

RECEIVED DECEMBER 31, 2008

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FLUOR[®]

M4W41-SLF-08-1334

December 30, 2008

Mr. M. A. Neely, Manager
Analytical Services
CH2M HILL Plateau Remediation Contract
PO Box 1600 MSIN B6-06
Richland, WA 99352

Dear Mike:

FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20082271

- Reference:
- (1) Memorandum of Agreement #MOA-FH-CHPRC-2008, Rev. 0, for the Performance & Payment of Services, dated October 1, 2008
 - (2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following attachments for sample delivery group WSCF20082271:

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

Very truly yours,

S. L. Fitzgerald
for S. L. Fitzgerald
WSCF Analytical Lab

SLF/grf

Attachments 4

cc: w/Attachments

T. F. Dale	S3-30
A. J. Kopriva	S3-30
H. K. Meznarich	S3-30
P. D. Mix	S3-30

J. E. Trechter
S. J. Trent
File/LB

S3-30
B6-06

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M4W41-SLF-08-1334

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20082271
Data Deliverable Date: 05-jan-2009
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I09-005	B1XHJ6	W08P004954	WATER
	B1XHJ7	W08P004955	WATER
	B1XHM1	W08P004962	WATER
I09-007	B1XKT5	W08P004968	WATER
I09-008	B1XL12	W08P004964	WATER
	B1XL13	W08P004965	WATER
	B1XL16	W08P004966	WATER
	B1XL17	W08P004967	WATER
I09-009	B1XLF1	W08P004958	WATER
	B1XLF2	W08P004959	WATER
	B1XLF3	W08P004960	WATER
	B1XLF4	W08P004961	WATER
	B1XLN5	W08P004956	WATER
	B1XLN6	W08P004957	WATER
S09-011	B1XMM2	W08P004969	WATER
	B1XMM3	W08P004970	WATER
	B1XMM4	W08P004971	WATER
	B1XMM7	W08P004972	WATER
	B1XWC0	W08P004963	WATER

M4W41-SLF-08-1334

ATTACHMENT 2

NARRATIVE

**Consisting of 4 pages
Including cover page**

Introduction

Nineteen (19) groundwater samples were received at the WSCF Laboratory on November 19, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Memorandum of Agreement (MOA-FH-CHPRC-2008, Rev.0)*, 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.

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

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, 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. See pages 40 through 44 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit, were B flagged.
- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1XMM4 and B1XMM7 of this SDG; and, B1XLD9 (SDG# 20082272) and B1XM02 (SDG# 20082277).

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. See pages 45 through 48 for QC details. Analytical Note(s):

- Sample results that were less than the reportable limit, however greater than the method detection limit, were B flagged.

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XLL7 (SDG# 20082269).
- Magnesium, Sodium and Calcium – sample concentrations were greater than the spiking levels by a factor of > 4. Spike recoveries are not valid. Check standard was analyzed to ensure linearity, because the sample results exceeded the calibration standard.

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. See pages 50 through 52 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1XLC1, B1XLC4, B1XLD4 and B1XLD6 (SDG# 20082244); and B1XL82 (SDG# 20082247).

All 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. See page 53 for QC details. Analytical Note(s):

- Duplicate QC was analyzed on sample# B1XK66 (SDG# 20082265).

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. See pages 60 through 62 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1XL38 (SDG# 20082252).
- Sample results that were less than the lowest calibration standard, however greater than the method detection limit, were J flagged.
- 1,2-Dichloroethane-4d – Surrogate recoveries exceeded established laboratory limits for samples B1XWC0 and B1XL17. No flags issued.

All other QC controls are within the established limits.

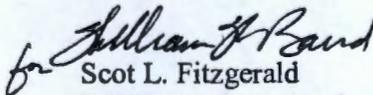
Radiochemistry Comments

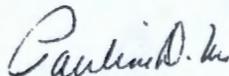
Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 69 through 72 for QC details. Analytical Note(s):

- Gross Alpha/Gross Beta – Duplicate QC was analyzed on sample# B1XM68 (SDG# 20082252).
- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1W541 (SDG# 20082253).
- Tritium – Duplicates and Matrix Spikes were analyzed on samples B1XDV0 (SDG# 20082264) and B1XL13 of this SDG. Matrix Spike recovery (B1XDV0) was less than established laboratory limits due to high sample activity. No flags issued.

All other QC controls are within the established limits.

I certify that this data package is in compliance with the MOA, 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.


Scot L. Fitzgerald
WSCF Analytical Laboratory Manager


Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-1334

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 66 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

for

**GPAP
Richland, WA 99352**

Attention: Steve Trent E6-35

Analytical: *Sullivan J Baird NW Baird 12/30/2008*
Client Services: *P.D. Mix 12/30/2008*

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.

Report#: WSCF20082271
Report Date: 19-dec-2008
Report WGPP/ver. 5.2
GPAP

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20082271

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38604	2	39021	43513	BLANK		Anions by Ion Chromatography
38604	13	39021	43513	BLANK		Anions by Ion Chromatography
38604	3	39021	43513	LCS		Anions by Ion Chromatography
38604	8	39021	43513	SAMPLE	W08P004959	Anions by Ion Chromatography
38604	9	39021	43513	SAMPLE	W08P004961	Anions by Ion Chromatography
38604	12	39021	43513	SAMPLE	W08P004965	Anions by Ion Chromatography
38604	10	39021	43513	SAMPLE	W08P004970	Anions by Ion Chromatography
38604	5	39021	43513	DUP	W08P004971	Anions by Ion Chromatography
38604	6	39021	43513	MS	W08P004971	Anions by Ion Chromatography
38604	7	39021	43513	MSD	W08P004971	Anions by Ion Chromatography
38604	4	39021	43513	SAMPLE	W08P004971	Anions by Ion Chromatography
38604	7	39021	43513	SPK-RPD	W08P004971	Anions by Ion Chromatography
38603	2	39022	43517	BLANK		Anions by Ion Chromatography
38603	13	39022	43517	BLANK		Anions by Ion Chromatography
38603	3	39022	43517	LCS		Anions by Ion Chromatography
38603	11	39022	43517	SAMPLE	W08P004955	Anions by Ion Chromatography
38603	12	39022	43517	SAMPLE	W08P004957	Anions by Ion Chromatography
38603	5	39022	43517	DUP	W08P004972	Anions by Ion Chromatography
38603	6	39022	43517	MS	W08P004972	Anions by Ion Chromatography
38603	7	39022	43517	MSD	W08P004972	Anions by Ion Chromatography
38603	4	39022	43517	SAMPLE	W08P004972	Anions by Ion Chromatography
38603	7	39022	43517	SPK-RPD	W08P004972	Anions by Ion Chromatography
38600	2	39025	43523	BLANK		Anions by Ion Chromatography
38600	13	39025	43523	BLANK		Anions by Ion Chromatography
38600	3	39025	43523	LCS		Anions by Ion Chromatography
38600	10	39025	43523	SAMPLE	W08P004967	Anions by Ion Chromatography
38600	11	39025	43523	SAMPLE	W08P004968	Anions by Ion Chromatography
38600	12	39025	43523	SAMPLE	W08P004969	Anions by Ion Chromatography
38600	5	39025	43523	DUP	W08P004981	Anions by Ion Chromatography
38600	6	39025	43523	MS	W08P004981	Anions by Ion Chromatography
38600	7	39025	43523	MSD	W08P004981	Anions by Ion Chromatography
38600	7	39025	43523	SPK-RPD	W08P004981	Anions by Ion Chromatography
38665	2	39088	43567	BLANK		Anions by Ion Chromatography
38665	13	39088	43567	BLANK		Anions by Ion Chromatography
38665	3	39088	43567	LCS		Anions by Ion Chromatography
38604	12	39088	43567	SAMPLE	W08P004965	Anions by Ion Chromatography
38665	6	39088	43567	DUP	W08P005014	Anions by Ion Chromatography
38665	7	39088	43567	MS	W08P005014	Anions by Ion Chromatography
38665	8	39088	43567	MSD	W08P005014	Anions by Ion Chromatography
38665	8	39088	43567	SPK-RPD	W08P005014	Anions by Ion Chromatography
38706	1	39124	43605	LCS		Total Alkalinity as mg/L CaCO3
38706	13	39124	43605	LCS		Total Alkalinity as mg/L CaCO3
38706	24	39124	43605	LCS		Total Alkalinity as mg/L CaCO3
38706	3	39124	43605	DUP	W08P004908	Total Alkalinity as mg/L CaCO3
38706	7	39124	43605	SAMPLE	W08P004969	Total Alkalinity as mg/L CaCO3
38706	8	39124	43605	SAMPLE	W08P004970	Total Alkalinity as mg/L CaCO3
38706	9	39124	43605	SAMPLE	W08P004971	Total Alkalinity as mg/L CaCO3
38706	10	39124	43605	SAMPLE	W08P004972	Total Alkalinity as mg/L CaCO3

