Fluor Hanford
WSCF Analytical Chemistry
P.O. Box 1000
Richland, WA 99352
Telephone 373-7495
Telefax 372-0456

0078016

FLUOR

Memorandum

M4W41-SLF-07-165

To: S. J. Trent A0-21 Date: March 21, 2007

From: S. L. Fitzgerald, Manager
WSCF Analytical Chemistry

cc: w/Attachments

T. F. Dale	S3-30	J. E. Trechter	S3-30
H. K. Meznarich	S3-30	D. D. Wright	S3-30
P. D. Mix	S3-30	File/LB	

Subject: FINAL RESULTS FOR AQUIFER TUBE WATER SAMPLES – SAMPLE DELIVERY GROUP WSCF20070307 – SAF NUMBER F07-011

Reference:
(1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002
(2) HNF-SD-CD-QAPP-017, Rev. 8, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery groupWSCF20070307:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)

SLF/grf

Attachments 4

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M4W41-SLF-07-165

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20070307
Data Deliverable Date: 13-apr-2007
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F07-011	B1LMJ0	W07GR00313	WATER
	B1LMJ1	W07GR00312	WATER
	B1LMJ2	W07GR00310	WATER
	B1LMJ3	W07GR00315	WATER
	B1LMJ4	W07GR00314	WATER
	B1LMP0	W07GR00311	WATER

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ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Sample Delivery Group	**WSCF20070307**
Sample Matrix	**Water**
Sample Visual	**N/A**
SAF Number	**F07-011**
Data Deliverable	**Summary Report**

Introduction

Six (6) Aquifer Tube water samples from the 100-BC-5 Operable Unit were received at the WSCF Laboratory on February 26, 2007. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the sample receipt and chain of custody documentation are included as Attachment 4.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report,* pages 12 through 13, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – Hold time requirements were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 21 through 23 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1MLL8 (SDG# 20070303, SAF# F06-027).
- B1LMJ2 – sample results for Chloride, Nitrogen in Nitrate and Sulfate were D flagged (dilution). In addition, sample result for Bromide was B flagged; result was less than the reportable limit, however, greater than the method detection limit.
- Chloride and Nitrogen in Nitrate – Matrix Spike Duplicates and Relative Percent Differences out of limits due to instrument malfunction.

All other QC controls are within the established limits and sample results were not flagged.

Hexavalent Chromium – The hold time for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 24 for QC details.

All QC controls are within the established limits.

ICP-AES Metals – The hold time for this analysis was met. A Matrix Spike, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 25 through 26 for QC details. Analytical Notes:

- Preparation Date: 28-feb-2007.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1LTK9 (SDG# 20070245, SAF# F07-015).
- Magnesium – detected in the Blank was evaluated and there was no affect on sample results.
- Calcium, Magnesium and Sodium – insufficient spike concentrations. Sample concentrations were greater than four times the spike concentration.
- An ICP interference check sample was analyzed to ensure linearity and acceptable sample results.

All other QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Matrix Spike, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 27 through 29 for QC details. Analytical Notes:

- Preparation Date: 06-mar-2007.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1LMH8 (SDG# 20070290, SAF# F07-011).
- B1LMJ2 and B1LMP0 – Zinc detected in the Blank was evaluated and sample results were C flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 34 for QC details. Analytical Note:

- Duplicate and Matrix Spike were analyzed on sample# B1LTT5 (SDG# 20070282, SAF# F06-016).

All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 27 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: S. Fitzgerald

Client Services: P.D. Mip 3/21/2007

All results are reported on an "as received" basis unless otherwise noted in the comment section.

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Contract#: FH-EIS-2003-MEM-001
Report#: WSCF20070307
Report Date: 21-mar-2007
Report WGPP/ver. 5.2
Groundwater Remediation Program

