

STL St. Louis
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ANALYTICAL REPORT

PROJECT NO. ERDF GW MONITOR

B03-018

Lot #: F5C240385

SDG #: W04527

Joan Kessner

Bechtel Hanford, Inc.
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

SEVERN TRENT LABORATORIES, INC.

MARTI WARD
Project Manager

April 26, 2005

Case Narrative
LOT NUMBER: F5C240385
SDG: W04527

This report contains the analytical results for the two samples received under chain of custody by STL St. Louis on March 24, 2005. These samples are associated with your B03-018 SAF.

All applicable quality control procedures met method-specified acceptance criteria except as noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditations are held by STL-St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report. This report is incomplete without the case narrative. All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt. The condition upon receipt was emailed on 3/29/05. The cooler was received at 2 degrees C.

Volatiles

The surrogate recovery for "4-Bromofluorobenzene" is outside the upper QC limit, indicating a potential positive bias. There were no target analytes associated with this surrogate observed above the reporting limit in the sample; therefore the sample data was not adversely affected by this excursion. The original sample results are provided. The recovery of this surrogate in the MS/MSD met criteria.

The MS/MSD RPDs for some compounds (Acetone, 2-Butanone) are not within method acceptance criteria. MS/MSD recoveries for these compounds are within QC limits demonstrating good extraction performance in the sample matrix. No further action is required.

Metals (total and filtered)

There were no comments or non-conformances associated with this data.

Wet Chemistry

There were no comments or non-conformances associated with this data.

SAMPLE SUMMARY

F5C240385

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
G6063	001	B1CD01	03/23/05	12:27
G6064	002	B1CD02	03/23/05	12:27

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.

METHODS SUMMARY

F5C240385

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Alkalinity	MCAWW 310.1	MCAWW 310.1
Chloride	MCAWW 300.0A	MCAWW 300.0A
Filterable Residue (TDS)	MCAWW 160.1	MCAWW 160.1
Fluoride	MCAWW 300.0A	MCAWW 300.0A
Nitrate as N	MCAWW 300.0A	MCAWW 300.0A
Nitrate-Nitrite	MCAWW 353.1	
Nitrite as N	MCAWW 300.0A	MCAWW 300.0A
Sulfate	MCAWW 300.0A	MCAWW 300.0A
Total Organic Halogens	SW846 9020B	SW846 9020B
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3010A
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.

LO# W04527

WR 5604

37165

STL ST. LOUIS

PNNL W04527	<h2 style="margin: 0;">CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</h2>	C.O.C.# B03-018-103
Page 1 of 1		

Collector R.T. SICKLE	Contact/Requester JH KESSNER	Telephone No. MSIN FAX 509-375-4688
SAF No. B03-018	Sampling Origin HANEFORD SITE	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	Method of Shipment DTS-SAW3-189	Ice Chest No. Temp. 5AW3219
Shipped To (Lab) Severn Trent St. Louis	Priority: 45 Days	Bill of Lading/Air Bill No. 7909-5288-1246
Protocol GPP	Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Batch all PNNL GW samples submitted under this SAF into one SDG, not to exceed SDG closure of 14 days. Submit invoices & deliverables to JH Kessner (fax 509-372-9609)
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1CD01 (F)		W	3-23-05	1227	1x500-mL G/P	6010_METALS_ICP: List-3 (6)	HNO3 to pH <2
B1CD02		W	↓	↓	4x40-mL aGs*	8280_VOA_GCMS: List-2 (26)	HCl or H2SO4 to pH <2 Cool 4C
B1CD02		W			1x500-mL G/P	6010_METALS_ICP: List-3 (6)	HNO3 to pH <2
B1CD02		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1CD02		W			1x500-mL G/P	310.1_ALKALINITY: Alkalinity (1)	Cool 4C
B1CD02		W			1x500-mL G/P	353.1_NO3/NO2: Nitrate/Nitrite (1)	H2SO4 to pH <2 Cool 4C
B1CD02		W			1x20-mL P	Activity Scan	None
B1CD02		W			1x500-mL G/P	160.1_TDS: TDS (1)	Cool 4C
B1CD02		W			1x1000-mL aGs*	9020_TOX: TOX (1)	H2SO4 to pH <2 Cool 4C

Relinquished By R.T. SICKLE	Date/Time MAR 23 2005	Received By Kal EX	Date/Time 3/24/05 0915	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water I = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By FEO	Date/Time	Received By B-D-g	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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30



Lot No: F5C240385
W04527

Condition Upon Receipt Form
St. Louis Laboratory

Client: STL Richland
Quote No: 63660
Shipper/No: FE/790957881246

Date: 3/24/05 Time: 0915
Initiated by: DO
COC/RFA Numbers: B03-018-103

Condition/Variance (Circle "Y" for yes, "N" for no and "N/A" for not applicable):