38791	1	39208	43695	BLANK		ICP-200.8	MS	All possible meta
38791	2	39208	43695	BLANK		ICP-200.8	MS	All possible meta
38791	3	39208	43695	BLANK		ICP-200.8	MS	All possible meta
38791	4	39208	43695	LCS		ICP-200.8	MS	All possible meta
38791	5	39208	43695	LCS		ICP-200.8	MS	All possible meta
38791	6	39208	43695	LCS		ICP-200.8	MS	All possible meta
38791	8	39208	43695	MS	W08P004791	ICP-200.8	MS	All possible meta
38791	9	39208	43695	MSD	W08P004791	ICP-200.8	MS	All possible meta
38791	9	39208	43695	SPK-RPD	W08P004791	ICP-200.8	MS	All possible meta
38791	11	39208	43695	MS	W08P004792	ICP-200.8	MS	All possible meta
38791	12	39208	43695	MSD	W08P004792	ICP-200.8	MS	All possible meta
38791	12	39208	43695	SPK-RPD	W08P004792	ICP-200.8	MS	All possible meta
38791	14	39208	43695	MS	W08P004793	ICP-200.8	MS	All possible meta
38791	15	39208	43695	MSD	W08P004793	ICP-200.8	MS	All possible meta
38791	15	39208	43695	SPK-RPD	W08P004793	ICP-200.8	MS	All possible meta
38791	17	39208	43695	MS	W08P004794	ICP-200.8	MS	All possible meta
38791	18	39208	43695	MSD	W08P004794	ICP-200.8	MS	All possible meta
38791	18	39208	43695	SPK-RPD	W08P004794	ICP-200.8	MS	All possible meta
38791	20	39208	43695	MS	W08P004809	ICP-200.8	MS	All possible meta
38791	21	39208	43695	MSD	W08P004809	ICP-200.8	MS	All possible meta
38791	21	39208	43695	SPK-RPD	W08P004809	ICP-200.8	MS	All possible meta
38791	78	39208	43695	SAMPLE	W08P004956	ICP-200.8	MS	All possible meta
38791	79	39208	43695	SAMPLE	W08P004957	ICP-200.8	MS	All possible meta
38791	80	39208	43695	SAMPLE	W08P004958	ICP-200.8	MS	All possible meta
38791	81	39208	43695	SAMPLE	W08P004959	ICP-200.8	MS	All possible meta
38791	82	39208	43695	SAMPLE	W08P004960	ICP-200.8	MS	All possible meta
38791	83	39208	43695	SAMPLE	W08P004961	ICP-200.8	MS	All possible meta
38791	84	39208	43695	SAMPLE	W08P004968	ICP-200.8	MS	All possible meta
38791	85	39208	43695	SAMPLE	W08P004969	ICP-200.8	MS	All possible meta
38791	86	39208	43695	SAMPLE	W08P004970	ICP-200.8	MS	All possible meta
38791	87	39208	43695	SAMPLE	W08P004971	ICP-200.8	MS	All possible meta
38791	88	39208	43695	SAMPLE	W08P004972	ICP-200.8	MS	All possible meta
38648	1	39068	43748	BLANK		ICP Metals Analysis,	Grd H20	P
38648	2	39068	43748	LCS		ICP Metals Analysis,	Grd H20	P
38648	4	39068	43748	MS	W08P004936	ICP Metals Analysis,	Grd H20	P
38648	5	39068	43748	MSD	W08P004936	ICP Metals Analysis,	Grd H20	P
38648	5	39068	43748	SPK-RPD	W08P004936	ICP Metals Analysis,	Grd H20	P
38648	13	39068	43748	SAMPLE	W08P004954	ICP Metals Analysis,	Grd H20	P
38648	14	39068	43748	SAMPLE	W08P004955	ICP Metals Analysis,	Grd H20	P
38648	15	39068	43748	SAMPLE	W08P004956	ICP Metals Analysis,	Grd H20	P
38648	16	39068	43748	SAMPLE	W08P004957	ICP Metals Analysis,	Grd H20	P
38648	17	39068	43748	SAMPLE	W08P004958	ICP Metals Analysis,	Grd H20	P
38648	18	39068	43748	SAMPLE	W08P004959	ICP Metals Analysis,	Grd H20	P
38648	19	39068	43748	SAMPLE	W08P004960	ICP Metals Analysis,	Grd H20	P
38648	20	39068	43748	SAMPLE	W08P004961	ICP Metals Analysis,	Grd H20	P
38648	21	39068	43748	SAMPLE	W08P004964	ICP Metals Analysis,	Grd H20	P
38648	22	39068	43748	SAMPLE	W08P004965	ICP Metals Analysis,	Grd H20	P
38648	23	39068	43748	SAMPLE	W08P004966	ICP Metals Analysis,	Grd H20	P
38648	24	39068	43748	SAMPLE	W08P004967	ICP Metals Analysis,	Grd H20	P

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20082271

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			43563	BLANK		VOA Ground Water Protection
			43563	LCS		VOA Ground Water Protection
			43563	MS	W08P004849	VOA Ground Water Protection
			43563	MSD	W08P004849	VOA Ground Water Protection
			43563	SPK-RPD	W08P004849	VOA Ground Water Protection
			43563	SAMPLE	W08P004963	VOA Ground Water Protection
			43563	SURR	W08P004963	VOA Ground Water Protection
			43563	SAMPLE	W08P004965	VOA Ground Water Protection
			43563	SURR	W08P004965	VOA Ground Water Protection
			43563	SAMPLE	W08P004967	VOA Ground Water Protection
			43563	SURR	W08P004967	VOA Ground Water Protection

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20082271

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38616	1	39037	43627	BLANK		TC99 by Liquid Scin.
38616	2	39037	43627	LCS		TC99 by Liquid Scin.
38616	4	39037	43627	DUP	W08P004871	TC99 by Liquid Scin.
38616	3	39037	43627	MS	W08P004871	TC99 by Liquid Scin.
38616	15	39037	43627	SAMPLE	W08P004965	TC99 by Liquid Scin.
38616	16	39037	43627	SAMPLE	W08P004967	TC99 by Liquid Scin.
38616	17	39037	43627	SAMPLE	W08P004968	TC99 by Liquid Scin.
38794	1	39211	43747	BLANK		Gross Alpha/Gross Beta (AB32)
38794	2	39211	43747	LCS		Gross Alpha/Gross Beta (AB32)
38794	3	39211	43747	DUP	W08P004867	Gross Alpha/Gross Beta (AB32)
38794	12	39211	43747	SAMPLE	W08P004955	Gross Alpha/Gross Beta (AB32)
38794	13	39211	43747	SAMPLE	W08P004962	Gross Alpha/Gross Beta (AB32)
38613	1	39034	43762	BLANK		Tritium by Liq Sct column prep
38613	2	39034	43762	LCS		Tritium by Liq Sct column prep
38613	4	39034	43762	DUP	W08P004896	Tritium by Liq Sct column prep
38613	3	39034	43762	MS	W08P004896	Tritium by Liq Sct column prep
38613	15	39034	43762	SAMPLE	W08P004955	Tritium by Liq Sct column prep
38613	16	39034	43762	SAMPLE	W08P004962	Tritium by Liq Sct column prep
38701	1	39119	43763	BLANK		Tritium by Liq Sct column prep
38701	2	39119	43763	LCS		Tritium by Liq Sct column prep
38701	4	39119	43763	DUP	W08P004965	Tritium by Liq Sct column prep
38701	3	39119	43763	MS	W08P004965	Tritium by Liq Sct column prep
38701	5	39119	43763	SAMPLE	W08P004965	Tritium by Liq Sct column prep
38701	6	39119	43763	SAMPLE	W08P004967	Tritium by Liq Sct column prep
38701	7	39119	43763	SAMPLE	W08P004968	Tritium by Liq Sct column prep
38835	1	39244	43784	BLANK		Gross Alpha on Alpha Plateau
38835	2	39244	43784	LCS		Gross Alpha on Alpha Plateau
38835	3	39244	43784	DUP	W08P004867	Gross Alpha on Alpha Plateau
38835	12	39244	43784	SAMPLE	W08P004955	Gross Alpha on Alpha Plateau
38835	13	39244	43784	SAMPLE	W08P004962	Gross Alpha on Alpha Plateau