w13qlog v4.2 21-mar-2007 07:27:16

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20070307

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
31022	2	31400	35508	BLANK		Hexavalent chromium
31022	24	31400	35508	BLANK		Hexavalent chromium
31022	3	31400	35508	LCS		Hexavalent chromium
31022	5	31400	35508	DUP	W07GR00310	Hexavalent chromium
31022	6	31400	35508	MS	W07GR00310	Hexavalent chromium
31022	7	31400	35508	MSD	W07GR00310	Hexavalent chromium
31022	4	31400	35508	SAMPLE	W07GR00310	Hexavalent chromium
31022	7	31400	35508	SPK-RPD	W07GR00310	Hexavalent chromium
31022	8	31400	35508	SAMPLE	W07GR00312	Hexavalent chromium
31022	9	31400	35508	SAMPLE	W07GR00313	Hexavalent chromium
31022	10	31400	35508	SAMPLE	W07GR00314	Hexavalent chromium
31022	11	31400	35508	SAMPLE	W07GR00315	Hexavalent chromium
31022	13	31400	35508	DUP	W07GR00316	Hexavalent chromium
31022	14	31400	35508	MS	W07GR00316	Hexavalent chromium
31022	15	31400	35508	MSD	W07GR00316	Hexavalent chromium
31022	15	31400	35508	SPK-RPD	W07GR00316	Hexavalent chromium
31030	2	31408	35526	BLANK		Anions by Ion Chromatography
31030	9	31408	35526	BLANK		Anions by Ion Chromatography
31030	14	31408	35526	BLANK		Anions by Ion Chromatography
31030	3	31408	35526	LCS		Anions by Ion Chromatography
31030	8	31408	35526	LCS		Anions by Ion Chromatography
31030	5	31408	35526	DUP	W07GR00306	Anions by Ion Chromatography
31030	6	31408	35526	MS	W07GR00306	Anions by Ion Chromatography
31030	7	31408	35526	MSD	W07GR00306	Anions by Ion Chromatography
31030	7	31408	35526	SPK-RPD	W07GR00306	Anions by Ion Chromatography
31030	13	31408	35526	SAMPLE	W07GR00310	Anions by Ion Chromatography
31105	1	31484	35585	BLANK		ICP-200.8 MS All possible meta
31105	2	31484	35585	LCS		ICP-200.8 MS All possible meta
31105	4	31484	35585	MS	W07GR00303	ICP-200.8 MS All possible meta
31105	5	31484	35585	MSD	W07GR00303	ICP-200.8 MS All possible meta
31105	5	31484	35585	SPK-RPD	W07GR00303	ICP-200.8 MS All possible meta
31105	7	31484	35585	SAMPLE	W07GR00310	ICP-200.8 MS All possible meta
31105	8	31484	35585	SAMPLE	W07GR00311	ICP-200.8 MS All possible meta
31056	1	31415	35622	BLANK		ICP Metals Analysis, Grd H20 P
31056	2	31415	35622	LCS		ICP Metals Analysis, Grd H20 P
31056	4	31415	35622	MS	W07GR00268	ICP Metals Analysis, Grd H20 P
31056	5	31415	35622	MSD	W07GR00268	ICP Metals Analysis, Grd H20 P
31056	5	31415	35622	SPK-RPD	W07GR00268	ICP Metals Analysis, Grd H20 P
31056	19	31415	35622	SAMPLE	W07GR00310	ICP Metals Analysis, Grd H20 P
31056	24	31415	35622	SAMPLE	W07GR00311	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 21-mar-2007 07:27:16

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20070307

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
31052	1	31431	35656	BLANK		Tritium by Liq Sct column prep
31052	2	31431	35656	LCS		Tritium by Liq Sct column prep
31052	4	31431	35656	DUP	W07GR00299	Tritium by Liq Sct column prep
31052	3	31431	35656	MS	W07GR00299	Tritium by Liq Sct column prep
31052	10	31431	35656	SAMPLE	W07GR00310	Tritium by Liq Sct column prep
31052	11	31431	35656	SAMPLE	W07GR00312	Tritium by Liq Sct column prep
31052	12	31431	35656	SAMPLE	W07GR00313	Tritium by Liq Sct column prep

WSCF
METHOD REFERENCES REPORT

Department: Inorganic

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-265-403 LA-265-403: Hexavalent Chromium analysis by Spectrophotometer

EPA SW-846 7196A	HEXAVALENT CHROMIUM
HEIS 7196_CR6	Hexavalent Chromium

LA-505-411 LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE

HEIS 6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmision Spectrometry

LA-505-412 LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY

EPA-600/R-94-111 200.8	DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS
HEIS 200.8_METALS_ICPMS	Inductively Coupled Plasma - Mass Spectrometry

LA-533-410 LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY

EPA-600/R-94-111 300.0	DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY
HEIS 300.0_ANIONS_IC	Determination of Inorganic Anions by Ion Chromatography

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at http://www2.rl.gov/phmc/as-dol.

WSCF
METHOD REFERENCES REPORT

Department: Radiochemistry

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory or industry methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though the WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-508-421 LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER

HEIS	**ALPHA_LSC**	A/B Liquid Scintilillation
HEIS	**BETA_LSC**	A/B Liquid Scintilallation
HEIS	**TC99_3MDSK_LSC**	TC99 by Liquid Scintillation
HEIS	**TRITIUM_EIE_LSC**	Tritium Liquid Scintillation