1.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in undamaged condition?	7.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received with Chain of Custody?
2.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received within $4C \pm 2C^*$?	8.	<input checked="" type="radio"/> Y <input type="radio"/> N	Chain of Custody matches sample IDs on containers?
		Record <u>20</u>	9.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Custody seal received intact on cooler.?
3.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Sample received with proper pH ¹ ?	10.	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Custody seal tamper evident on cooler.?
4.	<input checked="" type="radio"/> Y <input type="radio"/> N	If N/A - Was pH taken by original STL lab?	11.	<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> N/A	Custody seal on bottles received intact?
5.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample received in proper containers?	12.	<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> N/A	Custody seal tamper evident on bottles?
6.	<input checked="" type="radio"/> Y <input type="radio"/> N	Sample volume sufficient for analysis?	13.	<input type="radio"/> Y <input type="radio"/> N	Was CUR (equivalent) rec' d from original STL lab?

* Temperature Variance Does Not Affect the Following Analyses: _____

¹For DOE-AL (Pantex, LANL, Sandia) sites, verify pH all containers received, except for VOA, TOX, and soils.

Notes:

Corrective Action:

- Client's Name: _____ Informed by: _____ By: _____
- Sample(s) processed "as is". _____
- Sample(s) on hold until: _____ If released, notify: _____

Project Management Review: mwaid Date: 3.28.05

THIS FORM MUST BE COMPLETED AT THE TIME THE ITEMS ARE BEING CHECKED
IF ANY ITEM IS COMPLETED BY SOMEONE OTHER THAN THE INITIATOR, THEN THAT PERSON IS REQUIRED TO APPLY THEIR
INITIALS AND THE DATE NEXT TO THAT ITEM

5656

ADMIN-0004, Revised 2/17/04
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VOLATILES

Bechtel Hanford, Inc.

Client Sample ID: B1CD02

GC/MS Volatiles

Lot-Sample #....: F5C240385-002 Work Order #....: G60641AK Matrix.....: WATER
 Date Sampled....: 03/23/05 Date Received...: 03/24/05
 Prep Date.....: 04/01/05 Analysis Date...: 04/01/05
 Prep Batch #....: 5094096
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
1,4-Dioxane	ND	80	ug/L	2.6
1-Butanol	ND	40	ug/L	1.1
Ethylbenzene	ND	1.0	ug/L	0.070
Vinyl chloride	ND	2.0	ug/L	0.070
Acetone	ND	2.0	ug/L	0.21
Methylene chloride	ND	1.0	ug/L	0.12
Carbon disulfide	ND	1.0	ug/L	0.25
1,1-Dichloroethene	ND	1.0	ug/L	0.040
1,1-Dichloroethane	ND	1.0	ug/L	0.070
2-Butanone	ND	5.0	ug/L	0.33
Chloroform	0.97 J	1.0	ug/L	0.070
cis-1,2-Dichloroethene	ND	1.0	ug/L	0.27
Propionitrile	ND	5.0	ug/L	0.88
trans-1,2-Dichloroethene	ND	1.0	ug/L	0.080
1,1,1-Trichloroethane	ND	1.0	ug/L	0.080
Carbon tetrachloride	4.1	1.0	ug/L	0.090
1,2-Dichloroethane	ND	1.0	ug/L	0.090
Benzene	ND	1.0	ug/L	0.050
Trichloroethene	ND	1.0	ug/L	0.13
4-Methyl-2-pentanone	ND	5.0	ug/L	0.10
1,1,2-Trichloroethane	ND	1.0	ug/L	0.070
Tetrachloroethene	ND	1.0	ug/L	0.10
Tetrahydrofuran	ND	10	ug/L	1.2
Xylenes (total)	ND	3.0	ug/L	0.13
1,4-Dichlorobenzene	ND	1.0	ug/L	0.090
Toluene	ND	1.0	ug/L	0.080

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	120	(75 - 126)
Dibromofluoromethane	106	(60 - 147)
1,2-Dichloroethane-d4	109	(71 - 138)
4-Bromofluorobenzene	133 *	(71 - 117)

NOTE (S) :

* Surrogate recovery is outside stated control limits.

J Estimated result. Result is less than RL.

Bechtel Hanford, Inc.

