RECEIVED AUGUST 22, 2007

0078003

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FLUOR

Memorandum

M4W41-SLF-07-550

To:	H. Hampt	E6-35	Date:	August 20, 2007
From:	S. L. Fitzgerald, Manager WSCF Analytical Lab			
cc:	w/Attachments			
	T. F. Dale	S3-30	S. J. Trent	E6-35
	H. K. Meznarich	S3-30	D. D. Wright	S3-30
	P. D. Mix	S3-30	File/LB	
	J. E. Trechter	S3-30		

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20071148 – SAF NUMBER F07-006

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 groupWSCF20071148:

- Cover Sheet (Attachment 1)
- Narrative (Attachment 2)
- Analytical Results (Attachment 3)
- Sample Receipt Information (Attachment 4)
- Issue Resolution Form (Attachment 5)

SLF/grf

Attachments 5

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20071148
Data Deliverable Date: 20-aug-2007
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F07-006	B1L949	W07GR01703	WATER

M4W41-SLF-07-550

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Sample Delivery Group	**WSCF20071148**
Sample Matrix	**Water**
Data Deliverable	**Summary Report**

Introduction

One groundwater sample was received at the WSCF Laboratory on July 6, 2007. Sample was 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 as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

Due to temperature control issues with Refrigerator #3, sample temperatures may have exceeded the 4 degree Celsius temperature requirement. Copy of the Issue Resolution Form (IRF) # 07-068 documenting the temperature control problem is attached for information as Attachment 5.

It should be noted that the attached chain of custody was stamped "iced" and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report,* pages 13 through 15, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – Hold time requirements for this analysis 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 18 through 19 for QC details. Analytical Note(s):

- Sample results were D flagged (dilution).

All QC controls are within the established limits.

Hexavalent Chromium – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 20 for QC details.

All QC controls are within the established limits.

ICP-AES Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Sample results were D flagged (dilution).
- Matrix Spike and Matrix Spike Duplicate was analyzed on sample# B1P367 (SDG# 20071104, SAF# F06-027).
- Calcium and Sodium – insufficient spike concentrations. Sample concentrations were greater than four times the spike concentration. For results higher than the highest calibration standard, a high-level standard and an ICP interference check sample were analyzed to ensure acceptable sample results.
- Iron contamination detected in the blank was evaluated and sample result was C flagged.

All other QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 23 through 25 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate was analyzed on sample# B1NV33 (SDG# 20071090, SAF# F07-028).
- Tc-99 via ICP-MS – Analysis is not complete. Sample results to be submitted at a later date.
- Chromium contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Total Alkalinity – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 26 for QC details.

All QC controls are within the established limits.

Organic Comments

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample, were analyzed with this delivery group per the GRP Letter of Instruction. See pages 30 through 32 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NF51 (SDG# 20071115, SAF# F07-045).
- Sample results that were less than the lowest calibration standard, however greater than the method detection limit were J flagged.
- Acetone contamination detected in the Blank was evaluated and there was no affect on sample result.
- Carbon Tetrachloride – Sample result exceeded calibration range and was E flagged (estimated).

All other controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 35 through 36 for QC details. Analytical Note(s):

- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1NBC3 (SDG# 20071102, SAF# F07-035).

All QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.

for Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

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

M4W41-SLF-07-550

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 29 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical: WW Baird 8/20/2007

Client Services: R.D. Mix 8/20/2007

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#: WSCF20071148
Report Date: 15-aug-2007
Report WGPP/ver. 5.2