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at http://www2.rl.gov/phmc/as-dol.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00310
Client ID: B1LMJ2 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410		0.103	mg/L			1.00	6.3e-03		02/27/07
Chloride	16887-00-6	LA-533-410	D	8.19	mg/L			5.00	0.075		02/27/07
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0100	mg/L			1.00	0.010		02/27/07
Bromide	24959-67-9	LA-533-410	B	0.0735	mg/L			1.00	0.045		02/27/07
Nitrogen in Nitrate	NO3-N	LA-533-410	D	1.73	mg/L			5.00	0.033		02/27/07
Phosphate (P) by IC	PO4-P	LA-533-410	U	< 0.0280	mg/L			1.00	0.028		02/27/07
Sulfate	14808-79-8	LA-533-410	D	33.1	mg/L			5.00	0.20		02/27/07
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		6.40e-03	mg/L			1.00	2.0e-03		02/27/07
ICP Metals Analysis, Grd H20 P Prep											**02/28/07**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		100	ug/L			1.00	9.0		03/01/07
Magnesium	7439-95-4	LA-505-411		9.39e+03	ug/L			1.00	6.0		03/01/07
Potassium	7440-09-7	LA-505-411		3.74e+03	ug/L			1.00	45		03/01/07
Sodium	7440-23-5	LA-505-411		1.02e+04	ug/L			1.00	27		03/01/07
Calcium	7440-70-2	LA-505-411		4.34e+04	ug/L			1.00	34		03/01/07
ICP-200.8 MS All possible meta Prep											**03/06/07**
ICP-200.8 MS All possible meta											
Manganese	7439-96-5	LA-505-412		37.4	ug/L			1.00	0.100	0.100	03/06/07
Nickel	7440-02-0	LA-505-412		0.541	ug/L			1.00	0.200	0.300	03/06/07
Silver	7440-22-4	LA-505-412	U	< 0.100	ug/L			1.00	0.100	0.200	03/06/07
Antimony	7440-36-0	LA-505-412	U	< 0.300	ug/L			1.00	0.300	1.50	03/06/07
Barium	7440-39-3	LA-505-412		79.3	ug/L			1.00	0.200	1.00	03/06/07
Beryllium	7440-41-7	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500	0.100	03/06/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00310
Client ID: B1LMJ2 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cadmium	7440-43-9	LA-505-412	U	< 0.100	ug/L			1.00	0.100	0.200	03/06/07
Chromium	7440-47-3	LA-505-412		7.62	ug/L			1.00	0.500	3.50	03/06/07
Cobalt	7440-48-4	LA-505-412		0.121	ug/L			1.00	0.0500	0.100	03/06/07
Vanadium	7440-62-2	LA-505-412		5.00	ug/L			1.00	0.200	2.50	03/06/07
Zinc	7440-66-6	LA-505-412	C	2.32	ug/L			1.00	0.800	1.50	03/06/07
Strontium	7440-24-6	LA-505-412		177	ug/L			1.00	0.100	0.150	03/06/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00311
Client ID: B1LMP0 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**02/28/07**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		03/01/07
Magnesium	7439-95-4	LA-505-411		9.35e+03	ug/L			1.00	6.0		03/01/07
Potassium	7440-09-7	LA-505-411		3.68e+03	ug/L			1.00	45		03/01/07
Sodium	7440-23-5	LA-505-411		1.02e+04	ug/L			1.00	27		03/01/07
Calcium	7440-70-2	LA-505-411		4.34e+04	ug/L			1.00	34		03/01/07
ICP-200.8 MS All possible meta Prep											**03/06/07**
ICP-200.8 MS All possible meta											
Manganese	7439-96-5	LA-505-412		0.281	ug/L			1.00	0.100	0.100	03/06/07
Nickel	7440-02-0	LA-505-412	U	< 0.200	ug/L			1.00	0.200	0.300	03/06/07
Silver	7440-22-4	LA-505-412	U	< 0.100	ug/L			1.00	0.100	0.200	03/06/07
Antimony	7440-36-0	LA-505-412	U	< 0.300	ug/L			1.00	0.300	1.50	03/06/07
Barium	7440-39-3	LA-505-412		57.6	ug/L			1.00	0.200	1.00	03/06/07
Beryllium	7440-41-7	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500	0.100	03/06/07
Cadmium	7440-43-9	LA-505-412	U	< 0.100	ug/L			1.00	0.100	0.200	03/06/07
Chromium	7440-47-3	LA-505-412		7.10	ug/L			1.00	0.500	3.50	03/06/07
Cobalt	7440-48-4	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500	0.100	03/06/07
Vanadium	7440-62-2	LA-505-412		4.68	ug/L			1.00	0.200	2.50	03/06/07
Zinc	7440-66-6	LA-505-412	C	2.05	ug/L			1.00	0.800	1.50	03/06/07
Strontium	7440-24-6	LA-505-412		177	ug/L			1.00	0.100	0.150	03/06/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00312
Client ID: B1LMJ1 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		7.80e-03	mg/L			1.00	2.0e-03		02/27/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00313
Client ID: B1LMJ0 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		2.50e-03	mg/L			1.00	2.0e-03		02/27/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00314
Client ID: B1LMJ4 TRENT WSCF
Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.0104	mg/L			1.00	2.0e-03		02/27/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00315
Client ID: B1LMJ3 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Inorganic
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		7.80e-03	mg/L			1.00	2.0e-03		02/27/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 02/26/07
Receive Date:02/26/07