B1CD02

GC/MS Volatiles

Lot-Sample #: F5C240385-002

Work Order #: G60641AK

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F5C240385 Work Order #...: G60641A4-MS Matrix.....: WATER
 MS Lot-Sample #: F5C240385-002 G60641A5-MSD
 Date Sampled...: 03/23/05 Date Received...: 03/24/05
 Prep Date.....: 04/01/05 Analysis Date...: 04/01/05
 Prep Batch #...: 5094096
 Dilution Factor: 1

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT		METHOD
					RECVRY	RPD	
Ethylbenzene	ND	10.0	8.52	ug/L	85		SW846 8260B
	ND	10.0	10.1	ug/L	101	17	SW846 8260B
Vinyl chloride	ND	10.0	7.90	ug/L	79		SW846 8260B
	ND	10.0	9.14	ug/L	91	15	SW846 8260B
Acetone	ND	10.0	5.99	ug/L	60		SW846 8260B
	ND	10.0	7.75	ug/L	78 p	26	SW846 8260B
Methylene chloride	ND	10.0	6.69	ug/L	67		SW846 8260B
	ND	10.0	7.94	ug/L	79	17	SW846 8260B
Carbon disulfide	ND	10.0	8.53	ug/L	85		SW846 8260B
	ND	10.0	9.60	ug/L	96	12	SW846 8260B
1,1-Dichloroethene	ND	10.0	7.63	ug/L	76		SW846 8260B
	ND	10.0	8.62	ug/L	86	12	SW846 8260B
1,1-Dichloroethane	ND	10.0	9.00	ug/L	90		SW846 8260B
	ND	10.0	10.4	ug/L	104	14	SW846 8260B
2-Butanone	ND	10.0	6.71	ug/L	67		SW846 8260B
	ND	10.0	8.87	ug/L	89 p	28	SW846 8260B
Chloroform	0.97	10.0	9.26	ug/L	83		SW846 8260B
	0.97	10.0	10.7	ug/L	97	15	SW846 8260B
cis-1,2-Dichloroethene	ND	10.0	8.60	ug/L	86		SW846 8260B
	ND	10.0	9.99	ug/L	100	15	SW846 8260B
trans-1,2-Dichloroethene	ND	10.0	8.09	ug/L	81		SW846 8260B
	ND	10.0	9.10	ug/L	91	12	SW846 8260B
1,1,1-Trichloroethane	ND	10.0	8.48	ug/L	85		SW846 8260B
	ND	10.0	9.46	ug/L	95	11	SW846 8260B
Carbon tetrachloride	4.1	10.0	12.3	ug/L	82		SW846 8260B
	4.1	10.0	13.5	ug/L	94	9.4	SW846 8260B
1,2-Dichloroethane	ND	10.0	8.56	ug/L	86		SW846 8260B
	ND	10.0	10.1	ug/L	101	17	SW846 8260B
Benzene	ND	10.0	9.03	ug/L	90		SW846 8260B
	ND	10.0	10.5	ug/L	105	15	SW846 8260B
Trichloroethene	ND	10.0	7.86	ug/L	79		SW846 8260B
	ND	10.0	8.85	ug/L	88	12	SW846 8260B
4-Methyl-2-pentanone	ND	10.0	7.94	ug/L	79		SW846 8260B
	ND	10.0	9.40	ug/L	94	17	SW846 8260B
1,1,2-Trichloroethane	ND	10.0	8.66	ug/L	87		SW846 8260B
	ND	10.0	10.6	ug/L	106	20	SW846 8260B
Tetrachloroethene	ND	10.0	6.28	ug/L	63		SW846 8260B
	ND	10.0	7.34	ug/L	73	16	SW846 8260B
1,4-Dichlorobenzene	ND	10.0	8.25	ug/L	83		SW846 8260B
	ND	10.0	9.63	ug/L	96	15	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F5C240385 Work Order #...: G60641A4-MS Matrix.....: WATER
 MS Lot-Sample #: F5C240385-002 G60641A5-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Toluene	ND	10.0	8.95	ug/L	90		SW846 8260B
	ND	10.0	10.4	ug/L	104	15	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Toluene-d8	107	(75 - 126)
	103	(75 - 126)
Dibromofluoromethane	99	(60 - 147)
	100	(60 - 147)
1,2-Dichloroethane-d4	102	(71 - 138)
	109	(71 - 138)
4-Bromofluorobenzene	109	(71 - 117)
	104	(71 - 117)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters
 p Relative percent difference (RPD) is outside stated control limits.