w13qlog v4.2 15-aug-2007 15:25:38

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20071148

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
32481	2	32872	36933	BLANK		Anions by Ion Chromatography
32481	8	32872	36933	BLANK		Anions by Ion Chromatography
32481	3	32872	36933	LCS		Anions by Ion Chromatography
32481	5	32872	36933	DUP	W07GR01703	Anions by Ion Chromatography
32481	6	32872	36933	MS	W07GR01703	Anions by Ion Chromatography
32481	7	32872	36933	MSD	W07GR01703	Anions by Ion Chromatography
32481	4	32872	36933	SAMPLE	W07GR01703	Anions by Ion Chromatography
32481	7	32872	36933	SPK-RPD	W07GR01703	Anions by Ion Chromatography
32465	2	32856	36959	BLANK		Hexavalent chromium
32465	8	32856	36959	BLANK		Hexavalent chromium
32465	3	32856	36959	LCS		Hexavalent chromium
32465	5	32856	36959	DUP	W07GR01703	Hexavalent chromium
32465	6	32856	36959	MS	W07GR01703	Hexavalent chromium
32465	7	32856	36959	MSD	W07GR01703	Hexavalent chromium
32465	4	32856	36959	SAMPLE	W07GR01703	Hexavalent chromium
32465	7	32856	36959	SPK-RPD	W07GR01703	Hexavalent chromium
32503	1	32894	36983	BLANK		ICP Metals Analysis, Grd H20 P
32503	2	32894	36983	LCS		ICP Metals Analysis, Grd H20 P
32503	4	32894	36983	MS	W07GR01532	ICP Metals Analysis, Grd H20 P
32503	5	32894	36983	MSD	W07GR01532	ICP Metals Analysis, Grd H20 P
32503	5	32894	36983	SPK-RPD	W07GR01532	ICP Metals Analysis, Grd H20 P
32503	17	32894	36983	SAMPLE	W07GR01703	ICP Metals Analysis, Grd H20 P
32580	1	32972	37044	LCS		Total Alkalinity as mg/L CaCO3
32580	14	32972	37044	LCS		Total Alkalinity as mg/L CaCO3
32580	21	32972	37044	LCS		Total Alkalinity as mg/L CaCO3
32580	3	32972	37044	DUP	W07GR01703	Total Alkalinity as mg/L CaCO3
32580	2	32972	37044	SAMPLE	W07GR01703	Total Alkalinity as mg/L CaCO3
32580	10	32972	37044	DUP	W07P001309	Total Alkalinity as mg/L CaCO3
32593	1	32984	37061	BLANK		ICP-200.8 MS All possible meta
32593	2	32984	37061	LCS		ICP-200.8 MS All possible meta
32593	4	32984	37061	MS	W07GR01488	ICP-200.8 MS All possible meta
32593	5	32984	37061	MSD	W07GR01488	ICP-200.8 MS All possible meta
32593	5	32984	37061	SPK-RPD	W07GR01488	ICP-200.8 MS All possible meta
32593	7	32984	37061	MS	W07GR01526	ICP-200.8 MS All possible meta
32593	8	32984	37061	MSD	W07GR01526	ICP-200.8 MS All possible meta
32593	8	32984	37061	SPK-RPD	W07GR01526	ICP-200.8 MS All possible meta
32593	13	32984	37061	SAMPLE	W07GR01703	ICP-200.8 MS All possible meta

w13qlog v4.2 15-aug-2007 15:25:38

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20071148

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			37307	BLANK		VOA Ground Water Protection
			37307	LCS		VOA Ground Water Protection
			37307	MS	W07GR01569	VOA Ground Water Protection
			37307	MSD	W07GR01569	VOA Ground Water Protection
			37307	SPK-RPD	W07GR01569	VOA Ground Water Protection
			37307	SAMPLE	W07GR01703	VOA Ground Water Protection
			37307	SURR	W07GR01703	VOA Ground Water Protection

w13qlog v4.2 15-aug-2007 15:25:38

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20071148

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
32665	1	33056	37123	BLANK		TC99 by Liquid Scin.
32665	4	33056	37123	LCS		TC99 by Liquid Scin.
32665	3	33056	37123	DUP	W07GR01703	TC99 by Liquid Scin.
32665	2	33056	37123	MS	W07GR01703	TC99 by Liquid Scin.
32665	6	33056	37123	SAMPLE	W07GR01703	TC99 by Liquid Scin.
32620	1	33012	37136	BLANK		Tritium by Liq Sct column prep
32620	4	33012	37136	LCS		Tritium by Liq Sct column prep
32620	3	33012	37136	DUP	W07GR01531	Tritium by Liq Sct column prep
32620	2	33012	37136	MS	W07GR01531	Tritium by Liq Sct column prep
32620	7	33012	37136	SAMPLE	W07GR01703	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-531-411 LA-531-411: ALKALINITY (TITRIMETRIC)

HEIS 2320B	Alkalinity
Standard Methods 2320B	Alkalinity

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: Organic

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-523-455	LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846	
	EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
	EPA SW-846 8260B	VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
	HEIS 8260_VOA_GCMS	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)

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: F07-006
Sample # W07GR01703
Client ID: B1L949 TRENT WSCF