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-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 HEIS RADISOTOPES_ICPMS Radioisotopes by ICP/MS
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>.

Report Date: 19-dec-2008
Report#: WSCF20082271
Report WGPPM/5.2

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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>.

Report Date: 19-dec-2008
Report#: WSCF20082271
Report WGPPM/5.2

Page 1

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-508-415	LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS
HEIS ALPHA_GPC	GROSS ALPHA GPC
HEIS BETA_GPC	GROSS BETA GPC
HEIS SRTOT_SEP_PRECIP_GPC	Protium 89/90
LA-508-421	LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER
HEIS ALPHA_LSC	A/B Liquid Scintillation
HEIS BETA_LSC	A/B Liquid Scintillation
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>.

Report Date: 19-dec-2008

Report#: WSCF20082271

Report WGPPM/5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-005
Sample # W08P004954
Client ID: B1XHJ6

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.93e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		5.70e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		1.53e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		103	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		781	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.67e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		679	ug/L			1.00	4.0		12/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-005
Sample # W08P004955
Client ID: B1XHJ7

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

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	BD	0.0712	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	18.8	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	14.9	mg/L			10.00	0.12		11/20/08
Sulfate	14808-79-8	LA-533-410	D	116	mg/L			2.00	0.26		11/20/08
ICP Metals Analysis, Grd H20 P Prep											11/20/08
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.95e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		5.87e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		1.58e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		103	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		766	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.48e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		670	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P004955

Client ID: B1XHJ7

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-009
Sample # W08P004956
Client ID: B1XLN5

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

PNNL-GPP
WSCF

Matrix: WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.46e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		4.35e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	B	7.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		7.25e+03	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		60.2	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		675	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	B	25.9	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		5.94e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		489	ug/L			1.00	4.0		12/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Arsenic	7440-38-2	LA-505-412		1.33	ug/L			1.00	0.400		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004957

Client ID: B1XLN6

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	BD	0.134	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	16.2	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	7.90	mg/L			2.00	0.024		11/20/08
Sulfate	14808-79-8	LA-533-410	D	74.3	mg/L			2.00	0.26		11/20/08
ICP Metals Analysis, Grd H20 P Prep											11/20/08
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	B	94.8	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.39e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		4.09e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		6.96e+03	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		58.3	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		657	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	B	28.8	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		5.85e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		476	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004957

Client ID: B1XLN6

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		1.87	ug/L			1.00	0.0500		12/09/08
Arsenic	7440-38-2	LA-505-412		1.26	ug/L			1.00	0.400		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-009
Sample # W08P004958
Client ID: B1XLF1

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.95e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		3.31e+04	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		1.81e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		37.4	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		548	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.89e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		612	ug/L			1.00	4.0		12/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Arsenic	7440-38-2	LA-505-412		0.881	ug/L			1.00	0.400		12/09/08

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)
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Report WGPP/ver. 5.2
 GPAP

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004959

Client ID: B1XLF2

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	BD	0.0667	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	25.8	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	14.5	mg/L			10.00	0.12		11/20/08
Sulfate	14808-79-8	LA-533-410	D	145	mg/L			10.00	1.3		11/20/08
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	B	114	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		2.01e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	B	5.20	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	B	15.2	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		3.33e+04	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	B	9.90	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		1.83e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		38.1	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		576	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	B	7.20	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		8.09e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		621	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004959

Client ID: B1XLF2 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Uranium	7440-81-1	LA-505-412		3.04	ug/L			1.00	0.0500		12/09/08
Arsenic	7440-38-2	LA-505-412		0.888	ug/L			1.00	0.400		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-009

Sample # W08P004960

Client ID: B1XLF3

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-8	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.99e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		3.28e+04	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		1.77e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		37.6	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		555	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		8.07e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		618	ug/L			1.00	4.0		12/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Arsenic	7440-38-2	LA-505-412		0.878	ug/L			1.00	0.400		12/09/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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D - Analyte was identified at a secondary dilution factor(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-009
Sample # W08P004961
Client ID: B1XLF4

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

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	DU	< 0.0696	mg/L			3.00	0.070		11/20/08
Chloride	16887-00-6	LA-533-410	D	25.5	mg/L			3.00	0.14		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0384	mg/L			3.00	0.038		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	14.2	mg/L			3.00	0.036		11/20/08
Sulfate	14808-79-8	LA-533-410	D	143	mg/L			3.00	0.40		11/20/08
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	B	98.2	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		1.96e + 04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	B	4.60	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		3.24e + 04	ug/L			1.00	1.7e + 02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		1.83e + 04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		37.3	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		562	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	B	6.70	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.88e + 04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		610	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-009
Sample # W08P004961
Client ID: B1XLF4

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		3.06	ug/L			1.00	0.0500		12/09/08
Arsenic	7440-38-2	LA-505-412		0.810	ug/L			1.00	0.400		12/09/08

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

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 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-008
Sample # W08P004964
Client ID: B1XL12

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		2.63e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		6.92e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		8.06e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		88.3	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		104	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	B	21.8	ug/L			1.00	12		12/09/08
Zinc	7440-66-8	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.33e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		486	ug/L			1.00	4.0		12/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08

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)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004965

Client ID: B1XL13

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	1.36	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	18.8	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	71.4	mg/L			20.00	0.24		11/21/08
Sulfate	14808-79-8	LA-533-410	D	52.6	mg/L			2.00	0.26		11/20/08
ICP Metals Analysis, Grd H2O P Prep											11/20/08
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		2.63e +04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		6.94e +03	ug/L			1.00	1.7e +02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		7.76e +04	ug/L			1.00	51		12/09/08
Antimony	7440-38-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		88.7	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		100	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.36e +04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		487	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004965

Client ID: B1XL13 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-008
Sample # W08P004966
Client ID: B1XL16

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		2.61e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		6.78e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		7.81e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		88.5	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		92.0	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	B	19.0	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.45e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		487	ug/L			1.00	4.0		12/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004967

Client ID: B1XL17 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	1.36	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	19.5	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	74.5	mg/L			20.00	0.24		11/20/08
Sulfate	14808-79-8	LA-533-410	D	53.7	mg/L			2.00	0.26		11/20/08
ICP Metals Analysis, Grd H20 P Prep											11/20/08
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		12/09/08
Magnesium	7439-95-4	LA-505-411		2.59e+04	ug/L			1.00	50		12/09/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Potassium	7440-09-7	LA-505-411		6.66e+03	ug/L			1.00	1.7e+02		12/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		12/09/08
Sodium	7440-23-5	LA-505-411		7.60e+04	ug/L			1.00	51		12/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		12/09/08
Barium	7440-39-3	LA-505-411		88.4	ug/L			1.00	4.0		12/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Chromium	7440-47-3	LA-505-411		98.4	ug/L			1.00	13		12/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		12/09/08
Vanadium	7440-62-2	LA-505-411	B	21.8	ug/L			1.00	12		12/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		12/09/08
Calcium	7440-70-2	LA-505-411		7.63e+04	ug/L			1.00	73		12/09/08
Strontium	7440-24-6	LA-505-411		491	ug/L			1.00	4.0		12/09/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004967