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F5C240385
 MB Lot-Sample #: F5D040000-096

Work Order #...: G7LAJ1AA

Matrix.....: WATER

Prep Date.....: 04/01/05

Analysis Date...: 04/01/05

Prep Batch #...: 5094096

Dilution Factor: 1

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
1-Butanol	ND	40	ug/L	SW846 8260B
1,4-Dioxane	ND	80	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	2.0	ug/L	SW846 8260B
Acetone	ND	2.0	ug/L	SW846 8260B
Methylene chloride	ND	1.0	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	5.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
cis-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
Propionitrile	ND	5.0	ug/L	SW846 8260B
trans-1,2-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	5.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
Tetrahydrofuran	ND	10	ug/L	SW846 8260B
Xylenes (total)	ND	3.0	ug/L	SW846 8260B
1,4-Dichlorobenzene	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Toluene-d8	100	(75 - 126)
Dibromofluoromethane	90	(60 - 147)
1,2-Dichloroethane-d4	98	(71 - 138)
4-Bromofluorobenzene	111	(71 - 117)

NOTE (S) :

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

Bechtel Hanford, Inc.

Method Blank Report

GC/MS Volatiles

Lot-Sample #: F5D040000-096 B Work Order #: G7LAJ1AA

Matrix: WATER

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

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

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F5C240385 Work Order #...: G7LAJ1AC Matrix.....: WATER
 LCS Lot-Sample#: F5D040000-096
 Prep Date.....: 04/01/05 Analysis Date...: 04/01/05
 Prep Batch #...: 5094096
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCENT RECOVERY</u>	<u>METHOD</u>
Ethylbenzene	10.0	10.1	ug/L	101	SW846 8260B
Vinyl chloride	10.0	9.47	ug/L	95	SW846 8260B
Acetone	10.0	10.2	ug/L	102	SW846 8260B
Methylene chloride	10.0	9.86	ug/L	99	SW846 8260B
Carbon disulfide	10.0	10.3	ug/L	103	SW846 8260B
1,1-Dichloroethene	10.0	9.37	ug/L	94	SW846 8260B
1,1-Dichloroethane	10.0	10.6	ug/L	106	SW846 8260B
2-Butanone	10.0	10.1	ug/L	101	SW846 8260B
Chloroform	10.0	9.97	ug/L	100	SW846 8260B
cis-1,2-Dichloroethene	10.0	10.8	ug/L	108	SW846 8260B
trans-1,2-Dichloroethene	10.0	11.3	ug/L	113	SW846 8260B
1,1,1-Trichloroethane	10.0	9.80	ug/L	98	SW846 8260B
Carbon tetrachloride	10.0	9.58	ug/L	96	SW846 8260B
1,2-Dichloroethane	10.0	10.4	ug/L	104	SW846 8260B
Benzene	10.0	10.8	ug/L	108	SW846 8260B
Trichloroethene	10.0	9.11	ug/L	91	SW846 8260B
4-Methyl-2-pentanone	10.0	10.2	ug/L	102	SW846 8260B
1,1,2-Trichloroethane	10.0	11.0	ug/L	110	SW846 8260B
Tetrachloroethene	10.0	7.49	ug/L	75	SW846 8260B
1,4-Dichlorobenzene	10.0	10.2	ug/L	102	SW846 8260B
Toluene	10.0	10.6	ug/L	106	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	101	(84 - 123)
Dibromofluoromethane	96	(80 - 126)
1,2-Dichloroethane-d4	100	(76 - 133)
4-Bromofluorobenzene	103	(74 - 122)

NOTE (S) :

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

Bold print denotes control parameters

METALS

Bechtel Hanford, Inc.

Client Sample ID: B1CD02

TOTAL Metals

Lot-Sample #....: F5C240385-002

Matrix.....: WATER

Date Sampled....: 03/23/05

Date Received...: 03/24/05

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 5098232						
Barium	64.0 B	200	ug/L	SW846 6010B	04/08-04/11/05	G60641AL
		Dilution Factor: 1		MDL.....: 1.6		
Chromium	3.7 B	10.0	ug/L	SW846 6010B	04/08-04/11/05	G60641AM
		Dilution Factor: 1		MDL.....: 0.68		
Lead	ND	5.0	ug/L	SW846 6010B	04/08-04/11/05	G60641AN
		Dilution Factor: 1		MDL.....: 2.6		
Tin	ND	100	ug/L	SW846 6010B	04/08-04/11/05	G60641AP
		Dilution Factor: 1		MDL.....: 3.9		
Vanadium	26.6 B	50.0	ug/L	SW846 6010B	04/08-04/11/05	G60641AQ
		Dilution Factor: 1		MDL.....: 1.2		
Zinc	319 C	20.0	ug/L	SW846 6010B	04/08-04/11/05	G60641AR
		Dilution Factor: 1		MDL.....: 0.61		

NOTE(S):

- B Estimated result. Result is less than RL.
- C Method blank contamination. The associated method blank contains the target analyte at a reportable level.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F5C240385