Matrix: WATER

Group #: WSCF20071148
Department: Inorganic
Sampled: 07/06/07
Received: 07/06/07

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	D	2.92	mg/L			5.00	0.030		07/06/07
Chloride	16887-00-6	LA-533-410	D	26.2	mg/L			5.00	0.15		07/06/07
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0500	mg/L			5.00	0.050		07/06/07
Nitrogen in Nitrate	NO3-N	LA-533-410	D	232	mg/L			1.01e+002	0.50		07/06/07
Sulfate	14808-79-8	LA-533-410	D	55.1	mg/L			5.00	0.35		07/06/07
Hexavalent Chromium											
Hexavalent Chromium	18540-29-9	LA-265-403		0.167	mg/L			1.00	2.0e-03		07/06/07
ICP Metals Analysis, Grd H20 P Prep											**07/11/07**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	CD	55.3	ug/L			5.00	45		07/12/07
Magnesium	7439-95-4	LA-505-411	D	3.56e+04	ug/L			5.00	30		07/12/07
Potassium	7440-09-7	LA-505-411	D	8.16e+03	ug/L			5.00	2.2e+02		07/12/07
Sodium	7440-23-5	LA-505-411	D	2.86e+05	ug/L			5.00	1.4e+02		07/12/07
Calcium	7440-70-2	LA-505-411	D	1.03e+05	ug/L			5.00	1.7e+02		07/12/07
ICP-200.8 MS All possible meta Prep											**07/17/07**
ICP-200.8 MS All possible meta											
Manganese	7439-96-5	LA-505-412		44.4	ug/L			1.00	0.100		07/18/07
Nickel	7440-02-0	LA-505-412		1.33	ug/L			1.00	0.200		07/18/07
Antimony	7440-36-0	LA-505-412		0.738	ug/L			1.00	0.300		07/18/07
Cadmium	7440-43-9	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/18/07
Chromium	7440-47-3	LA-505-412		147	ug/L			1.00	0.500		07/18/07
Vanadium	7440-62-2	LA-505-412		32.3	ug/L			1.00	0.200		07/18/07
Lead	7439-92-1	LA-505-412		0.129	ug/L			1.00	0.100		07/18/07
Uranium	7440-61-1	LA-505-412		6.27	ug/L			1.00	0.0500		07/18/07

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

C - The Analyte was found in the Associated Blank.(inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-006
Sample # W07GR01703
Client ID: B1L949 TRENT WSCF

Matrix: WATER

Group #: WSCF20071148
Department: Inorganic
Sampled: 07/06/07
Received: 07/06/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Arsenic	7440-38-2	LA-505-412		8.29	ug/L			1.00	0.400		07/18/07
Technetium by ICP-MS	7440-26-8	LA-505-412		?	ug/L			0.00	0.0		07/18/07
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		170	mg/L			1.00	1.0		07/16/07

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

C - The Analyte was found in the Associated Blank.(inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 07/06/07
Receive Date:07/06/07

Lab ID: W07GR01703

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	26.19		RPD			0.215	20.000		07/06/07
DUP	Fluoride	16984-48-8	2.9945		RPD			2.516	20.000		07/06/07
DUP	Nitrogen in Nitrite	NO2-N	<5e-2		RPD			n/a	20.000	U	07/06/07
DUP	Nitrogen in Nitrate	NO3-N	230.4219		RPD			0.890	20.000		07/06/07
DUP	Sulfate	14808-79-8	54.9105		RPD			0.275	20.000		07/06/07
MS	Chloride	16887-00-6	0.96818	97.796	% Recov	75.000	125.000				07/06/07
MS	Fluoride	16984-48-8	0.51398	102.386	% Recov	75.000	125.000				07/06/07
MS	Nitrogen in Nitrite	NO2-N	0.4839	98.154	% Recov	75.000	125.000				07/06/07
MS	Nitrogen in Nitrate	NO3-N	0.391633	86.837	% Recov	75.000	125.000				07/06/07
MS	Sulfate	14808-79-8	2.08514	105.310	% Recov	75.000	125.000				07/06/07
MSD	Chloride	16887-00-6	1.0058	101.596	% Recov	75.000	125.000				07/06/07
MSD	Fluoride	16984-48-8	0.53718	107.008	% Recov	75.000	125.000				07/06/07
MSD	Nitrogen in Nitrite	NO2-N	0.48132	97.631	% Recov	75.000	125.000				07/06/07
MSD	Nitrogen in Nitrate	NO3-N	0.400764	88.861	% Recov	75.000	125.000				07/06/07
MSD	Sulfate	14808-79-8	2.13438	107.797	% Recov	75.000	125.000				07/06/07
SPK-RPD	Chloride	16887-00-6	101.596		RPD			3.812	20.000		07/06/07
SPK-RPD	Fluoride	16984-48-8	107.008		RPD			4.415	20.000		07/06/07
SPK-RPD	Nitrogen in Nitrite	NO2-N	97.631		RPD			0.534	20.000		07/06/07
SPK-RPD	Nitrogen in Nitrate	NO3-N	88.861		RPD			2.304	20.000		07/06/07
SPK-RPD	Sulfate	14808-79-8	107.797		RPD			2.334	20.000		07/06/07