Client ID: B1XL17 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		12/09/08

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RQ=Result Qualifier

TP Err=Total Propagated Error

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U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-007

Sample # W08P004968

Client ID: B1XKT5

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	0.396	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	9.36	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	13.8	mg/L			10.00	0.12		11/20/08
Sulfate	14808-79-8	LA-533-410	D	30.1	mg/L			2.00	0.26		11/20/08
ICP-200.8 MS All possible meta Prep											12/08/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		178	ug/L			1.00	0.0500		12/09/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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D - Analyte was identified at a secondary dilution factor(inorg)

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S09-011
Sample # W08P004969
Client ID: B1XMM2

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

**PNNL-GPP
WSCF**

Matrix: WATER

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	0.263	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	19.2	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	6.06	mg/L			2.00	0.024		11/20/08
Sulfate	14808-79-8	LA-533-410	D	58.2	mg/L			2.00	0.26		11/20/08
ICP-200.8 MS All possible meta Prep											12/08/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		42.0	ug/L			1.00	0.0500		12/09/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		130	mg/L			1.00	1.0		12/02/08

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

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S09-011
Sample # W08P004970
Client ID: B1XMM3

**PNNL-GPP
WSCF**

Matrix: WATER

Group #: WSCF20082271
Department: Inorganic
Sampled: 11/19/08
Received: 11/19/08

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	0.286	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	19.3	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	5.98	mg/L			2.00	0.024		11/20/08
Sulfate	14808-79-8	LA-533-410	D	56.6	mg/L			2.00	0.26		11/20/08
ICP-200.8 MS All possible meta Prep											12/08/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		70.1	ug/L			1.00	0.0500		12/09/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		130	mg/L			1.00	1.0		12/02/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: S09-011

Sample # W08P004971

Client ID: B1XMM4

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	DU	< 0.0464	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	DU	< 0.0938	mg/L			2.00	0.094		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 0.0242	mg/L			2.00	0.024		11/20/08
Sulfate	14808-79-8	LA-533-410	DU	< 0.264	mg/L			2.00	0.26		11/20/08
ICP-200.8 MS All possible meta Prep											12/08/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		0.0587	ug/L			1.00	0.0500		12/09/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411	U	< 1.00	mg/L			1.00	1.0		12/02/08

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: S09-011

Sample # W08P004972

Client ID: B1XMM7

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Inorganic

Sampled: 11/19/08

Received: 11/19/08

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	0.262	mg/L			2.00	0.046		11/20/08
Chloride	16887-00-6	LA-533-410	D	20.9	mg/L			10.00	0.47		11/20/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/20/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	5.76	mg/L			2.00	0.024		11/20/08
Sulfate	14808-79-8	LA-533-410	D	54.6	mg/L			10.00	1.3		11/20/08
ICP-200.8 MS All possible meta Prep											12/08/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		65.6	ug/L			1.00	0.0500		12/09/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		130	mg/L			1.00	1.0		12/02/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 11/19/08
 Receive Date: 11/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004971											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	<9.38e-2		RPD			n/a	20.000	U	11/20/08
DUP	Fluoride	16984-48-8	<4.64e-2		RPD			n/a	20.000	U	11/20/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	11/20/08
DUP	Nitrogen in Nitrate	NO3-N	<2.42e-2		RPD			n/a	20.000	U	11/20/08
DUP	Sulfate	14808-79-8	<0.264		RPD			n/a	20.000	U	11/20/08
MS	Chloride	16887-00-6	0.97255	98.736	% Recov	80.000	120.000				11/20/08
MS	Fluoride	16984-48-8	0.46325	91.733	% Recov	80.000	120.000				11/20/08
MS	Nitrogen in Nitrite	NO2-N	0.49215	100.030	% Recov	80.000	120.000				11/20/08
MS	Nitrogen in Nitrate	NO3-N	0.45105	101.360	% Recov	80.000	120.000				11/20/08
MS	Sulfate	14808-79-8	1.9004	95.980	% Recov	80.000	120.000				11/20/08
MSD	Chloride	16887-00-6	1.09445	111.112	% Recov	80.000	120.000				11/20/08
MSD	Fluoride	16984-48-8	0.49995	99.000	% Recov	80.000	120.000				11/20/08
MSD	Nitrogen in Nitrite	NO2-N	0.5023	102.093	% Recov	80.000	120.000				11/20/08
MSD	Nitrogen in Nitrate	NO3-N	0.45145	101.449	% Recov	80.000	120.000				11/20/08
MSD	Sulfate	14808-79-8	1.9301	97.480	% Recov	80.000	120.000				11/20/08
SPK-RPD	Chloride	16887-00-6	111.112		RPD			11.795	20.000		11/20/08
SPK-RPD	Fluoride	16984-48-8	99.000		RPD			7.620	20.000		11/20/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	102.093		RPD			2.041	20.000		11/20/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	101.449		RPD			0.088	20.000		11/20/08
SPK-RPD	Sulfate	14808-79-8	97.480		RPD			1.551	20.000		11/20/08
BATCH QC											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 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	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/20/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/20/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/20/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/20/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/20/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/20/08
LCS	Chloride	16887-00-6	195.1286	98.055	% Recov	80.000	120.000				11/20/08
LCS	Fluoride	16984-48-8	104.3744	102.328	% Recov	80.000	120.000				11/20/08
LCS	Nitrogen in Nitrite	NO2-N	93.0122	93.574	% Recov	80.000	120.000				11/20/08
LCS	Nitrogen in Nitrate	NO3-N	91.924	102.251	% Recov	80.000	120.000				11/20/08
LCS	Sulfate	14808-79-8	391.6601	97.915	% Recov	80.000	120.000				11/20/08

Lab ID: W08P004972
BATCH QC ASSOCIATED WITH SAMPLE

DUP	Chloride	16887-00-6	20.8042		RPD			0.624	20.000		11/20/08
DUP	Fluoride	16984-48-8	0.2598		RPD			0.958	20.000		11/20/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	11/20/08
DUP	Nitrogen in Nitrate	NO3-N	5.7645		RPD			0.099	20.000		11/20/08
DUP	Sulfate	14808-79-8	54.5584		RPD			0.009	20.000		11/20/08
MS	Chloride	16887-00-6	0.92411	93.818	% Recov	80.000	120.000				11/20/08
MS	Fluoride	16984-48-8	0.5357	106.079	% Recov	80.000	120.000				11/20/08
MS	Nitrogen in Nitrite	NO2-N	0.5566	113.130	% Recov	80.000	120.000				11/20/08
MS	Nitrogen in Nitrate	NO3-N	0.4246	95.416	% Recov	80.000	120.000				11/20/08
MS	Sulfate	14808-79-8	1.90179	96.050	% Recov	80.000	120.000				11/20/08
MSD	Chloride	16887-00-6	0.93307	94.728	% Recov	80.000	120.000				11/20/08
MSD	Fluoride	16984-48-8	0.51285	101.554	% Recov	80.000	120.000				11/20/08
MSD	Nitrogen in Nitrite	NO2-N	0.5773	117.337	% Recov	80.000	120.000				11/20/08
MSD	Nitrogen in Nitrate	NO3-N	0.4362	98.022	% Recov	80.000	120.000				11/20/08
MSD	Sulfate	14808-79-8	1.92624	97.285	% Recov	80.000	120.000				11/20/08
SPK-RPD	Chloride	16887-00-6	94.728		RPD			0.965	20.000		11/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 11/19/08
 Receive Date: 11/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Fluoride	16984-48-8	101.554		RPD			4.359	20.000		11/20/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	117.337		RPD			3.651	20.000		11/20/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	98.022		RPD			2.694	20.000		11/20/08
SPK-RPD	Sulfate	14808-79-8	97.285		RPD			1.278	20.000		11/20/08