Matrix.....: WATER

Date Sampled...: 03/23/05

Date Received...: 03/24/05

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F5C240385-002 Prep Batch #...: 5098232									
Barium									
	64.0	2000	2170	ug/L	105		SW846 6010B	04/08-04/11/05	G60641A6
	64.0	2000	2210	ug/L	108	2.1	SW846 6010B	04/08-04/11/05	G60641A7
	Dilution Factor: 1								
Chromium									
	3.7	200	200	ug/L	98		SW846 6010B	04/08-04/11/05	G60641A8
	3.7	200	202	ug/L	99	1.4	SW846 6010B	04/08-04/11/05	G60641A9
	Dilution Factor: 1								
Lead									
	ND	500	490	ug/L	98		SW846 6010B	04/08-04/11/05	G60641CA
	ND	500	494	ug/L	99	0.97	SW846 6010B	04/08-04/11/05	G60641CC
	Dilution Factor: 1								
Tin									
	ND	2000	2050	ug/L	103		SW846 6010B	04/08-04/11/05	G60641CD
	ND	2000	2080	ug/L	104	1.0	SW846 6010B	04/08-04/11/05	G60641CE
	Dilution Factor: 1								
Vanadium									
	26.6	500	519	ug/L	98		SW846 6010B	04/08-04/11/05	G60641CF
	26.6	500	530	ug/L	101	2.0	SW846 6010B	04/08-04/11/05	G60641CG
	Dilution Factor: 1								
Zinc									
	319	500	767	ug/L	90		SW846 6010B	04/08-04/11/05	G60641CH
	319	500	794	ug/L	95	3.5	SW846 6010B	04/08-04/11/05	G60641CJ
	Dilution Factor: 1								

NOTE(S):

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

METHOD BLANK REPORT

TOTAL Metals

Client Lot #....: F5C240385

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: F5D080000-232 Prep Batch #....: 5098232						
Barium	ND	200	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AH
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AJ
		Dilution Factor: 1				
Lead	ND	5.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AK
		Dilution Factor: 1				
Tin	ND	100	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AL
		Dilution Factor: 1				
Vanadium	ND	50.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AM
		Dilution Factor: 1				
Zinc	0.65 B	20.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AN
		Dilution Factor: 1				

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 DATA REPORT

TOTAL Metals

Client Lot #....: F5C240385

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
LCS Lot-Sample#: F5D080000-232 Prep Batch #....: 5098232								
Barium	1000	1100	ug/L	110	SW846 6010B	04/08-04/11/05	G71CV1AW	
			Dilution Factor: 1					
Chromium	1000	1010	ug/L	101	SW846 6010B	04/08-04/11/05	G71CV1AX	
			Dilution Factor: 1					
Lead	1000	1010	ug/L	101	SW846 6010B	04/08-04/11/05	G71CV1A0	
			Dilution Factor: 1					
Tin	2000	2080	ug/L	104	SW846 6010B	04/08-04/11/05	G71CV1A1	
			Dilution Factor: 1					
Vanadium	1000	1020	ug/L	102	SW846 6010B	04/08-04/11/05	G71CV1A2	
			Dilution Factor: 1					
Zinc	1000	969	ug/L	97	SW846 6010B	04/08-04/11/05	G71CV1A3	
			Dilution Factor: 1					

NOTE(S) :

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

Bechtel Hanford, Inc.

Client Sample ID: B1CD01

DISSOLVED Metals

Lot-Sample #...: F5C240385-001

Matrix.....: WATER

Date Sampled...: 03/23/05

Date Received...: 03/24/05

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	WORK
		LIMIT	UNITS		ANALYSIS DATE	ORDER #
Prep Batch #...: 5098232						
Barium	62.1 B	200	ug/L	SW846 6010B	04/08-04/11/05	G60631AA
		Dilution Factor: 1		MDL.....: 0.75		
Chromium	ND	10.0	ug/L	SW846 6010B	04/08-04/11/05	G60631AC
		Dilution Factor: 1		MDL.....: 7.4		
Lead	ND	5.0	ug/L	SW846 6010B	04/08-04/11/05	G60631AD
		Dilution Factor: 1		MDL.....: 1.8		
Tin	ND	100	ug/L	SW846 6010B	04/08-04/11/05	G60631AE
		Dilution Factor: 1		MDL.....: 2.0		
Vanadium	26.3 B	50.0	ug/L	SW846 6010B	04/08-04/11/05	G60631AF
		Dilution Factor: 1		MDL.....: 7.6		
Zinc	291 <i>g</i>	20.0	ug/L	SW846 6010B	04/08-04/11/05	G60631AG
		Dilution Factor: 1		MDL.....: 2.3		

NOTE(S):

B Estimated result. Result is less than RL.