Lab ID: W07GR00306
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Chloride	16887-00-6	2.3449		RPD			2.464	20.000		02/27/07
DUP	Fluoride	16984-48-8	3.73e-2		RPD			6.362	20.000		02/27/07
DUP	Nitrogen in Nitrite	NO2-N	<1e-2		RPD			n/a	20.000	U	02/27/07
DUP	Nitrogen in Nitrate	NO3-N	1.4991		RPD			0.194	20.000		02/27/07
DUP	Phosphate (P) by IC	PO4-P	9.1e-2		RPD			2.281	20.000		02/27/07
DUP	Sulfate	14808-79-8	9.4258		RPD			0.725	20.000		02/27/07
MS	Chloride	16887-00-6	0.9677	97.256	% Recov	75.000	125.000				02/27/07
MS	Fluoride	16984-48-8	0.4553	90.697	% Recov	75.000	125.000				02/27/07
MS	Nitrogen in Nitrite	NO2-N	0.4376	88.226	% Recov	75.000	125.000				02/27/07
MS	Nitrogen in Nitrate	NO3-N	0.4701	103.546	% Recov	75.000	125.000				02/27/07
MS	Phosphate (P) by IC	PO4-P	0.8329	86.851	% Recov	75.000	125.000				02/27/07
MS	Sulfate	14808-79-8	2.03455	102.239	% Recov	75.000	125.000				02/27/07
MSD	Chloride	16887-00-6	-0.34375	-34.548	% Recov	75.000	125.000			*	02/27/07
MSD	Fluoride	16984-48-8	0.4234	84.343	% Recov	75.000	125.000				02/27/07
MSD	Nitrogen in Nitrite	NO2-N	0.44445	89.607	% Recov	75.000	125.000				02/27/07
MSD	Nitrogen in Nitrate	NO3-N	-0.3413	-75.176	% Recov	75.000	125.000			*	02/27/07
MSD	Phosphate (P) by IC	PO4-P	0.77065	80.360	% Recov	75.000	125.000				02/27/07
MSD	Sulfate	14808-79-8	2.09245	105.148	% Recov	75.000	125.000				02/27/07
SPK-RPD	Chloride	16887-00-6	-34.548		RPD			420.374	20.000	*	02/27/07
SPK-RPD	Fluoride	16984-48-8	84.343		RPD			7.260	20.000		02/27/07
SPK-RPD	Nitrogen in Nitrite	NO2-N	89.607		RPD			1.553	20.000		02/27/07
SPK-RPD	Nitrogen in Nitrate	NO3-N	-75.176		RPD			1259.937	20.000	*	02/27/07
SPK-RPD	Phosphate (P) by IC	PO4-P	80.360		RPD			7.764	20.000		02/27/07
SPK-RPD	Sulfate	14808-79-8	105.148		RPD			2.805	20.000		02/27/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BATCH QC											
BLANK	Bromide	24959-67-9	<4.5e-2	n/a	mg/L	0.000	0.100			U	02/27/07
BLANK	Bromide	24959-67-9	<4.5e-2	n/a	mg/L	0.000	0.100			U	02/27/07
BLANK	Bromide	24959-67-9	<4.5e-2	n/a	mg/L	0.000	0.100			U	02/27/07
BLANK	Chloride	16887-00-6	<1.5e-2	n/a	mg/L	0.000	0.030			U	02/27/07
BLANK	Chloride	16887-00-6	<1.5e-2	n/a	mg/L	0.000	0.030			U	02/27/07
BLANK	Chloride	16887-00-6	<1.5e-2	n/a	mg/L	0.000	0.030			U	02/27/07
BLANK	Fluoride	16984-48-8	<6.3e-3	n/a	mg/L	0.000	0.030			U	02/27/07
BLANK	Fluoride	16984-48-8	<6.3e-3	n/a	mg/L	0.000	0.030			U	02/27/07
BLANK	Fluoride	16984-48-8	<6.3e-3	n/a	mg/L	0.000	0.030			U	02/27/07
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	02/27/07
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	02/27/07
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	02/27/07
BLANK	Nitrogen in Nitrate	NO3-N	<6.6e-3	n/a	mg/L	0.000	0.040			U	02/27/07
BLANK	Nitrogen in Nitrate	NO3-N	<6.6e-3	n/a	mg/L	0.000	0.040			U	02/27/07
BLANK	Nitrogen in Nitrate	NO3-N	<6.6e-3	n/a	mg/L	0.000	0.040			U	02/27/07
BLANK	Phosphate (P) by IC	PO4-P	<2.8e-2	n/a	mg/L	0.000	0.200			U	02/27/07
BLANK	Phosphate (P) by IC	PO4-P	<2.8e-2	n/a	mg/L	0.000	0.200			U	02/27/07
BLANK	Phosphate (P) by IC	PO4-P	<2.8e-2	n/a	mg/L	0.000	0.200			U	02/27/07
BLANK	Sulfate	14808-79-8	<4.1e-2	n/a	mg/L	0.000	0.200			U	02/27/07
BLANK	Sulfate	14808-79-8	<4.1e-2	n/a	mg/L	0.000	0.200			U	02/27/07
BLANK	Sulfate	14808-79-8	<4.1e-2	n/a	mg/L	0.000	0.200			U	02/27/07
LCS	Bromide	24959-67-9	389.9511	97.488	% Recov	80.000	120.000				02/27/07
LCS	Bromide	24959-67-9	407.2441	101.811	% Recov	80.000	120.000				02/27/07
LCS	Chloride	16887-00-6	187.0872	93.544	% Recov	80.000	120.000				02/27/07
LCS	Chloride	16887-00-6	193.1169	96.558	% Recov	80.000	120.000				02/27/07
LCS	Fluoride	16984-48-8	101.894	100.885	% Recov	80.000	120.000				02/27/07
LCS	Fluoride	16984-48-8	95.316	94.372	% Recov	80.000	120.000				02/27/07
LCS	Nitrogen in Nitrite	NO2-N	100.6296	101.034	% Recov	80.000	120.000				02/27/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Nitrogen in Nitrite	NO2-N	98.9138	99.311	% Recov	80.000	120.000				02/27/07
LCS	Nitrogen in Nitrate	NO3-N	88.2988	96.819	% Recov	80.000	120.000				02/27/07
LCS	Nitrogen in Nitrate	NO3-N	94.0599	103.136	% Recov	80.000	120.000				02/27/07
LCS	Phosphate (P) by IC	PO4-P	181.7093	94.248	% Recov	80.000	120.000				02/27/07
LCS	Phosphate (P) by IC	PO4-P	192.1359	99.656	% Recov	80.000	120.000				02/27/07
LCS	Sulfate	14808-79-8	381.3482	95.337	% Recov	80.000	120.000				02/27/07
LCS	Sulfate	14808-79-8	398.6938	99.673	% Recov	80.000	120.000				02/27/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: Hexavalent chromium