BATCH QC

BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/20/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/20/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/20/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/20/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/20/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/20/08
LCS	Chloride	16887-00-6	194.5693	97.774	% Recov	80.000	120.000				11/20/08
LCS	Fluoride	16984-48-8	103.8372	101.801	% Recov	80.000	120.000				11/20/08
LCS	Nitrogen in Nitrite	NO2-N	92.1949	92.751	% Recov	80.000	120.000				11/20/08
LCS	Nitrogen in Nitrate	NO3-N	90.7968	100.998	% Recov	80.000	120.000				11/20/08
LCS	Sulfate	14808-79-8	389.6439	97.411	% Recov	80.000	120.000				11/20/08

Lab ID: W08P004981

BATCH QC ASSOCIATED WITH SAMPLE

DUP	Chloride	16887-00-6	13.7537		RPD			0.275	20.000		11/20/08
DUP	Fluoride	16984-48-8	0.4556		RPD			1.005	20.000		11/20/08
DUP	Nitrogen in Nitrite	NO2-N	<0.128		RPD			n/a	20.000	U	11/20/08
DUP	Nitrogen in Nitrate	NO3-N	0.3438		RPD			1.329	20.000		11/20/08
DUP	Sulfate	14808-79-8	42.9152		RPD			0.803	20.000		11/20/08
MS	Chloride	16887-00-6	0.94197	95.831	% Recov	80.000	120.000				11/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 11/19/08
 Receive Date: 11/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Fluoride	16984-48-8	0.48459	95.958	% Recov	80.000	120.000				11/20/08
MS	Nitrogen in Nitrite	NO2-N	0.48983	99.559	% Recov	80.000	120.000				11/20/08
MS	Nitrogen in Nitrate	NO3-N	0.44842	100.769	% Recov	80.000	120.000				11/20/08
MS	Sulfate	14808-79-8	1.83152	92.501	% Recov	80.000	120.000				11/20/08
MSD	Chloride	16887-00-6	0.92745	94.157	% Recov	80.000	120.000				11/20/08
MSD	Fluoride	16984-48-8	0.48576	96.190	% Recov	80.000	120.000				11/20/08
MSD	Nitrogen in Nitrite	NO2-N	0.47514	96.573	% Recov	80.000	120.000				11/20/08
MSD	Nitrogen in Nitrate	NO3-N	0.44401	99.778	% Recov	80.000	120.000				11/20/08
MSD	Sulfate	14808-79-8	1.81973	91.906	% Recov	80.000	120.000				11/20/08
SPK-RPD	Chloride	16887-00-6	94.157		RPD			1.553	20.000		11/20/08
SPK-RPD	Fluoride	16984-48-8	96.190		RPD			0.241	20.000		11/20/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	96.573		RPD			3.045	20.000		11/20/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	99.778		RPD			0.988	20.000		11/20/08
SPK-RPD	Sulfate	14808-79-8	91.906		RPD			0.645	20.000		11/20/08
BATCH QC											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/20/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/20/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/20/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/20/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/20/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/20/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/20/08
LCS	Chloride	16887-00-6	193.1245	97.047	% Recov	80.000	120.000				11/20/08
LCS	Fluoride	16984-48-8	103.5842	101.553	% Recov	80.000	120.000				11/20/08
LCS	Nitrogen in Nitrite	NO2-N	94.2098	94.778	% Recov	80.000	120.000				11/20/08
LCS	Nitrogen in Nitrate	NO3-N	93.9041	104.454	% Recov	80.000	120.000				11/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 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	Sulfate	14808-79-8	383.406	95.852	% Recov	80.000	120.000				11/20/08
Lab ID: W08P005014											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Nitrogen in Nitrate	NO3-N	3.8614		RPD			0.171	20.000		11/21/08
MS	Nitrogen in Nitrate	NO3-N	0.45215	101.607	% Recov	80.000	120.000				11/21/08
MSD	Nitrogen in Nitrate	NO3-N	0.43645	98.079	% Recov	80.000	120.000				11/21/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	98.079		RPD			3.534	20.000		11/21/08
BATCH QC											
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/21/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/21/08
LCS	Nitrogen in Nitrate	NO3-N	91.6555	101.953	% Recov	80.000	120.000				11/21/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 11/19/08
 Receive Date: 11/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P004936
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Silver	7440-22-4	993.7	99.370	% Recov	75.000	125.000				12/09/08
MS	Barium	7440-39-3	500.7	100.140	% Recov	75.000	125.000				12/09/08
MS	Beryllium	7440-41-7	529.9	105.980	% Recov	75.000	125.000				12/09/08
MS	Calcium	7440-70-2	3900	390.000	% Recov	75.000	125.000				12/09/08
MS	Cadmium	7440-43-9	996.6	99.660	% Recov	75.000	125.000				12/09/08
MS	Cobalt	7440-48-4	972	97.200	% Recov	75.000	125.000				12/09/08
MS	Chromium	7440-47-3	969.7	96.970	% Recov	75.000	125.000				12/09/08
MS	Copper	7440-50-8	999.3	99.930	% Recov	75.000	125.000				12/09/08
MS	Iron	7439-89-6	983.8	98.380	% Recov	75.000	125.000				12/09/08
MS	Potassium	7440-09-7	10416	104.160	% Recov	75.000	125.000				12/09/08
MS	Magnesium	7439-95-4	550	55.000	% Recov	75.000	125.000				12/09/08
MS	Manganese	7439-96-5	999.5	99.950	% Recov	75.000	125.000				12/09/08
MS	Sodium	7440-23-5	720	72.000	% Recov	75.000	125.000				12/09/08
MS	Nickel	7440-02-0	952.3	95.230	% Recov	75.000	125.000				12/09/08
MS	Antimony	7440-36-0	996	99.600	% Recov	75.000	125.000				12/09/08
MS	Strontium	7440-24-6	545	109.000	% Recov	75.000	125.000				12/09/08
MS	Vanadium	7440-62-2	975.9	97.590	% Recov	75.000	125.000				12/09/08
MS	Zinc	7440-66-6	1013.7	101.370	% Recov	75.000	125.000				12/09/08
MSD	Silver	7440-22-4	990	99.000	% Recov	75.000	125.000				12/09/08
MSD	Barium	7440-39-3	496.2	99.240	% Recov	75.000	125.000				12/09/08
MSD	Beryllium	7440-41-7	525.6	105.120	% Recov	75.000	125.000				12/09/08
MSD	Calcium	7440-70-2	200	20.000	% Recov	75.000	125.000				12/09/08
MSD	Cadmium	7440-43-9	991.2	99.120	% Recov	75.000	125.000				12/09/08
MSD	Cobalt	7440-48-4	957.6	95.760	% Recov	75.000	125.000				12/09/08
MSD	Chromium	7440-47-3	945.7	94.570	% Recov	75.000	125.000				12/09/08
MSD	Copper	7440-50-8	1002	100.200	% Recov	75.000	125.000				12/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 11/19/08
 Receive Date: 11/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	957.8	95.780	% Recov	75.000	125.000				12/09/08
MSD	Potassium	7440-09-7	10996	109.960	% Recov	75.000	125.000				12/09/08
MSD	Magnesium	7439-95-4	1320	132.000	% Recov	75.000	125.000				12/09/08
MSD	Manganese	7439-96-5	982.7	98.270	% Recov	75.000	125.000				12/09/08
MSD	Sodium	7440-23-5	1490	149.000	% Recov	75.000	125.000				12/09/08
MSD	Nickel	7440-02-0	938.3	93.830	% Recov	75.000	125.000				12/09/08
MSD	Antimony	7440-36-0	1029	102.900	% Recov	75.000	125.000				12/09/08
MSD	Strontium	7440-24-6	534	106.800	% Recov	75.000	125.000				12/09/08
MSD	Vanadium	7440-62-2	962.7	96.270	% Recov	75.000	125.000				12/09/08
MSD	Zinc	7440-66-6	1010.7	101.070	% Recov	75.000	125.000				12/09/08
SPK-RPD	Silver	7440-22-4	99.000		RPD			0.373	20.000		12/09/08
SPK-RPD	Barium	7440-39-3	99.240		RPD			0.903	20.000		12/09/08
SPK-RPD	Beryllium	7440-41-7	105.120		RPD			0.815	20.000		12/09/08
SPK-RPD	Calcium	7440-70-2	20.000		RPD			180.488	20.000		12/09/08
SPK-RPD	Cadmium	7440-43-9	99.120		RPD			0.543	20.000		12/09/08
SPK-RPD	Cobalt	7440-48-4	95.760		RPD			1.493	20.000		12/09/08
SPK-RPD	Chromium	7440-47-3	94.570		RPD			2.506	20.000		12/09/08
SPK-RPD	Copper	7440-50-8	100.200		RPD			0.270	20.000		12/09/08
SPK-RPD	Iron	7439-89-6	95.780		RPD			2.678	20.000		12/09/08
SPK-RPD	Potassium	7440-09-7	109.960		RPD			5.418	20.000		12/09/08
SPK-RPD	Magnesium	7439-95-4	132.000		RPD			82.353	20.000		12/09/08
SPK-RPD	Manganese	7439-96-5	98.270		RPD			1.695	20.000		12/09/08
SPK-RPD	Sodium	7440-23-5	149.000		RPD			69.683	20.000		12/09/08
SPK-RPD	Nickel	7440-02-0	93.830		RPD			1.481	20.000		12/09/08
SPK-RPD	Antimony	7440-36-0	102.900		RPD			3.259	20.000		12/09/08
SPK-RPD	Strontium	7440-24-6	106.800		RPD			2.039	20.000		12/09/08
SPK-RPD	Vanadium	7440-62-2	96.270		RPD			1.362	20.000		12/09/08
SPK-RPD	Zinc	7440-66-6	101.070		RPD			0.296	20.000		12/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

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	Silver	7440-22-4	<5	n/a	ug/L					U	12/09/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	12/09/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	12/09/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	12/09/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	12/09/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	12/09/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	12/09/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	12/09/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	12/09/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	12/09/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	12/09/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	12/09/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	12/09/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	12/09/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	12/09/08
BLANK	Strontium	7440-24-8	<4	n/a	ug/L					U	12/09/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	12/09/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	12/09/08
LCS	Silver	7440-22-4	975.1	97.510	% Recov	80.000	120.000				12/09/08
LCS	Barium	7440-39-3	469	93.800	% Recov	80.000	120.000				12/09/08
LCS	Beryllium	7440-41-7	540.3	108.060	% Recov	80.000	120.000				12/09/08
LCS	Calcium	7440-70-2	1101	110.100	% Recov	80.000	120.000				12/09/08
LCS	Cadmium	7440-43-9	1025	102.500	% Recov	80.000	120.000				12/09/08
LCS	Cobalt	7440-48-4	1005	100.500	% Recov	80.000	120.000				12/09/08
LCS	Chromium	7440-47-3	975.5	97.550	% Recov	80.000	120.000				12/09/08
LCS	Copper	7440-50-8	999.8	99.980	% Recov	80.000	120.000				12/09/08
LCS	Iron	7439-89-6	984	98.400	% Recov	80.000	120.000				12/09/08
LCS	Potassium	7440-09-7	10840	108.400	% Recov	80.000	120.000				12/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271

Matrix: WATER

Test: ICP Metals Analysis, Grd H2O 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	Magnesium	7439-95-4	980.6	98.060	% Recov	80.000	120.000				12/09/08
LCS	Manganese	7439-96-5	987.9	98.790	% Recov	80.000	120.000				12/09/08
LCS	Sodium	7440-23-5	1037	103.700	% Recov	80.000	120.000				12/09/08
LCS	Nickel	7440-02-0	1003	100.300	% Recov	80.000	120.000				12/09/08
LCS	Antimony	7440-36-0	1017	101.700	% Recov	80.000	120.000				12/09/08
LCS	Strontium	7440-24-6	505.7	101.140	% Recov	80.000	120.000				12/09/08
LCS	Vanadium	7440-62-2	979	97.900	% Recov	80.000	120.000				12/09/08
LCS	Zinc	7440-66-6	1020	102.000	% Recov	80.000	120.000				12/09/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20082271
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>VOA: The surrogate, 1,2-Dichloroethane-d4, was biased high for the entire batch of samples analyzed 11/24/08. gar</p> <p>ICP-AES: [Samples W08P4954-4961; 4964-4967] Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard. Sample results < 5X MDL; "B" flag. The H-3 matrix spike criterion does not apply to the low recovery because the sample activity is high. Imh</p>

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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wgppc/5.2 Report#: WSCF20082271

Report Date: 19-dec-2008

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: ICP-200.8 MS All possible meta

Sample Date: 11/14/08
 Receive Date: 11/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004791											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	39.421	98.552	% Recov	70.000	130.000				12/09/08
MS	Uranium	7440-61-1	38.5838	96.459	% Recov	70.000	130.000				12/09/08
MSD	Arsenic	7440-38-2	37.911	94.778	% Recov	70.000	130.000				12/09/08
MSD	Uranium	7440-61-1	38.7238	96.809	% Recov	70.000	130.000				12/09/08
SPK-RPD	Arsenic	7440-38-2	94.778		RPD			3.904	20.000		12/09/08
SPK-RPD	Uranium	7440-61-1	96.809		RPD			0.362	20.000		12/09/08
Lab ID: W08P004792											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	37.414	93.535	% Recov	70.000	130.000				12/09/08
MS	Uranium	7440-61-1	38.964	97.410	% Recov	70.000	130.000				12/09/08
MSD	Arsenic	7440-38-2	39.314	98.285	% Recov	70.000	130.000				12/09/08
MSD	Uranium	7440-61-1	39.224	98.060	% Recov	70.000	130.000				12/09/08
SPK-RPD	Arsenic	7440-38-2	98.285		RPD			4.953	20.000		12/09/08
SPK-RPD	Uranium	7440-61-1	98.060		RPD			0.665	20.000		12/09/08
Lab ID: W08P004793											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	38.349	95.872	% Recov	70.000	130.000				12/09/08
MS	Uranium	7440-61-1	39.085	97.713	% Recov	70.000	130.000				12/09/08
MSD	Arsenic	7440-38-2	38.709	96.773	% Recov	70.000	130.000				12/09/08
MSD	Uranium	7440-61-1	39.535	98.837	% Recov	70.000	130.000				12/09/08
SPK-RPD	Arsenic	7440-38-2	96.773		RPD			0.935	20.000		12/09/08
SPK-RPD	Uranium	7440-61-1	98.837		RPD			1.144	20.000		12/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: ICP-200.8 MS All possible meta

Sample Date: 11/14/08
 Receive Date: 11/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P004794
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Arsenic	7440-38-2	39.0785	97.696	% Recov	70.000	130.000				12/09/08
MS	Uranium	7440-61-1	38.405	96.013	% Recov	70.000	130.000				12/09/08
MSD	Arsenic	7440-38-2	40.6585	101.646	% Recov	70.000	130.000				12/09/08
MSD	Uranium	7440-61-1	40.895	102.237	% Recov	70.000	130.000				12/09/08
SPK-RPD	Arsenic	7440-38-2	101.646		RPD			3.963	20.000		12/09/08
SPK-RPD	Uranium	7440-61-1	102.237		RPD			6.279	20.000		12/09/08

Lab ID: W08P004809
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Arsenic	7440-38-2	37.795	94.487	% Recov	70.000	130.000				12/09/08
MS	Uranium	7440-61-1	37.892	94.730	% Recov	70.000	130.000				12/09/08
MSD	Arsenic	7440-38-2	38.455	96.138	% Recov	70.000	130.000				12/09/08
MSD	Uranium	7440-61-1	38.802	97.005	% Recov	70.000	130.000				12/09/08
SPK-RPD	Arsenic	7440-38-2	96.138		RPD			1.732	20.000		12/09/08
SPK-RPD	Uranium	7440-61-1	97.005		RPD			2.373	20.000		12/09/08

BATCH QC

BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/09/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/09/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	12/09/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/09/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/09/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	12/09/08
LCS	Arsenic	7440-38-2	38.06	95.150	% Recov	85.000	115.000				12/09/08
LCS	Arsenic	7440-38-2	39.63	99.075	% Recov	85.000	115.000				12/09/08
LCS	Arsenic	7440-38-2	37.1	92.750	% Recov	85.000	115.000				12/09/08
LCS	Uranium	7440-61-1	36.94	92.350	% Recov	85.000	115.000				12/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271

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	Uranium	7440-61-1	39.04	97.600	% Recov	85.000	115.000				12/09/08
LCS	Uranium	7440-61-1	37.03	92.575	% Recov	85.000	115.000				12/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Total Alkalinity as mg/L CaCO₃

Sample Date: 11/18/08
 Receive Date: 11/18/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004908											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO ₃	ALKALINITY	511.8		RPD			0.059	20.000		12/02/08
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO ₃	ALKALINITY	32.56	109.262	%Recover	80.000	120.000				12/02/08
LCS	Total Alkalinity as mg/L CaCO ₃	ALKALINITY	32.18	107.987	%Recover	80.000	120.000				12/02/08
LCS	Total Alkalinity as mg/L CaCO ₃	ALKALINITY	31.67	106.275	%Recover	80.000	120.000				12/02/08

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: S09-011

Sample # W08P004963

Client ID: B1XWC0

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Organic

Sampled: 11/19/08

Received: 11/19/08

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		11/24/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Carbon tetrachloride	56-23-5	LA-523-455	J	1.70	ug/L			1.00	1.0		11/24/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Methylenechloride	75-09-2	LA-523-455	J	3.10	ug/L			1.00	1.0		11/24/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		11/24/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		11/24/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: S09-011

Sample # W08P004963

Client ID: B1XWC0

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Organic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		11/24/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08

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)

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Report WGPP/ver. 5.2

GPAP

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-008
Sample # W08P004965
Client ID: B1XL13

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Organic
Sampled: 11/19/08
Received: 11/19/08

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		11/24/08
Trichloroethene	79-01-6	LA-523-455	J	4.80	ug/L			1.00	1.0		11/24/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Carbon tetrachloride	56-23-5	LA-523-455		1.20e+03	ug/L			1.00	25		11/25/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Chloroform	67-66-3	LA-523-455		9.70	ug/L			1.00	1.0		11/24/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		11/24/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		11/24/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08

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)

J - Analyte < lowest calibration but >= MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

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* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004965

Client ID: B1XL13 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Organic

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		11/24/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08

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)

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004967

Client ID: B1XL17 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Organic

Sampled: 11/19/08

Received: 11/19/08

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		11/24/08
Trichloroethene	79-01-6	LA-523-455	J	4.60	ug/L			1.00	1.0		11/24/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Tetrachloroethene	127-18-4	LA-523-455	J	1.90	ug/L			1.00	1.0		11/24/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Carbon tetrachloride	56-23-5	LA-523-455		1.10e+03	ug/L			1.00	25		11/25/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Chloroform	67-66-3	LA-523-455		9.40	ug/L			1.00	1.0		11/24/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		11/24/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		11/24/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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J - Analyte < lowest calibration but > = MDL.(org)

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D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I09-008
Sample # W08P004967
Client ID: B1XL17

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271
Department: Organic
Sampled: 11/19/08
Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		11/24/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		11/24/08

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)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20082271
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 11/16/08
 Receive Date: 11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004849											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,1-Dichloroethene	75-35-4	24.180	96.700	% Recov	63.000	117.000				11/24/08
MS	Benzene	71-43-2	23.170	92.700	% Recov	75.000	129.000				11/24/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	50.940	102.000	% Recov	75.000	125.000				11/24/08
MS	Chlorobenzene	108-90-7	24.080	96.300	% Recov	79.000	119.000				11/24/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	62.210	124.000	% Recov	75.000	125.000				11/24/08
MS	Toluene-d8(Surr)	2037-26-5	48.810	97.600	% Recov	75.000	125.000				11/24/08
MS	Toluene	108-88-3	23.500	94.000	% Recov	76.000	120.000				11/24/08
MS	Trichloroethene	79-01-6	20.941	83.800	% Recov	73.000	123.000				11/24/08
MSD	1,1-Dichloroethene	75-35-4	25.170	101.000	% Recov	63.000	117.000				11/24/08
MSD	Benzene	71-43-2	24.220	96.900	% Recov	75.000	129.000				11/24/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	50.340	101.000	% Recov	75.000	125.000				11/24/08
MSD	Chlorobenzene	108-90-7	25.100	100.000	% Recov	79.000	119.000				11/24/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	62.680	125.000	% Recov	75.000	125.000				11/24/08
MSD	Toluene-d8(Surr)	2037-26-5	48.760	97.500	% Recov	75.000	125.000				11/24/08
MSD	Toluene	108-88-3	24.420	97.700	% Recov	76.000	120.000				11/24/08
MSD	Trichloroethene	79-01-6	22.081	88.300	% Recov	73.000	123.000				11/24/08
SPK-RPD	1,1-Dichloroethene	75-35-4	101.000		RPD			4.350	20.000		11/24/08
SPK-RPD	Benzene	71-43-2	96.900		RPD			4.430	20.000		11/24/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	101.000		RPD			0.985	20.000		11/24/08
SPK-RPD	Chlorobenzene	108-90-7	100.000		RPD			3.770	20.000		11/24/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	125.000		RPD			0.803	20.000		11/24/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	97.500		RPD			0.103	20.000		11/24/08
SPK-RPD	Toluene	108-88-3	97.700		RPD			3.860	20.000		11/24/08
SPK-RPD	Trichloroethene	79-01-6	88.300		RPD			5.230	20.000		11/24/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20082271
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 11/19/08
 Receive Date: 11/19/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004963											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.780	102.000	% Recov	75.000	125.000				11/24/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	65.730	131.000	% Recov	75.000	125.000				11/24/08
SURR	Toluene-d8(Surr)	2037-26-5	49.900	99.800	% Recov	75.000	125.000				11/24/08
Lab ID: W08P004965											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	51.230	102.000	% Recov	75.000	125.000				11/24/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	61.040	122.000	% Recov	75.000	125.000				11/24/08
SURR	Toluene-d8(Surr)	2037-26-5	50.120	100.000	% Recov	75.000	125.000				11/24/08
Lab ID: W08P004967											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.920	102.000	% Recov	75.000	125.000				11/24/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	63.360	127.000	% Recov	75.000	125.000				11/24/08
SURR	Toluene-d8(Surr)	2037-26-5	50.180	100.000	% Recov	75.000	125.000				11/24/08
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	11/24/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	11/24/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20082271
 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	4-Bromofluorobenzene(Surr)	460-00-4	51.270	103.000	% Recov	75.000	125.000				11/24/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	11/24/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	11/24/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	61.300	123.000	% Recov	75.000	125.000				11/24/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	11/24/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	11/24/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	11/24/08
BLANK	Toluene-d8(Surr)	2037-26-5	49.310	98.600	% Recov	75.000	125.000				11/24/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	11/24/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	11/24/08
LCS	1,1-Dichloroethene	75-35-4	22.040	88.200	% Recov	75.000	125.000				11/25/08
LCS	Benzene	71-43-2	23.700	94.800	% Recov	75.000	125.000				11/25/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	50.100	100.000	% Recov	75.000	125.000				11/25/08
LCS	Chlorobenzene	108-90-7	24.040	96.200	% Recov	75.000	125.000				11/25/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	62.320	125.000	% Recov	75.000	125.000				11/25/08
LCS	Toluene-d8(Surr)	2037-26-5	49.380	98.800	% Recov	75.000	125.000				11/25/08
LCS	Toluene	108-88-3	23.750	95.000	% Recov	75.000	125.000				11/25/08
LCS	Trichloroethene	79-01-6	20.000	80.000	% Recov	75.000	125.000				11/25/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20082271
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>VOA: The surrogate, 1,2-Dichloroethane-d4, was biased high for the entire batch of samples analyzed 11/24/08. gar</p> <p>ICP-AES: [Samples W08P4954-4961; 4964-4967] Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard. Sample results < 5X MDL; "B" flag. The H-3 matrix spike criterion does not apply to the low recovery because the sample activity is high. Imh</p>