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

MW
4.27.05

MATRIX SPIKE SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #...: F5C240385

Matrix.....: WATER

Date Sampled...: 03/23/05

Date Received...: 03/24/05

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: F5C240385-001 Prep Batch #...: 5098232									
Barium									
	62.1	2000	2210	ug/L	108		SW846 6010B	04/08-04/11/05	G60631AH
	62.1	2000	2190	ug/L	106	1.3	SW846 6010B	04/08-04/11/05	G60631AJ
Dilution Factor: 1									
Chromium									
	ND	200	200	ug/L	100		SW846 6010B	04/08-04/11/05	G60631AK
	ND	200	198	ug/L	99	0.82	SW846 6010B	04/08-04/11/05	G60631AL
Dilution Factor: 1									
Lead									
	ND	500	492	ug/L	98		SW846 6010B	04/08-04/11/05	G60631AM
	ND	500	487	ug/L	97	0.93	SW846 6010B	04/08-04/11/05	G60631AN
Dilution Factor: 1									
Tin									
	ND	2000	2050	ug/L	102		SW846 6010B	04/08-04/11/05	G60631AP
	ND	2000	2030	ug/L	101	0.79	SW846 6010B	04/08-04/11/05	G60631AQ
Dilution Factor: 1									
Vanadium									
	26.3	500	525	ug/L	100		SW846 6010B	04/08-04/11/05	G60631AR
	26.3	500	519	ug/L	99	1.1	SW846 6010B	04/08-04/11/05	G60631AT
Dilution Factor: 1									
Zinc									
	291	500	763	ug/L	95		SW846 6010B	04/08-04/11/05	G60631AU
	291	500	747	ug/L	91	2.2	SW846 6010B	04/08-04/11/05	G60631AV
Dilution Factor: 1									

NOTE(S):

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

METHOD BLANK REPORT

DISSOLVED Metals

Client Lot #...: F5C240385

Matrix.....: WATER

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: F5D080000-232 Prep Batch #...: 5098232						
Barium	ND	200	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AA
		Dilution Factor: 1				
Chromium	ND	10.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AC
		Dilution Factor: 1				
Lead	ND	5.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AD
		Dilution Factor: 1				
Tin	ND	100	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AE
		Dilution Factor: 1				
Vanadium	ND	50.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AF
		Dilution Factor: 1				
Zinc	ND	20.0	ug/L	SW846 6010B	04/08-04/11/05	G71CV1AG
		Dilution Factor: 1				

NOTE(S):

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

LABORATORY CONTROL SAMPLE DATA REPORT

DISSOLVED Metals

Client Lot #....: F5C240385

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE AMOUNT</u>	<u>MEASURED AMOUNT</u>	<u>UNITS</u>	<u>PERCNT RECVRY</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>	
LCS Lot-Sample#: F5D080000-232 Prep Batch #....: 5098232								
Barium	1000	1100	ug/L	110	SW846 6010B	04/08-04/11/05	G71CV1AP	
			Dilution Factor: 1					
Chromium	1000	1010	ug/L	101	SW846 6010B	04/08-04/11/05	G71CV1AQ	
			Dilution Factor: 1					
Lead	1000	1010	ug/L	101	SW846 6010B	04/08-04/11/05	G71CV1AR	
			Dilution Factor: 1					
Tin	2000	2080	ug/L	104	SW846 6010B	04/08-04/11/05	G71CV1AT	
			Dilution Factor: 1					
Vanadium	1000	1020	ug/L	102	SW846 6010B	04/08-04/11/05	G71CV1AU	
			Dilution Factor: 1					
Zinc	1000	969	ug/L	97	SW846 6010B	04/08-04/11/05	G71CV1AV	
			Dilution Factor: 1					

NOTE(S):

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

WET CHEMISTRY

Bechtel Hanford, Inc.

Client Sample ID: B1CD02

General Chemistry

Lot-Sample #...: F5C240385-002

Work Order #...: G6064

Matrix.....: WATER

Date Sampled...: 03/23/05

Date Received...: 03/24/05

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	22.7 D	4.0	mg/L	MCAWW 300.0A MDL.....: 0.87 Dilution Factor: 20	03/24/05	5084122
Fluoride	0.33	0.10	mg/L	MCAWW 300.0A MDL.....: 0.010 Dilution Factor: 1	03/24/05	5084123
Nitrate	12.6 D	0.40	mg/L	MCAWW 300.0A MDL.....: 0.079 Dilution Factor: 20	03/24/05	5084124
Nitrate as N	14000 D	2000	ug/L	MCAWW 353.1 MDL.....: 108 Dilution Factor: 40	03/30/05	5090337
Nitrite	ND	0.020	mg/L	MCAWW 300.0A MDL.....: 0.0040 Dilution Factor: 1	03/24/05	5084125
Sulfate	29.0 D	10.0	mg/L	MCAWW 300.0A MDL.....: 2.4 Dilution Factor: 20	03/24/05	5084126
Total Alkalinity	124	5.0	mg/L	MCAWW 310.1 MDL.....: 1.8 Dilution Factor: 1	03/25/05	5084423
Total Dissolved Solids	286	5.0	mg/L	MCAWW 160.1 MDL.....: 3.6 Dilution Factor: 1	03/25-03/28/05	5084437
TOX	15.3	5.0	ug/L	SW846 9020B MDL.....: 3.2 Dilution Factor: 1	04/16-04/19/05	5108311

NOTE(S) :

RL Reporting Limit

D Result was obtained from the analysis of a dilution.