Sample Date: 02/26/07
Receive Date:02/26/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR00310											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	0.0064		RPD			0.000	15.000		02/27/07
MS	Hexavalent chromium	18540-29-9	0.0551	104.356	% Recov	85.000	115.000				02/27/07
MSD	Hexavalent chromium	18540-29-9	0.0551	104.356	% Recov	85.000	115.000				02/27/07
SPK-RPD	Hexavalent chromium	18540-29-9	104.356		RPD			0.000	20.000		02/27/07
Lab ID: W07GR00316											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	0.0182		RPD			0.000	15.000		02/27/07
MS	Hexavalent chromium	18540-29-9	0.0538	101.894	% Recov	85.000	115.000				02/27/07
MSD	Hexavalent chromium	18540-29-9	0.0538	101.894	% Recov	85.000	115.000				02/27/07
SPK-RPD	Hexavalent chromium	18540-29-9	101.894		RPD			0.000	20.000		02/27/07
BATCH QC											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	02/27/07
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	02/27/07
LCS	Hexavalent chromium	18540-29-9	0.0497	100.000	% Recov	80.000	120.000				02/27/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 02/13/07
Receive Date:02/13/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR00268											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Calcium	7440-70-2	NA	n/a	% Recov	75.000	125.000				03/01/07
MS	Iron	7439-89-6	1002.6	100.260	% Recov	75.000	125.000				03/01/07
MS	Potassium	7440-09-7	10313	103.130	% Recov	75.000	125.000				03/01/07
MS	Magnesium	7439-95-4	NA	n/a	% Recov	75.000	125.000				03/01/07
MS	Sodium	7440-23-5	NA	n/a	% Recov	75.000	125.000				03/01/07
MSD	Calcium	7440-70-2	NA	n/a	% Recov	75.000	125.000				03/01/07
MSD	Iron	7439-89-6	1006.6	100.660	% Recov	75.000	125.000				03/01/07
MSD	Potassium	7440-09-7	10173	101.730	% Recov	75.000	125.000				03/01/07
MSD	Magnesium	7439-95-4	NA	n/a	% Recov	75.000	125.000				03/01/07
MSD	Sodium	7440-23-5	NA	n/a	% Recov	75.000	125.000				03/01/07
SPK-RPD	Calcium	7440-70-2			RPD			n/a	20.000		03/01/07
SPK-RPD	Iron	7439-89-6	100.660		RPD			0.398	20.000		03/01/07
SPK-RPD	Potassium	7440-09-7	101.730		RPD			1.367	20.000		03/01/07
SPK-RPD	Magnesium	7439-95-4			RPD			n/a	20.000		03/01/07
SPK-RPD	Sodium	7440-23-5			RPD			n/a	20.000		03/01/07
BATCH QC											
BLANK	Calcium	7440-70-2	<34	n/a	ug/L					U	03/01/07
BLANK	Iron	7439-89-6	<9	n/a	ug/L					U	03/01/07
BLANK	Potassium	7440-09-7	<45	n/a	ug/L					U	03/01/07
BLANK	Magnesium	7439-95-4	9.8	9.800	ug/L						03/01/07
BLANK	Sodium	7440-23-5	<27	n/a	ug/L					U	03/01/07
LCS	Calcium	7440-70-2	988	98.800	% Recov	80.000	120.000				03/01/07
LCS	Iron	7439-89-6	1011	101.100	% Recov	80.000	120.000				03/01/07
LCS	Potassium	7440-09-7	10670	106.700	% Recov	80.000	120.000				03/01/07
LCS	Magnesium	7439-95-4	1064	106.400	% Recov	80.000	120.000				03/01/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Sodium	7440-23-5	1068	106.800	% Recov	80.000	120.000				03/01/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 02/22/07
Receive Date:02/22/07