BATCH QC

BLANK	Chloride	16887-00-6	<3e-2	n/a	mg/L	0.000	0.030			U	07/06/07
BLANK	Chloride	16887-00-6	<3e-2	n/a	mg/L	0.000	0.030			U	07/06/07
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	07/06/07
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	07/06/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
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
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	07/06/07
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	07/06/07
BLANK	Nitrogen in Nitrate	NO3-N	<5e-3	n/a	mg/L	0.000	0.040			U	07/06/07
BLANK	Nitrogen in Nitrate	NO3-N	<5e-3	n/a	mg/L	0.000	0.040			U	07/06/07
BLANK	Sulfate	14808-79-8	<7e-2	n/a	mg/L	0.000	0.200			U	07/06/07
BLANK	Sulfate	14808-79-8	<7e-2	n/a	mg/L	0.000	0.200			U	07/06/07
LCS	Chloride	16887-00-6	191.5735	95.787	% Recov	80.000	120.000				07/06/07
LCS	Fluoride	16984-48-8	102.3767	101.363	% Recov	80.000	120.000				07/06/07
LCS	Nitrogen in Nitrite	NO2-N	98.7761	99.173	% Recov	80.000	120.000				07/06/07
LCS	Nitrogen in Nitrate	NO3-N	91.1011	99.892	% Recov	80.000	120.000				07/06/07
LCS	Sulfate	14808-79-8	381.3448	95.336	% Recov	80.000	120.000				07/06/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
Matrix: WATER
Test: Hexavalent chromium

Sample Date: 07/06/07
Receive Date:07/06/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR01703											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Hexavalent chromium	18540-29-9	0.1667		RPD			0.000	15.000		07/06/07
MS	Hexavalent chromium	18540-29-9	0.0508	96.212	% Recov	85.000	115.000				07/06/07
MSD	Hexavalent chromium	18540-29-9	0.0508	96.212	% Recov	85.000	115.000				07/06/07
SPK-RPD	Hexavalent chromium	18540-29-9	96.212		RPD			0.000	20.000		07/06/07
BATCH QC											
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	07/06/07
BLANK	Hexavalent chromium	18540-29-9	<0.002	n/a	mg/L	0.000	2.000			U	07/06/07
LCS	Hexavalent chromium	18540-29-9	0.0507	102.012	% Recov	80.000	120.000				07/06/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/29/07
Receive Date:06/29/07

Lab ID: W07GR01532

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	Calcium	7440-70-2	NA	n/a	% Recov	75.000	125.000				07/12/07
MS	Iron	7439-89-6	1105	110.500	% Recov	75.000	125.000				07/12/07
MS	Potassium	7440-09-7	10560	105.600	% Recov	75.000	125.000				07/12/07
MS	Magnesium	7439-95-4	980	98.000	% Recov	75.000	125.000				07/12/07
MS	Sodium	7440-23-5	NA	n/a	% Recov	75.000	125.000				07/12/07
MSD	Calcium	7440-70-2	NA	n/a	% Recov	75.000	125.000				07/12/07
MSD	Iron	7439-89-6	1051	105.100	% Recov	75.000	125.000				07/12/07
MSD	Potassium	7440-09-7	10740	107.400	% Recov	75.000	125.000				07/12/07
MSD	Magnesium	7439-95-4	1011	101.100	% Recov	75.000	125.000				07/12/07
MSD	Sodium	7440-23-5	NA	n/a	% Recov	75.000	125.000				07/12/07
SPK-RPD	Calcium	7440-70-2			RPD			n/a	20.000		07/12/07
SPK-RPD	Iron	7439-89-6	105.100		RPD			5.009	20.000		07/12/07
SPK-RPD	Potassium	7440-09-7	107.400		RPD			1.690	20.000		07/12/07
SPK-RPD	Magnesium	7439-95-4	101.100		RPD			3.114	20.000		07/12/07
SPK-RPD	Sodium	7440-23-5			RPD			n/a	20.000		07/12/07

BATCH QC

BLANK	Calcium	7440-70-2	<34	n/a	ug/L					U	07/12/07
BLANK	Iron	7439-89-6	14.1	14.100	ug/L						07/12/07
BLANK	Potassium	7440-09-7	<45	n/a	ug/L					U	07/12/07
BLANK	Magnesium	7439-95-4	<6	n/a	ug/L					U	07/12/07
BLANK	Sodium	7440-23-5	<27	n/a	ug/L					U	07/12/07
LCS	Calcium	7440-70-2	1054	105.400	% Recov	80.000	120.000				07/12/07
LCS	Iron	7439-89-6	1022	102.200	% Recov	80.000	120.000				07/12/07
LCS	Potassium	7440-09-7	9750	97.500	% Recov	80.000	120.000				07/12/07
LCS	Magnesium	7439-95-4	976.4	97.640	% Recov	80.000	120.000				07/12/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20071148
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	984.5	98.450	% Recov	80.000	120.000				07/12/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/25/07
Receive Date:06/25/07