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F5C240385

Work Order #...: G6064-SMP
G6064-DUP

Matrix.....: WATER

Date Sampled...: 03/23/05

Date Received...: 03/24/05

PARAM RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION-ANALYSIS DATE	PREP BATCH #
Chloride 22.7 D	22.5 D	mg/L	0.88	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 300.0A	03/24/05	5084122
		Dilution Factor: 20					
Fluoride 0.33	0.32 B	mg/L	3.1	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 300.0A	03/24/05	5084123
		Dilution Factor: 1					
Nitrate 12.6 D	12.6 D	mg/L	0.30	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 300.0A	03/24/05	5084124
		Dilution Factor: 20					
Nitrite ND	ND	mg/L	0	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 300.0A	03/24/05	5084125
		Dilution Factor: 1					
Sulfate 29.0 D	28.2 D	mg/L	2.6	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 300.0A	03/24/05	5084126
		Dilution Factor: 20					
Total Alkalinity 124	125	mg/L	0.80	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 310.1	03/25/05	5084423
		Dilution Factor: 1					
TOX 15.3	15.3	ug/L	0.0	(0-20)	SD Lot-Sample #: F5C240385-002 SW846 9020B	04/16-04/19/05	5108311
		Dilution Factor: 1					
Total Dissolved Solids 286	287	mg/L	0.35	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 160.1	03/25-03/28/05	5084437
		Dilution Factor: 1					
Nitrate as N 14000 D	13700 D	ug/L	2.2	(0-20)	SD Lot-Sample #: F5C240385-002 MCAWW 353.1	03/30/05	5090337
		Dilution Factor: 40					

NOTE(S) :

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

D Result was obtained from the analysis of a dilution.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F5C240385

Matrix.....: WATER

Date Sampled...: 03/23/05

Date Received...: 03/24/05

PARAMETER	SAMPLE SPIKE		MEASURED		PERCENT RECOVERY	METHOD	PREPARATION-	PREP
	AMOUNT	AMT	AMOUNT	UNITS			ANALYSIS DATE	BATCH #
Chloride	22.7	40.0	Work Order #...: G60641AV		95	MCAWW 300.0A	03/24-03/25/05	5084122
			60.7 D	mg/L				
			Dilution Factor: 20					
Fluoride	0.33	2.00	Work Order #...: G60641AW		106	MCAWW 300.0A	03/24/05	5084123
			2.46	mg/L				
			Dilution Factor: 1					
Nitrate	12.6	8.00	Work Order #...: G60641AX		94	MCAWW 300.0A	03/24/05	5084124
			20.1 D	mg/L				
			Dilution Factor: 20					
Nitrate as N	14000	20000	Work Order #...: G60641CL		96	MCAWW 353.1	03/30/05	5090337
			33300 D	ug/L				
			Dilution Factor: 40					
Nitrite	ND	0.100	Work Order #...: G60641A0		119	MCAWW 300.0A	03/24/05	5084125
			0.119	mg/L				
			Dilution Factor: 1					
Sulfate	29.0	80.0	Work Order #...: G60641A1		95	MCAWW 300.0A	03/24/05	5084126
			105 D	mg/L				
			Dilution Factor: 20					
Total Alkalinity	124	100	Work Order #...: G60641CV		84	MCAWW 310.1	03/25/05	5084423
			208	mg/L				
			Dilution Factor: 1					
TOX	15.3	100	Work Order #...: G60641A3		98	SW846 9020B	04/16/05	5108311
			113	ug/L				
			Dilution Factor: 1					

NOTE(S) :

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

D Result was obtained from the analysis of a dilution.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: F5C240385