Lab ID: W07GR00303
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Silver	7440-22-4	37.66	94.150	% Recov	70.000	130.000				03/06/07
MS	Barium	7440-39-3	37.59	93.975	% Recov	70.000	130.000				03/06/07
MS	Beryllium	7440-41-7	39.28	98.200	% Recov	70.000	130.000				03/06/07
MS	Cadmium	7440-43-9	37.35	93.375	% Recov	70.000	130.000				03/06/07
MS	Cobalt	7440-48-4	38.0565	95.141	% Recov	70.000	130.000				03/06/07
MS	Chromium	7440-47-3	38.841	97.103	% Recov	70.000	130.000				03/06/07
MS	Manganese	7439-96-5	36.9	92.250	% Recov	70.000	130.000				03/06/07
MS	Nickel	7440-02-0	38.217	95.542	% Recov	70.000	130.000				03/06/07
MS	Antimony	7440-36-0	44.36	110.900	% Recov	70.000	130.000				03/06/07
MS	Strontium	7440-24-6	35.2	88.000	% Recov	70.000	130.000				03/06/07
MS	Vanadium	7440-62-2	39.4	98.500	% Recov	70.000	130.000				03/06/07
MS	Zinc	7440-66-6	36.219	90.547	% Recov	70.000	130.000				03/06/07
MSD	Silver	7440-22-4	37.49	93.725	% Recov	70.000	130.000				03/06/07
MSD	Barium	7440-39-3	38.26	95.650	% Recov	70.000	130.000				03/06/07
MSD	Beryllium	7440-41-7	38.99	97.475	% Recov	70.000	130.000				03/06/07
MSD	Cadmium	7440-43-9	37.2	93.000	% Recov	70.000	130.000				03/06/07
MSD	Cobalt	7440-48-4	38.1765	95.441	% Recov	70.000	130.000				03/06/07
MSD	Chromium	7440-47-3	39.041	97.602	% Recov	70.000	130.000				03/06/07
MSD	Manganese	7439-96-5	38.26	95.650	% Recov	70.000	130.000				03/06/07
MSD	Nickel	7440-02-0	38.417	96.043	% Recov	70.000	130.000				03/06/07
MSD	Antimony	7440-36-0	44.03	110.075	% Recov	70.000	130.000				03/06/07
MSD	Strontium	7440-24-6	34.4	86.000	% Recov	70.000	130.000				03/06/07
MSD	Vanadium	7440-62-2	39.36	98.400	% Recov	70.000	130.000				03/06/07
MSD	Zinc	7440-66-6	36.859	92.148	% Recov	70.000	130.000				03/06/07
SPK-RPD	Silver	7440-22-4	93.725		RPD			0.452	20.000		03/06/07
SPK-RPD	Barium	7440-39-3	95.650		RPD			1.767	20.000		03/06/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 02/22/07
Receive Date:02/22/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Beryllium	7440-41-7	97.475		RPD			0.741	20.000		03/06/07
SPK-RPD	Cadmium	7440-43-9	93.000		RPD			0.402	20.000		03/06/07
SPK-RPD	Cobalt	7440-48-4	95.441		RPD			0.315	20.000		03/06/07
SPK-RPD	Chromium	7440-47-3	97.602		RPD			0.513	20.000		03/06/07
SPK-RPD	Manganese	7439-96-5	95.650		RPD			3.619	20.000		03/06/07
SPK-RPD	Nickel	7440-02-0	96.043		RPD			0.523	20.000		03/06/07
SPK-RPD	Antimony	7440-36-0	110.075		RPD			0.747	20.000		03/06/07
SPK-RPD	Strontium	7440-24-6	86.000		RPD			2.299	20.000		03/06/07
SPK-RPD	Vanadium	7440-62-2	98.400		RPD			0.102	20.000		03/06/07
SPK-RPD	Zinc	7440-66-6	92.148		RPD			1.753	20.000		03/06/07