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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wgppc/5.2 Report#: WSCF20082271

Report Date: 19-dec-2008

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P004955

Client ID: B1XHJ7 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Radiochemistry

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	-0.140	pCi/L	+1.40	pCi/L	1.00	3.8		12/14/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		9.20	pCi/L	+2.85	pCi/L	1.00	3.8		12/16/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		2.20e+03	pCi/L	+484	pCi/L	1.00	2.3e+02		12/08/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-005

Sample # W08P004962

Client ID: B1XHM1

PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Radiochemistry

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	-0.180	pCi/L	+ -1.28	pCi/L	1.00	2.4		12/14/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		4.60	pCi/L	+ -1.52	pCi/L	1.00	2.1		12/16/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	84.0	pCi/L	+ -140	pCi/L	1.00	2.3e + 02		12/08/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004965

Client ID: B1XL13 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Radiochemistry

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		190	pCi/L	+ -38.0	pCi/L	1.00	5.9		12/01/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		8.90e+03	pCi/L	+ -1.78e+03	pCi/L	1.00	2.3e+02		12/05/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-008

Sample # W08P004967

Client ID: B1XL17 PNNL-GPP

WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Radiochemistry

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		200	pCi/L	+ -40.0	pCi/L	1.00	5.9		12/01/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		9.20e+03	pCi/L	+ -1.84e+03	pCi/L	1.00	2.3e+02		12/05/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

Report WGPP/ver. 5.2

GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I09-007

Sample # W08P004968

Client ID: B1XKT5 PNNL-GPP
WSCF

Matrix: WATER

Group #: WSCF20082271

Department: Radiochemistry

Sampled: 11/19/08

Received: 11/19/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		220	pCi/L	+ -44.0	pCi/L	1.00	5.9		12/01/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	69.0	pCi/L	+ -159	pCi/L	1.00	2.3e+02		12/05/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

B - The analyte < the RDL but > = the IDL/MDL (inorg)

J - Analyte < lowest calibration but > = MDL.(org)

U - Analyzed for but not detected above limiting criteria.(org)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor(inorg)

U - Analyzed for but not detected above limiting criteria(inorg)

Report WGPP/ver. 5.2

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Gross Alpha on Alpha Plateau

Sample Date: 11/16/08
 Receive Date: 11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P004867
 BATCH QC ASSOCIATED WITH SAMPLE

DUP	Gross alpha on alpha plateau	12587-46-1	U9.4		RPD			n/a	20.000		12/14/08
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BATCH QC

BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-6.8E-01	n/a	pCi/L	-100.000	100.000				12/14/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	38.2	98.606	% Recov	80.000	120.000				12/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 11/16/08
 Receive Date: 11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P004867
 BATCH QC ASSOCIATED WITH SAMPLE

DUP	Gross beta	12587-47-2	1.7E + 04		RPD			19.355	20.000		12/16/08
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BATCH QC

BLANK	Gross beta	12587-47-2	U-1.1	n/a	pCi/L	-10.000	10.000				12/16/08
LCS	Gross beta	12587-47-2	122	108.734	% Recov	80.000	120.000				12/16/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082271
 Matrix: WATER
 Test: TC99 by Liquid Scin.

Sample Date: 11/16/08
 Receive Date: 11/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004871											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	U-2.0		RPD			n/a	20.000		12/01/08
MS	Tc-99 by Liquid Scin.	14133-76-7	637	100.951	% Recov	75.000	125.000				12/01/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-0.9	n/a	pCi/L	-10.000	10.000				12/01/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	159.3	100.063	% Recov	80.000	120.000				12/01/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082271
 Matrix: WATER
 Test: Tritium by Liq Sct column prep

Sample Date: 11/18/08
 Receive Date: 11/18/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P004896
BATCH QC ASSOCIATED WITH SAMPLE

DUP	Tritium	10028-17-8	3.8E +05		RPD			0.000	20.000		12/08/08
MS	Tritium	10028-17-8	12000	53.974	% Recov	75.000	125.000				12/08/08

BATCH QC

BLANK	Tritium	10028-17-8	U-1.0E +02	n/a	pCi/L	-10.000	1000.000				12/08/08
LCS	Tritium	10028-17-8	2610.0	90.915	% Recov	80.000	120.000				12/08/08

Lab ID: W08P004965
BATCH QC ASSOCIATED WITH SAMPLE

DUP	Tritium	10028-17-8	9.0e +03		RPD			1.117	20.000		12/05/08
MS	Tritium	10028-17-8	21100	94.948	% Recov	75.000	125.000				12/05/08

BATCH QC

BLANK	Tritium	10028-17-8	U-5.8E +01	n/a	pCi/L	-10.000	1000.000				12/05/08
LCS	Tritium	10028-17-8	2730	95.139	% Recov	80.000	120.000				12/05/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20082271
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>VOA: The surrogate, 1,2-Dichloroethane-d4, was biased high for the entire batch of samples analyzed 11/24/08. gar</p> <p>ICP-AES: [Samples W08P4954-4961; 4964-4967] Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard. Sample results < 5X MDL; "B" flag. The H-3 matrix spike criterion does not apply to the low recovery because the sample activity is high. lnh</p>

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 16 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
01/05/09
td

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20082271

The following samples were received from you on 11/19/08. 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
W08P004954	B1XHJ6	PNNL-GPP @GPP6010	Water	11/19/08
W08P004955	B1XHJ7	PNNL-GPP @AB-32	Water	11/19/08
W08P004956	B1XLN5	PNNL-GPP @2008	Water	11/19/08
W08P004957	B1XLN6	PNNL-GPP @2008	Water	11/19/08
W08P004958	B1XLF1	PNNL-GPP @2008	Water	11/19/08
W08P004959	B1XLF2	PNNL-GPP @2008	Water	11/19/08
W08P004960	B1XLF3	PNNL-GPP @2008	Water	11/19/08
W08P004961	B1XLF4	PNNL-GPP @2008	Water	11/19/08
W08P004962	B1XHM1	PNNL-GPP @AB-32	Water	11/19/08
W08P004963	B1XWC0	PNNL-GPP @VOA-GPP	Water	11/19/08
W08P004964	B1XL12	PNNL-GPP @GPP6010	Water	11/19/08
W08P004965	B1XL13	PNNL-GPP @GPP6010	Water	11/19/08
W08P004966	B1XL16	PNNL-GPP @GPP6010	Water	11/19/08
W08P004967	B1XL17	PNNL-GPP @GPP6010	Water	11/19/08
W08P004968	B1XKT5	PNNL-GPP @2008	Water	11/19/08

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20082271

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08P004969	B1XMM2	PNNL-GPP @2008 @IC-30	Water ALKALI	11/19/08
W08P004970	B1XMM3	PNNL-GPP @2008 @IC-30	Water ALKALI	11/19/08
W08P004971	B1XMM4	PNNL-GPP @2008 @IC-30	Water ALKALI	11/19/08
W08P004972	B1XMM7	PNNL-GPP @2008 @IC-30	Water ALKALI	11/19/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@ALPHA	Gross Alpha on Alpha Plateau
@GPP6010	ICP Metals Analysis, Grd H2O 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