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride	ND	Work Order #: G611M1AA 0.20	mg/L	MB Lot-Sample #: F5C250000-122 MCAWW 300.0A	03/24/05	5084122
		Dilution Factor: 1				
Fluoride	ND	Work Order #: G611P1AA 0.10	mg/L	MB Lot-Sample #: F5C250000-123 MCAWW 300.0A	03/24/05	5084123
		Dilution Factor: 1				
Nitrate	ND	Work Order #: G611R1AA 0.020	mg/L	MB Lot-Sample #: F5C250000-124 MCAWW 300.0A	03/24/05	5084124
		Dilution Factor: 1				
Nitrate as N	ND	Work Order #: G7EQF1AA 50.0	ug/L	MB Lot-Sample #: F5C310000-337 MCAWW 353.1	03/30/05	5090337
		Dilution Factor: 1				
Nitrite	ND	Work Order #: G611V1AA 0.020	mg/L	MB Lot-Sample #: F5C250000-125 MCAWW 300.0A	03/24/05	5084125
		Dilution Factor: 1				
Sulfate	ND	Work Order #: G611X1AA 0.50	mg/L	MB Lot-Sample #: F5C250000-126 MCAWW 300.0A	03/24/05	5084126
		Dilution Factor: 1				
Total Alkalinity	ND	Work Order #: G63961AA 5.0	mg/L	MB Lot-Sample #: F5C250000-423 MCAWW 310.1	03/25/05	5084423
		Dilution Factor: 1				
Total Dissolved Solids	ND	Work Order #: G64AV1AA 5.0	mg/L	MB Lot-Sample #: F5C250000-437 MCAWW 160.1	03/25-03/28/05	5084437
		Dilution Factor: 1				
TOX	ND	Work Order #: G8LC51AA 5.0	ug/L	MB Lot-Sample #: F5D180000-311 SW846 9020B	04/16/05	5108311
		Dilution Factor: 1				

NOTE(S) :

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Lot-Sample #...: F5C240385

Matrix.....: WATER

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Chloride						WO#:G611M1AC-LCS/G611M1AD-LCSD LCS Lot-Sample#: F5C250000-122		
	1.00	0.939	mg/L	94		MCAWW 300.0A	03/24/05	5084122
	1.00	0.948	mg/L	95	0.90	MCAWW 300.0A	03/24/05	5084122
				Dilution Factor: 1				
Fluoride						WO#:G611P1AC-LCS/G611P1AD-LCSD LCS Lot-Sample#: F5C250000-123		
	0.500	0.505	mg/L	101		MCAWW 300.0A	03/24/05	5084123
	0.500	0.509	mg/L	102	0.87	MCAWW 300.0A	03/24/05	5084123
				Dilution Factor: 1				
Nitrate						WO#:G611R1AC-LCS/G611R1AD-LCSD LCS Lot-Sample#: F5C250000-124		
	0.200	0.189	mg/L	94		MCAWW 300.0A	03/24/05	5084124
	0.200	0.185	mg/L	92	2.2	MCAWW 300.0A	03/24/05	5084124
				Dilution Factor: 1				
Nitrate as N						WO#:G7EQF1AC-LCS/G7EQF1AD-LCSD LCS Lot-Sample#: F5C310000-337		
	400	386	ug/L	96		MCAWW 353.1	03/30/05	5090337
	400	368	ug/L	92	4.8	MCAWW 353.1	03/30/05	5090337
				Dilution Factor: 1				
Nitrite						WO#:G611V1AC-LCS/G611V1AD-LCSD LCS Lot-Sample#: F5C250000-125		
	0.0800	0.0748	mg/L	94		MCAWW 300.0A	03/24/05	5084125
	0.0800	0.0770	mg/L	96	2.9	MCAWW 300.0A	03/24/05	5084125
				Dilution Factor: 1				
Sulfate						WO#:G611X1AC-LCS/G611X1AD-LCSD LCS Lot-Sample#: F5C250000-126		
	4.00	3.63	mg/L	91		MCAWW 300.0A	03/24/05	5084126
	4.00	3.64	mg/L	91	0.35	MCAWW 300.0A	03/24/05	5084126
				Dilution Factor: 1				
Total Alkalinity						WO#:G63961AC-LCS/G63961AD-LCSD LCS Lot-Sample#: F5C250000-423		
	200	188	mg/L	94		MCAWW 310.1	03/25/05	5084423
	200	187	mg/L	94	0.53	MCAWW 310.1	03/25/05	5084423
				Dilution Factor: 1				

NOTE (S) :

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

LABORATORY CONTROL SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F5C240385

Matrix.....: WATER

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCNT</u> <u>RECVRY</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>PREP</u> <u>BATCH #</u>
Total Dissolved Solids						Work Order #: G64AV1AC LCS Lot-Sample#: F5C250000-437	
	500	478	mg/L	96	MCAWW 160.1	03/25-03/28/05	5084437
			Dilution Factor: 1				
TOX						Work Order #: G8LC51AC LCS Lot-Sample#: F5D180000-311	
	100	96.6	ug/L	97	SW846 9020B	04/16/05	5108311
			Dilution Factor: 1				

NOTE (S) :

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