BATCH QC

BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	03/06/07
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	03/06/07
BLANK	Beryllium	7440-41-7	<5e-2	n/a	ug/L					U	03/06/07
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	03/06/07
BLANK	Cobalt	7440-48-4	<5e-2	n/a	ug/L					U	03/06/07
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	03/06/07
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	03/06/07
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	03/06/07
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	03/06/07
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L					U	03/06/07
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	03/06/07
BLANK	Zinc	7440-66-6	1.991	1.991	ug/L						03/06/07
LCS	Silver	7440-22-4	39.51	98.775	% Recov	85.000	115.000				03/06/07
LCS	Barium	7440-39-3	41.2	103.000	% Recov	85.000	115.000				03/06/07
LCS	Beryllium	7440-41-7	40.21	100.525	% Recov	85.000	115.000				03/06/07
LCS	Cadmium	7440-43-9	39.01	97.525	% Recov	85.000	115.000				03/06/07
LCS	Cobalt	7440-48-4	40.05	100.125	% Recov	85.000	115.000				03/06/07
LCS	Chromium	7440-47-3	41.24	103.100	% Recov	85.000	115.000				03/06/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20070307
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Manganese	7439-96-5	41.51	103.775	% Recov	85.000	115.000				03/06/07
LCS	Nickel	7440-02-0	41.19	102.975	% Recov	85.000	115.000				03/06/07
LCS	Antimony	7440-36-0	45.45	113.625	% Recov	85.000	115.000				03/06/07
LCS	Strontium	7440-24-6	41.26	103.150	% Recov	80.000	120.000				03/06/07
LCS	Vanadium	7440-62-2	40.62	101.550	% Recov	85.000	115.000				03/06/07
LCS	Zinc	7440-66-6	40.71	101.775	% Recov	85.000	115.000				03/06/07

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F07-011

Group #: WSCF20070307
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-MS: Zinc prep blank above the MDL and more than 5% of sample results. C-flag ICP-AES: High magnesium preparation blank; no flag; high sample results. Calcium, magnesium, and sodium sample results beyond effective spike range (spike results marked "NA"). High standard and check standard used to ensure linearity for calcium, magnesium, and sodium sample results because they were higher than the calibration standard.

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample
VALTEST - Test Validation
LOGTEST - Login for Tests
TESTDATA - Test Data Entry

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00310
Client ID: B1LMJ2 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Radiochemistry
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		3.60e+03	pCi/L	+-756	pCi/L	1.00	2.1e+02		03/08/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00312
Client ID: B1LMJ1 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Radiochemistry
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		2.70e+03	pCi/L	+-567	pCi/L	1.00	2.1e+02		03/08/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but >= the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-011
Sample # W07GR00313
Client ID: B1LMJ0 TRENT WSCF

Matrix: WATER

Group #: WSCF20070307
Department: Radiochemistry
Sampled: 02/26/07
Received: 02/26/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.90e+03	pCi/L	+-418	pCi/L	1.00	2.1e+02		03/08/07

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor
U - Analyzed for but not detected above limiting criteria.

C - The Analyte was found in the Associated Blank.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20070307
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 02/21/07
Receive Date:02/21/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR00299											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	U-5.9E+01		RPD			n/a	20.000		03/08/07
MS	Tritium	10028-17-8	8360.0	95.556	% Recov	75.000	125.000				03/08/07
BATCH QC											
BLANK	Tritium	10028-17-8	U-5.4E+01	n/a	pCi/L	-10.000	1000.000				03/08/07
LCS	Tritium	10028-17-8	1780.0	94.837	% Recov	80.000	120.000				03/08/07

M4W41-SLF-07-165

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 8 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. BOX 1970 S3-30, Richland, WA 99352
PHONE: (509) 373-7004/FAX: (509) 373-7134

4/13/07
File KB

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122543
Group#: 20070307
Project#: F07-011
Proj Mgr: Steve Trent A0-21
Phone: 373-5869

The following samples were received from you on 02/26/07. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W07GR00310	B1LMJ2	TRENT @2008 @GPP6010 @H3-33 @IC-30 CR+6	Water	02/26/0
W07GR00311	B1LMP0	TRENT @2008 @GPP6010	Water	02/26/0
W07GR00312	B1LMJ1	TRENT @H3-33 CR+6	Water	02/26/0
W07GR00313	B1LMJ0	TRENT @H3-33 CR+6	Water	02/26/0
W07GR00314	B1LMJ4	TRENT CR+6	Water	02/26/0
W07GR00315	B1LMJ3	TRENT CR+6	Water	02/26/0

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@GPP6010	ICP Metals Analysis, Grd H20 P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
CR+6	Hexavalent chromium

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 7N	DATA TURNAROUND
Pope/Pfister/Hughes/Wise	TRENT, SJ	373-5869	TRENT, SJ		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY**	45 Days / 45 Days
04-DS Well 2-26-07	AQUIFER TUBE SAMPLING IN THE 100-BC-5 OU		F07-011		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-451-1	122543ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization	N/A		N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE
Z0070307

