0	9.94	1.33
1450	10	6.92	22.0	10.35	1.21
1500	15	6.97	21.8	10.83	1.26
1510	20	7.01	21.8	11.11	1.42
1520	25	7.02	21.8	11.32	1.48
1530	30	7.05	21.8	11.41	1.52
1540	35	7.07	21.9	11.41	1.54
1550	40	7.08	21.9	11.44	1.50

1555 - COLLECTED ENV GW SAMPLE AT CFW-4

HMW-15 WL= 50.07' BELOW TOC

TIME	GALS VOL	pH	°C TEMP	mS/cm COND	mg/L DO
1630	<1	7.49	19.7	14.50	4.09
1640	2.5	7.52	19.6	14.60	4.27
1650	5.0	7.52	19.5	15.14	4.34
1657	7.5	7.52	19.4	15.14	4.35
1705	10	7.52	19.4	15.25	4.51
1715	12.5	7.52	19.2	15.42	4.65
1720	15.0	7.53	19.1	15.40	4.68

1725 COLLECTED ENV. GW AT HMW-15

5 April 2004 (Monday)

Calibrated field meters: used by Wilcox @ CFW1 & CFW2

pH: (Orion 250A+, serial no. 014709)

initial 10.21, 7.17, & 4.14
adjusted 10.16, 7.05, & 4.00
slope 98.1
buffer temp. 11.5 °C

conductivity (Orion 130A, serial no. 60584)

initial 10,070 µS/cm @ cc 0.473
adjusted 9,990 µS/cm @ cc 0.470
std. 10,000 µS/cm, lot 04005, discard after 01-05
std temp. 12.7°C

D.O. (YSI 95, serial no. 01G1194)
elev. 4,300
salinity 8 ppt
49.6% sat., 5.30 mg/L

Meters below used @ CFW3 by Gebhardt

pH (Orion 250A, serial no. 012942)

initial 9.92 & 7
adjusted 10.17 & 7.05
slope 97.7
buffer temp. 10.4°C

conductivity (Orion 130A, serial 1348625)
initial 9.96 mS/cm @ cc. o.
adjusted 10.01 mS/cm @ cc o.
12.5°C
same std. as conductivity meter on previous page.

CFW1

time	vol.	temp.	pH	cond.	D.O.
1346	~1/2 gal	20.1°C	6.92	9.73 mS/cm	0.80 mg/L
1354	5	21.5	6.93	9.19	0.46
1401	10	21.6	6.92	9.36	0.66
1408	15	21.6	6.91	9.54	0.74
1415	20	21.6	6.91	9.69	0.83
1423	25	21.6	6.93	9.82	0.97
1429	30	21.6	6.94	9.88	1.08
1437	35	21.7	6.96	9.91	1.22
1444	40	21.7	6.96	9.94	1.31

1450 Collected CFW1 w/ MS & MSD.

1500 Collected CFW1-1 (duplicate)

Trip blank CFW1-2 @ 1400

RK Water Levels prior to purging:

CFW2 47.77' TOC HNU 1.0
no product

CFW1 45.40' HNU 0.0
no product

CFW4 46.37' HNU 0.0
no product

1625 Set up @ well CFW2.

1635 Pulled bladder pump, bottom check ball stuck.

CFW2

time	vol.	temp.	pH	cond.	D.O.
1645	5 gal	22.0°C	6.75	9.97 mS/cm	0.89 mg/L
	Water is dark gray.				
1652	10	22.0	6.79	10.00	1.12
1658	15	21.9	6.84	10.04	1.22
1706	20	22.0	6.88	10.05	1.23
1712	25	21.9	6.91	10.09	1.27
1720	30	21.9	6.95	10.10	1.27
1726	35	21.9	6.97	10.11	1.24
1732	40	21.9	7.00	10.13	1.25

1745 Collected sample CFW2.

4/5/04

CFW-3 (FEG)

TIME	VOL	TEMP	pH	COND
1447	INITIAL	20.5	6.62	8250
1527	3.0	20.9	6.48	7680
1537	5.0	21.1	6.67	7980
1635	7.0	21.6	7.00	8410

1740 SAMPLE COLLECTED.