Lab ID: W07GR01488
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	Arsenic	7440-38-2	36.773	91.933	% Recov	70.000	130.000				07/18/07
MS	Cadmium	7440-43-9	36.35	90.875	% Recov	70.000	130.000				07/18/07
MS	Chromium	7440-47-3	36.1	90.250	% Recov	70.000	130.000				07/18/07
MS	Manganese	7439-96-5	34.64	86.600	% Recov	70.000	130.000				07/18/07
MS	Nickel	7440-02-0	35.2414	88.103	% Recov	70.000	130.000				07/18/07
MS	Lead	7439-92-1	39.9	99.750	% Recov	70.000	130.000				07/18/07
MS	Antimony	7440-36-0	45.43	113.575	% Recov	70.000	130.000				07/18/07
MS	Uranium	7440-61-1	39.561	98.903	% Recov	70.000	130.000				07/18/07
MS	Vanadium	7440-62-2	36.652	91.630	% Recov	70.000	130.000				07/18/07
MSD	Arsenic	7440-38-2	37.093	92.733	% Recov	70.000	130.000				07/18/07
MSD	Cadmium	7440-43-9	36.91	92.275	% Recov	70.000	130.000				07/18/07
MSD	Chromium	7440-47-3	36.62	91.550	% Recov	70.000	130.000				07/18/07
MSD	Manganese	7439-96-5	35.54	88.850	% Recov	70.000	130.000				07/18/07
MSD	Nickel	7440-02-0	35.4814	88.704	% Recov	70.000	130.000				07/18/07
MSD	Lead	7439-92-1	40.36	100.900	% Recov	70.000	130.000				07/18/07
MSD	Antimony	7440-36-0	45.92	114.800	% Recov	70.000	130.000				07/18/07
MSD	Uranium	7440-61-1	39.821	99.552	% Recov	70.000	130.000				07/18/07
MSD	Vanadium	7440-62-2	36.442	91.105	% Recov	70.000	130.000				07/18/07
SPK-RPD	Arsenic	7440-38-2	92.733		RPD			0.866	20.000		07/18/07
SPK-RPD	Cadmium	7440-43-9	92.275		RPD			1.529	20.000		07/18/07
SPK-RPD	Chromium	7440-47-3	91.550		RPD			1.430	20.000		07/18/07
SPK-RPD	Manganese	7439-96-5	88.850		RPD			2.565	20.000		07/18/07
SPK-RPD	Nickel	7440-02-0	88.704		RPD			0.680	20.000		07/18/07
SPK-RPD	Lead	7439-92-1	100.900		RPD			1.146	20.000		07/18/07
SPK-RPD	Antimony	7440-36-0	114.800		RPD			1.073	20.000		07/18/07
SPK-RPD	Uranium	7440-61-1	99.552		RPD			0.654	20.000		07/18/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/25/07
Receive Date:06/25/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Vanadium	7440-62-2	91.105		RPD			0.575	20.000		07/18/07
Lab ID: W07GR01526											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	38.137	95.343	% Recov	70.000	130.000				07/18/07
MS	Cadmium	7440-43-9	36.95	92.375	% Recov	70.000	130.000				07/18/07
MS	Chromium	7440-47-3	37.6468	94.117	% Recov	70.000	130.000				07/18/07
MS	Manganese	7439-96-5	37.42	93.550	% Recov	70.000	130.000				07/18/07
MS	Nickel	7440-02-0	37.3927	93.482	% Recov	70.000	130.000				07/18/07
MS	Antimony	7440-36-0	45.67	114.175	% Recov	70.000	130.000				07/18/07
MS	Vanadium	7440-62-2	37.666	94.165	% Recov	70.000	130.000				07/18/07
MSD	Arsenic	7440-38-2	37.197	92.993	% Recov	70.000	130.000				07/18/07
MSD	Cadmium	7440-43-9	36.4	91.000	% Recov	70.000	130.000				07/18/07
MSD	Chromium	7440-47-3	37.0368	92.592	% Recov	70.000	130.000				07/18/07
MSD	Manganese	7439-96-5	36.74	91.850	% Recov	70.000	130.000				07/18/07
MSD	Nickel	7440-02-0	36.8927	92.232	% Recov	70.000	130.000				07/18/07
MSD	Antimony	7440-36-0	45	112.500	% Recov	70.000	130.000				07/18/07
MSD	Vanadium	7440-62-2	37.206	93.015	% Recov	70.000	130.000				07/18/07
SPK-RPD	Arsenic	7440-38-2	92.993		RPD			2.496	20.000		07/18/07
SPK-RPD	Cadmium	7440-43-9	91.000		RPD			1.500	20.000		07/18/07
SPK-RPD	Chromium	7440-47-3	92.592		RPD			1.634	20.000		07/18/07
SPK-RPD	Manganese	7439-96-5	91.850		RPD			1.834	20.000		07/18/07
SPK-RPD	Nickel	7440-02-0	92.232		RPD			1.346	20.000		07/18/07
SPK-RPD	Antimony	7440-36-0	112.500		RPD			1.478	20.000		07/18/07
SPK-RPD	Vanadium	7440-62-2	93.015		RPD			1.229	20.000		07/18/07
BATCH QC											
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	07/18/07
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	07/18/07
BLANK	Chromium	7440-47-3	0.582	0.582	ug/L						07/18/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071148
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
BLANK	Manganese	7439-96-5	<0.1	n/a	ug/L					U	07/18/07
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	07/18/07
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	07/18/07
BLANK	Antimony	7440-36-0	<0.3	n/a	ug/L					U	07/18/07
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	07/18/07
BLANK	Vanadium	7440-62-2	<0.2	n/a	ug/L					U	07/18/07
LCS	Arsenic	7440-38-2	36.55	91.375	% Recov	85.000	115.000				07/18/07
LCS	Cadmium	7440-43-9	37.05	92.625	% Recov	85.000	115.000				07/18/07
LCS	Chromium	7440-47-3	38.28	95.700	% Recov	85.000	115.000				07/18/07
LCS	Manganese	7439-96-5	37.74	94.350	% Recov	85.000	115.000				07/18/07
LCS	Nickel	7440-02-0	38.36	95.900	% Recov	85.000	115.000				07/18/07
LCS	Lead	7439-92-1	38.97	97.425	% Recov	85.000	115.000				07/18/07
LCS	Antimony	7440-36-0	44.79	111.975	% Recov	85.000	115.000				07/18/07
LCS	Uranium	7440-61-1	37.53	93.825	% Recov	85.000	115.000				07/18/07
LCS	Vanadium	7440-62-2	37.75	94.375	% Recov	85.000	115.000				07/18/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20071148
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 07/06/07
Receive Date:07/06/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR01703											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	172		RPD			0.583	20.000		07/16/07
Lab ID: W07P001309											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	142		RPD			0.707	20.000		07/16/07
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	42.73	95.379	%Recove	80.000	120.000				07/16/07
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	122	106.087	%Recove	80.000	120.000				07/16/07
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	123.8	107.652	%Recove	80.000	120.000				07/16/07

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F07-006

Group #: WSCF20071148
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: High iron preparation blank; "C" flag if applicable. Sodium and calcium sample results beyond effective spike range (spike results marked "NA"). High and check standards used to ensure sodium, cacium, and magnesium linearity because sample results are greater than the calibration standard. VOA: Calibration range exceeded for Carbon Tetrachloride in sample B1L949. Hence flagged as estimated. gar ICP-MS:Chromium prep blank above the MDL. No impact. No flag

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: F07-006
Sample # W07GR01703
Client ID: B1L949 TRENT WSCF

Matrix: WATER

Group #: WSCF20071148
Department: Organic
Sampled: 07/06/07
Received: 07/06/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Trichloroethene	79-01-6	LA-523-455	J	4.90	ug/L			1.00	1.0		07/11/07
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Styrene	100-42-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Dibromochloromethane	124-48-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Carbon tetrachloride	56-23-5	LA-523-455	E	1.30e+03	ug/L			1.00	5.0		07/12/07
2-Hexanone	591-78-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Chloroform	67-66-3	LA-523-455		16.0	ug/L			1.00	1.0		07/11/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Bromomethane	74-83-9	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Chloromethane	74-87-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07

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

C - The Analyte was found in the Associated Blank.(inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-006
Sample # W07GR01703
Client ID: B1L949 TRENT WSCF

Matrix: WATER

Group #: WSCF20071148
Department: Organic
Sampled: 07/06/07
Received: 07/06/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Chloroethane	75-00-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Bromoform	75-25-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
Bromodichloromethane	75-27-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/11/07

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

C - The Analyte was found in the Associated Blank.(inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071148
Matrix: WATER
Test: VOA Ground Water Protection

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR01569											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,1-Dichloroethene	75-35-4	27.710	111.000	% Recov	63.000	117.000				07/11/07
MS	Benzene	71-43-2	27.210	109.000	% Recov	75.000	129.000				07/11/07
MS	4-Bromofluorobenzene(Surr)	460-00-4	49.720	99.400	% Recov	84.000	116.000				07/11/07
MS	Chlorobenzene	108-90-7	20.690	82.800	% Recov	79.000	119.000				07/11/07
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	45.280	90.600	% Recov	82.000	136.000				07/11/07
MS	Toluene-d8(Surr)	2037-26-5	50.590	101.000	% Recov	89.000	119.000				07/11/07
MS	Toluene	108-88-3	25.150	101.000	% Recov	76.000	120.000				07/11/07
MS	Trichloroethene	79-01-6	24.130	96.500	% Recov	73.000	123.000				07/11/07
MSD	1,1-Dichloroethene	75-35-4	26.890	108.000	% Recov	63.000	117.000				07/11/07
MSD	Benzene	71-43-2	26.189	105.000	% Recov	75.000	129.000				07/11/07
MSD	4-Bromofluorobenzene(Surr)	460-00-4	49.260	98.500	% Recov	84.000	116.000				07/11/07
MSD	Chlorobenzene	108-90-7	20.060	80.200	% Recov	79.000	119.000				07/11/07
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	45.530	91.100	% Recov	82.000	136.000				07/11/07
MSD	Toluene-d8(Surr)	2037-26-5	51.430	103.000	% Recov	89.000	119.000				07/11/07
MSD	Toluene	108-88-3	24.820	99.300	% Recov	76.000	120.000				07/11/07
MSD	Trichloroethene	79-01-6	22.837	91.300	% Recov	73.000	123.000				07/11/07
SPK-RPD	1,1-Dichloroethene	75-35-4	108.000		RPD			2.740	20.000		07/11/07
SPK-RPD	Benzene	71-43-2	105.000		RPD			3.738	20.000		07/11/07
SPK-RPD	Chlorobenzene	108-90-7	80.200		RPD			3.190	20.000		07/11/07
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	91.100		RPD			0.550	20.000		07/11/07
SPK-RPD	Toluene-d8(Surr)	2037-26-5	103.000		RPD			1.961	20.000		07/11/07
SPK-RPD	Toluene	108-88-3	99.300		RPD			1.697	20.000		07/11/07
SPK-RPD	Trichloroethene	79-01-6	91.300		RPD			5.538	20.000		07/11/07

Lab ID: W07GR01703
BATCH QC ASSOCIATED WITH SAMPLE

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071148
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 07/06/07
Receive Date:07/06/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.710	97.400	% Recov	84.000	116.000				07/11/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	46.100	92.200	% Recov	82.000	136.000				07/11/07
SURR	Toluene-d8(Surr)	2037-26-5	52.670	105.000	% Recov	89.000	119.000				07/11/07

BATCH QC

BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	07/11/07
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	07/11/07
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	07/11/07
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/L	0.000	5.000			U	07/11/07
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	07/11/07
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	07/11/07
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 1.0	n/a	ug/L					U	07/11/07
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/L					U	07/11/07
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Acetone	67-64-1	6.7	6.700	ug/L						07/11/07
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	07/11/07
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	49.750	99.500	% Recov	84.000	116.000				07/11/07
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	07/11/07
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/L					U	07/11/07
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	46.100	92.200	% Recov	82.000	136.000				07/11/07
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/L					U	07/11/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071148
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/L					U	07/11/07
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	07/11/07
BLANK	Toluene-d8(Surr)	2037-26-5	52.020	104.000	% Recov	89.000	119.000				07/11/07
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	07/11/07
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	07/11/07
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	07/11/07
LCS	1,1-Dichloroethene	75-35-4	26.300	105.000	% Recov	70.000	130.000				07/11/07
LCS	Benzene	71-43-2	27.620	110.000	% Recov	70.000	130.000				07/11/07
LCS	4-Bromofluorobenzene(Surr)	460-00-4	48.210	96.400	% Recov	84.000	116.000				07/11/07
LCS	Chlorobenzene	108-90-7	21.360	85.400	% Recov	70.000	130.000				07/11/07
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	45.640	91.300	% Recov	82.000	136.000				07/11/07
LCS	Toluene-d8(Surr)	2037-26-5	52.440	105.000	% Recov	89.000	119.000				07/11/07
LCS	Toluene	108-88-3	26.000	104.000	% Recov	70.000	130.000				07/11/07
LCS	Trichloroethene	79-01-6	22.310	89.200	% Recov	70.000	130.000				07/11/07

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F07-006

Group #: WSCF20071148
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: High iron preparation blank; "C" flag if applicable. Sodium and calcium sample results beyond effective spike range (spike results marked "NA"). High and check standards used to ensure sodium, cacium, and magnesium linearity because sample results are greater than the calibration standard. VOA: Calibration range exceeded for Carbon Tetrachloride in sample B1L949. Hence flagged as estimated. gar ICP-MS:Chromium prep blank above the MDL. No impact. No flag

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: F07-006
Sample # W07GR01703
Client ID: B1L949 TRENT WSCF

Matrix: WATER

Group #: WSCF20071148
Department: Radiochemistry
Sampled: 07/06/07
Received: 07/06/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Technetium-99	14133-76-7	LA-508-421		260	pCi/L	+-52.0	pCi/L	1.00	2.5		07/21/07
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		3.00e+03	pCi/L	+-630	pCi/L	1.00	2.3e+02		07/17/07

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

C - The Analyte was found in the Associated Blank.(inorg)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20071148
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 07/06/07
Receive Date:07/06/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR01703											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Technetium-99	14133-76-7	2.6E+02		RPD			0.000	20.000		07/21/07
MS	Technetium-99	14133-76-7	90.3	92.806	% Recov	75.000	125.000				07/21/07
BATCH QC											
BLANK	Technetium-99	14133-76-7	U-1.9	n/a	pCi/L	-10.000	10.000				07/21/07
LCS	Technetium-99	14133-76-7	120.5	99.095	% Recov	80.000	120.000				07/21/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071148
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 06/28/07
Receive Date:06/28/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR01531											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	1.4E+03		RPD			15.385	20.000		07/17/07
MS	Tritium	10028-17-8	15770.0	92.413	% Recov	75.000	125.000				07/17/07
BATCH QC											
BLANK	Tritium	10028-17-8	U-2.3E+01	n/a	pCi/L	-10.000	1000.000				07/17/07
LCS	Tritium	10028-17-8	1870.0	92.506	% Recov	80.000	120.000				07/17/07

M4W41-SLF-07-550

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 3 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

File

ACKNOWLEDGMENT OF SAMPLES RECEIVED

08/20/07

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122597/ES10
Group#: 20071148
Project#: F07-006
Proj Mgr: Steve Trent G6-35
Phone: 373-5869

The following samples were received from you on 07/06/07. 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
W07GR01703	B1L949	TRENT @2008 @GPP6010 @H3-33 @IC-30 @TC99-30 @VOA-GPP ALKALI CR+6	Water	07/06/07

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
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection
ALKALI	Total Alkalinity as mg/L CaCO3
CR+6	Hexavalent chromium

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE	7N	DATA TURNAROUND
POPE/PFISTER/HUGHES/WISE 20071148	ROHAY, VJ	373-3807	TRENT, SJ	AIR QUALITY	☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**			
C5244 - 1-39 241' (Pump Intake)	T4/T5 Well Installation Characterization - Groundwater		F07-006			
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**			
	HNF-N-502 1	122597ES10	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	HCl or H2SO4 to pH <2/Cool 4C	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	None	None	HNO3 to pH <2(ULTREX)
TYPE OF CONTAINER	aGs*	P	aG	P	P	P	P	Nalgene
NO. OF CONTAINER(S)	3	1	1	1	1	1	2	1
VOLUME	40mL	500mL	500mL	500mL	120mL	500mL	1000mL	500mL
SAMPLE ANALYSIS	VOA - 8260B (TCL);	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Chromium Hex - 7196;	Alkalinity - 310.1;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	Tritium - H3;	Technetium-99;	Tc-99 by ICPMS;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B1L949 W076R01703	WATER	7-6-07	0950	X	X	X	X	X	X	X	X

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J-Pope/Pfister 7-6-07	1345	TA Fortier	7-6-07 1345

SPECIAL INSTRUCTIONS
** Analytical batch QC must be run on samples associated with this SAF.
(1)ICP/MS - 200.8 (TAL) {Antimony, Cadmium, Chromium, Manganese, Nickel, Vanadium} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Uranium} ICP Metals - 6010B (TAL) {Calcium, Iron, Magnesium, Potassium, Sodium}
(2)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Sulfate}

ICED
Initial
Date

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

M4W41-SLF-07-550

ATTACHMENT 5

ISSUE RESOLUTION FORM

Consisting of 2 pages
Including cover page

ISSUE RESOLUTION FORM

TRACKING NUMBER: **07-067**

Date : **07-20-2007** SAF No. **F07-006**

SDG: **WSCF20071148** LOGIN No.: TEST: Sample Preservation – Cool 4C

Sample No.(s) **B1L949** **W07P001703**

Submitted By:	PD Mix	Submitted To:	H Hampt
Phone No.	372-1488	Phone No.	376-4319
Fax No.	372-0456	Fax No.	

ISSUE	PROPOSED RESOLUTION
Due to temperature-control problems with Refrigerator #3 located in Room 4N of the WSCF Laboratory Facility (6266 Building), sample temperature may have risen above the 4 degree Celsius requirement. Instead of being refrigerated at 4 degrees Celsius, as required by the chain of custody, Refrigerator #3's temperature rose to a maximum temperature of 10 degrees Celsius. Sample was transferred from Refrigerator #3 to an alternate refrigerator in Room 4N (@ 4 degrees Celsius) and Refrigerator #3 was taken out of service for repair. Temperature control was repaired and Refrigerator #3 returned to service.	Accept results (accept as-is) and document Refrigerator #3 temperature-control problem in the case narrative.

GRP COMMENTS

Accept proposed resolution.

Heidi Hampt 7/24/07

Signature and Date