PRESERVATION	HNO3 to pH <2	Cool 4C	Cool 4C	None	
TYPE OF CONTAINER	G/P	aG	P	G	
NO. OF CONTAINER(S)	1	1	1	1	
VOLUME	500mL	500mL	500mL	1000mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196; *	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Tritium - Ion Ex;	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B1LMJ2	WATER	2/26/07	1250	✓	✓	✓	✓				
W07GR0310											

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	2-26-07 1605	[signature]	2/26/07 1605

SPECIAL INSTRUCTIONS
(1)ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Manganese, Nickel, Silver, Vanadium, Zinc} ICP/MS - 200.8 (Add-on) {Beryllium, Strontium} ICP Metals - 6010B (TAL) {Calcium, Iron, Magnesium, Potassium, Sodium}
(2)IC Anions - 300.0 {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate}
* filtered <0.45 µm

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 7N	DATA TURNAROUND
Pope/Pfister/Hughes/Wise	TRENT, SJ	373-5869	TRENT, SJ		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY**	45 Days / 45 Days
04-05 Whole 2-26-07	AQUIFER TUBE SAMPLING IN THE 100-BC-5 OU		F07-011		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-451-1	122543E510	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization	N/A		N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS *

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1LMP0	WATER	2/26/07	1250
310			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Wise Whole	2-26-07 1605	K Bobo	2/26/07 1605

SPECIAL INSTRUCTIONS
(1)ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Manganese, Nickel, Silver, Vanadium, Zinc} ICP/MS - 200.8 (Add-on) {Beryllium, Strontium} ICP Metals - 6010B (TAL) {Calcium, Iron, Magnesium, Potassium, Sodium}
*filtered to 0.45µM

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

A-6003-618(01/06)

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	7N	DATA TURNAROUND
Pope/Pfister/Hughes/Wise	TRENT, SJ	373-5869	TRENT, SJ	AIR QUALITY	☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**			
AT-B-2-D	AQUIFER TUBE SAMPLING IN THE 100-BC-5 OU		F07-011			
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**			
	HNF-N-451-1	122543ES10	GOVERNMENT VEHICLE			
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**			
Waste Sampling & Characterization	N/A		N/A			

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool 4C	None
TYPE OF CONTAINER	aG	G
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	1000mL
SAMPLE ANALYSIS	Chromium Hex - 7196; *	Tritium - Ion Ex;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1LMJ1	WATER	2-26-07	1145	✓	✓
312					

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Wise/Wise 2-26-07	1605	[signature] 2/26/07	1605
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
* Filtered To 0.45 µM

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	7N	DATA TURNAROUND
Pope/Pfister/Hughes/Wise	TRENT, SJ	373-5869	TRENT, SJ	AIR QUALITY		45 Days / 45 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
AT-B-1-M	AQUIFER TUBE SAMPLING IN THE 100-BC-5 OU	F07-011

ICE CHEST NO.	FIELD LOGBOOK NO.	COA	METHOD OF SHIPMENT
	HNF-N-451-1	122543ES10	GOVERNMENT VEHICLE

SHIPPED TO	OFFSITE PROPERTY NO.	BILL OF LADING/AIR BILL NO.
Waste Sampling & Characterization	N/A	N/A

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool 4C	None
TYPE OF CONTAINER	aG	G
NO. OF CONTAINER(S)	1	1
VOLUME	500mL	1000mL
SAMPLE ANALYSIS	Chromium Hex - 7196; *	Tritium - Ion Ex;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B1LMJ0	WATER	2-26-07	1045	✓	✓
313					

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Wise [illegible] 2-26-07	1605	[illegible]	2/26/07 1605
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
500 ML aG Chrome. Hex filtered To 0.45 µm

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 7N	DATA TURNAROUND
Pope/Pfister/Hughes/Wise	TRENT, SJ	373-5869	TRENT, SJ	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
04-~~6~~ D 2-26-07	AQUIFER TUBE SAMPLING IN THE 100-BC-5 OU		F07-011		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-451-1	122543ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization	N/A		N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool 4C
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Chromium Hex - 7196; *

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	[redacted]
B1LMJ4	WATER	2-26-07	1310	✓
314				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
WM Wise/Pfister 2-26-07	1605	KBeebe	2/26/07 1605

SPECIAL INSTRUCTIONS
* filtered <0.45µm

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	DATA TURNAROUND
Pope/Pfister/Hughes/Wise	TRENT, SJ	373-5869	TRENT, SJ	7N	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY**	
04-M	AQUIFER TUBE SAMPLING IN THE 100-BC-5 OU		F07-011		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-451-1	122543ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization	N/A		N/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool 4C
TYPE OF CONTAINER	BG
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	Chromium Hex - 7196; *

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1LMJ3 315	WATER	2-26-07	1305	✓

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[illegible]	2-26-07 1405	[illegible]	2/26/07 1405

SPECIAL INSTRUCTIONS
* filtered < 0.45 µm

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME