

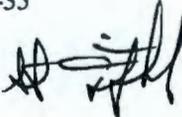
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# FLUOR

## Memorandum

M4W41-SLF-08-1158

To: M. A. Neely E6-35 Date: October 16, 2008

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

cc: w/Attachments

T. F. Dale	S3-30	J. E. Trechter	S3-30
A. J. Kopriva	S3-30	S. J. Trent	E6-35
H. K. Meznarich	S3-30	File/LB	
P. D. Mix	S3-30		

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081993

- 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 information for sample delivery group WSCF20081993:

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

SLF/grf

Attachments 4

**RECEIVED**  
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**M4W41-SLF-08-1158**

**ATTACHMENT 1**

**COVER SHEET**

**Consisting of 2 pages  
Including cover page**

## WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081993  
 Data Deliverable Date: 15-oct-2008  
 Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
A08-009	B1WRF1	W08P004414	WATER
G08-009	B1WRK5	W08P004410	WATER
	B1WRN2	W08P004408	WATER
	B1WRN3	W08P004409	WATER
I08-058	B1WTH1	W08P004411	WATER
	B1WTP5	W08P004412	WATER
	B1WTR9	W08P004406	WATER
	B1WTT1	W08P004407	WATER
I08-059	B1WXR2	W08P004416	WATER
S08-008	B1WMV5	W08P004417	WATER
W08-008	B1WJC3	W08P004404	WATER
	B1WJC4	W08P004405	WATER
	B1WJC7	W08P004402	WATER
	B1WJC8	W08P004403	WATER
	B1WJK0	W08P004398	WATER
	B1WJK1	W08P004399	WATER
	B1WKW0	W08P004400	WATER
	B1WKW1	W08P004401	WATER
W08-009	B1X0B4	W08P004413	WATER
	B1X141	W08P004418	WATER
	B1X1C7	W08P004415	WATER

M4W41-SLF-08-1158

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages  
Including cover page

### Introduction

Twenty-one (21) groundwater samples were received at the WSCF Laboratory on September 15, 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 4) 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 5.

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 sample container.

### Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 15 through 17, for a complete listing of approved analytical methods.

### Inorganic Comments

**Anions** – Hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 41 through 43 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.

All QC controls are within the established limits.

**Cyanide** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 44 for QC details.

All QC controls are within the established limits.

**ICP-AES Metals** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 45 through 48 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.
- Calcium, Magnesium and Sodium sample concentration exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Check and high standards were analyzed to ensure linearity, because the sample results were greater than 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 per the GRP Letter of Instruction. See page 49 for QC details. Analytical Note(s):

- Uranium sample concentration (B1WJK1) exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Affected sample results in this batch were X flagged.

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 per GRP Letter of Instruction. See page 50 for QC details. Analytical Note(s):

- Duplicates were analyzed on samples B1WPV2 (SDG# 20081927, SAF# F08-154) and B1WTK2 (SDG# 20081971).

All QC controls are within the established limits.

#### **Organic Comments**

**VOA** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample, were analyzed with this delivery group per the GRP Letter of Instruction. See pages 56 through 58 for QC details.

All QC controls are within the established limits.

#### **Radiochemistry Comments**

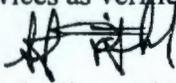
**Rad Chem** – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 75 through 80 for QC details. Analytical Note(s):

- Gross Alpha/ Gross Beta – Duplicate QC was analyzed on sample# B1WYX9 (SDG# 20081933).
- Strontium-89/90 and 85 (tracer) – Surrogate recovery on sample# B1WTP5 was less than established laboratory limits. No flags issued.

- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1WYX9 (SDG# 20081933). Technetium-99 – Matrix Spike recovery slightly exceeded 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 LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald  
WSCF Analytical Laboratory Manager



Pauline D. Mix  
WSCF Client Services

M4W41-SLF-08-1158

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 74 pages  
Including cover page

**WSCF  
ANALYTICAL RESULTS REPORT**

for

**GPAP  
Richland, WA 99352**

**Attention: Steve Trent E6-35**

Analytical: ~~W. J. H.~~ S. Fitzgerald 10/16/08  
Client Services: P. D. Mix 10/16/2008

*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#: WSCF20081993  
Report Date: 15-oct-2008  
Report WGPP/ver. 5.2  
GPAP

Page 1

Department: Inorganic

## W13q Worklist/Batch/QC Report for Group# WSCF20081993

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38042	2	38461	42867	BLANK		Anions by Ion Chromatography
38042	14	38461	42867	BLANK		Anions by Ion Chromatography
38042	23	38461	42867	BLANK		Anions by Ion Chromatography
38042	3	38461	42867	LCS		Anions by Ion Chromatography
38042	15	38461	42867	LCS		Anions by Ion Chromatography
38042	5	38461	42867	DUP	W08P004408	Anions by Ion Chromatography
38042	6	38461	42867	MS	W08P004408	Anions by Ion Chromatography
38042	7	38461	42867	MSD	W08P004408	Anions by Ion Chromatography
38042	4	38461	42867	SAMPLE	W08P004408	Anions by Ion Chromatography
38042	7	38461	42867	SPK-RPD	W08P004408	Anions by Ion Chromatography
38042	8	38461	42867	SAMPLE	W08P004409	Anions by Ion Chromatography
38042	9	38461	42867	SAMPLE	W08P004411	Anions by Ion Chromatography
38042	10	38461	42867	SAMPLE	W08P004412	Anions by Ion Chromatography
38042	11	38461	42867	SAMPLE	W08P004418	Anions by Ion Chromatography
38042	17	38461	42867	DUP	W08P004432	Anions by Ion Chromatography
38042	18	38461	42867	MS	W08P004432	Anions by Ion Chromatography
38042	19	38461	42867	MSD	W08P004432	Anions by Ion Chromatography
38042	19	38461	42867	SPK-RPD	W08P004432	Anions by Ion Chromatography
38070	1	38491	42908	LCS		Total Alkalinity as mg/L CaCO3
38070	13	38491	42908	LCS		Total Alkalinity as mg/L CaCO3
38070	25	38491	42908	LCS		Total Alkalinity as mg/L CaCO3
38070	32	38491	42908	LCS		Total Alkalinity as mg/L CaCO3
38070	3	38491	42908	DUP	W08GR03628	Total Alkalinity as mg/L CaCO3
38070	15	38491	42908	DUP	W08P004389	Total Alkalinity as mg/L CaCO3
38070	16	38491	42908	SAMPLE	W08P004399	Total Alkalinity as mg/L CaCO3
38070	17	38491	42908	SAMPLE	W08P004401	Total Alkalinity as mg/L CaCO3
38070	18	38491	42908	SAMPLE	W08P004403	Total Alkalinity as mg/L CaCO3
38070	19	38491	42908	SAMPLE	W08P004405	Total Alkalinity as mg/L CaCO3
38070	20	38491	42908	SAMPLE	W08P004406	Total Alkalinity as mg/L CaCO3
38070	21	38491	42908	SAMPLE	W08P004407	Total Alkalinity as mg/L CaCO3
38070	22	38491	42908	SAMPLE	W08P004411	Total Alkalinity as mg/L CaCO3
38070	23	38491	42908	SAMPLE	W08P004412	Total Alkalinity as mg/L CaCO3
38070	24	38491	42908	SAMPLE	W08P004413	Total Alkalinity as mg/L CaCO3
38070	26	38491	42908	SAMPLE	W08P004415	Total Alkalinity as mg/L CaCO3
38120	1	38540	42992	BLANK		ICP Metals Analysis, Grd H2O P
38120	2	38540	42992	LCS		ICP Metals Analysis, Grd H2O P
38120	4	38540	42992	MS	W08P004398	ICP Metals Analysis, Grd H2O P
38120	5	38540	42992	MSD	W08P004398	ICP Metals Analysis, Grd H2O P
38120	3	38540	42992	SAMPLE	W08P004398	ICP Metals Analysis, Grd H2O P
38120	5	38540	42992	SPK-RPD	W08P004398	ICP Metals Analysis, Grd H2O P
38120	6	38540	42992	SAMPLE	W08P004399	ICP Metals Analysis, Grd H2O P
38120	7	38540	42992	SAMPLE	W08P004400	ICP Metals Analysis, Grd H2O P
38120	8	38540	42992	SAMPLE	W08P004401	ICP Metals Analysis, Grd H2O P
38120	9	38540	42992	SAMPLE	W08P004402	ICP Metals Analysis, Grd H2O P
38120	10	38540	42992	SAMPLE	W08P004403	ICP Metals Analysis, Grd H2O P
38120	11	38540	42992	SAMPLE	W08P004404	ICP Metals Analysis, Grd H2O P
38120	12	38540	42992	SAMPLE	W08P004405	ICP Metals Analysis, Grd H2O P
38177	8	38602	43034	BLANK		Cyanide by Midi/Spectrophotom
38177	9	38602	43034	LCS		Cyanide by Midi/Spectrophotom

38177	12	38602	43034	MS	W08P004399	Cyanide by Midi/Spectrophotom
38177	13	38602	43034	MSD	W08P004399	Cyanide by Midi/Spectrophotom
38177	11	38602	43034	SAMPLE	W08P004399	Cyanide by Midi/Spectrophotom
38177	13	38602	43034	SPK-RPD	W08P004399	Cyanide by Midi/Spectrophotom
38177	14	38602	43034	SAMPLE	W08P004401	Cyanide by Midi/Spectrophotom
38177	15	38602	43034	SAMPLE	W08P004403	Cyanide by Midi/Spectrophotom
38177	16	38602	43034	SAMPLE	W08P004405	Cyanide by Midi/Spectrophotom
38188	1	38613	43038	BLANK		ICP-200.8 MS All possible meta
38188	2	38613	43038	BLANK		ICP-200.8 MS All possible meta
38188	3	38613	43038	LCS		ICP-200.8 MS All possible meta
38188	4	38613	43038	LCS		ICP-200.8 MS All possible meta
38188	6	38613	43038	MS	W08P004399	ICP-200.8 MS All possible meta
38188	7	38613	43038	MSD	W08P004399	ICP-200.8 MS All possible meta
38188	5	38613	43038	SAMPLE	W08P004399	ICP-200.8 MS All possible meta
38188	7	38613	43038	SPK-RPD	W08P004399	ICP-200.8 MS All possible meta
38188	9	38613	43038	MS	W08P004401	ICP-200.8 MS All possible meta
38188	10	38613	43038	MSD	W08P004401	ICP-200.8 MS All possible meta
38188	8	38613	43038	SAMPLE	W08P004401	ICP-200.8 MS All possible meta
38188	10	38613	43038	SPK-RPD	W08P004401	ICP-200.8 MS All possible meta
38188	11	38613	43038	SAMPLE	W08P004403	ICP-200.8 MS All possible meta
38188	12	38613	43038	SAMPLE	W08P004405	ICP-200.8 MS All possible meta
38188	13	38613	43038	SAMPLE	W08P004414	ICP-200.8 MS All possible meta
38188	14	38613	43038	SAMPLE	W08P004416	ICP-200.8 MS All possible meta

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081993

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			43270	BLANK		VOA Ground Water Protection
			43270	LCS		VOA Ground Water Protection
			43270	MS	W08P004416	VOA Ground Water Protection
			43270	MSD	W08P004416	VOA Ground Water Protection
			43270	SAMPLE	W08P004416	VOA Ground Water Protection
			43270	SPK-RPD	W08P004416	VOA Ground Water Protection
			43270	SURR	W08P004416	VOA Ground Water Protection
			43270	SAMPLE	W08P004417	VOA Ground Water Protection
			43270	SURR	W08P004417	VOA Ground Water Protection

Department: Radiochemistry

## W13q Worklist/Batch/QC Report for Group# WSCF20081993

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38308	2	38729	43163	BLANK		Gamma Energy Analysis-grd H2O
38308	1	38729	43163	LCS		Gamma Energy Analysis-grd H2O
38308	4	38729	43163	DUP	W08P004412	Gamma Energy Analysis-grd H2O
38308	3	38729	43163	SAMPLE	W08P004412	Gamma Energy Analysis-grd H2O
38281	1	38702	43170	BLANK		Gross Alpha/Gross Beta (AB32)
38281	2	38702	43170	LCS		Gross Alpha/Gross Beta (AB32)
38281	3	38702	43170	DUP	W08P004361	Gross Alpha/Gross Beta (AB32)
38281	7	38702	43170	SAMPLE	W08P004399	Gross Alpha/Gross Beta (AB32)
38281	8	38702	43170	SAMPLE	W08P004401	Gross Alpha/Gross Beta (AB32)
38281	9	38702	43170	SAMPLE	W08P004403	Gross Alpha/Gross Beta (AB32)
38281	10	38702	43170	SAMPLE	W08P004405	Gross Alpha/Gross Beta (AB32)
38281	11	38702	43170	SAMPLE	W08P004408	Gross Alpha/Gross Beta (AB32)
38281	12	38702	43170	SAMPLE	W08P004409	Gross Alpha/Gross Beta (AB32)
38281	13	38702	43170	SAMPLE	W08P004411	Gross Alpha/Gross Beta (AB32)
38281	14	38702	43170	SAMPLE	W08P004412	Gross Alpha/Gross Beta (AB32)
38151	1	38579	43185	BLANK		Tritium by Liq Sct column prep
38151	2	38579	43185	LCS		Tritium by Liq Sct column prep
38151	4	38579	43185	DUP	W08P004399	Tritium by Liq Sct column prep
38151	3	38579	43185	MS	W08P004399	Tritium by Liq Sct column prep
38151	5	38579	43185	SAMPLE	W08P004399	Tritium by Liq Sct column prep
38151	6	38579	43185	SAMPLE	W08P004401	Tritium by Liq Sct column prep
38151	7	38579	43185	SAMPLE	W08P004403	Tritium by Liq Sct column prep
38151	8	38579	43185	SAMPLE	W08P004405	Tritium by Liq Sct column prep
38151	9	38579	43185	SAMPLE	W08P004406	Tritium by Liq Sct column prep
38151	10	38579	43185	SAMPLE	W08P004407	Tritium by Liq Sct column prep
38151	11	38579	43185	SAMPLE	W08P004411	Tritium by Liq Sct column prep
38151	12	38579	43185	SAMPLE	W08P004412	Tritium by Liq Sct column prep
38151	13	38579	43185	SAMPLE	W08P004414	Tritium by Liq Sct column prep
38151	14	38579	43185	SAMPLE	W08P004416	Tritium by Liq Sct column prep
38237	1	38658	43205	BLANK		Strontium 89/90
38237	2	38658	43205	LCS		Strontium 89/90
38237	3	38658	43205	DUP	W08P004406	Strontium 89/90
38237	4	38658	43205	SAMPLE	W08P004406	Strontium 89/90
38237	5	38658	43205	SURR	W08P004406	Strontium 89/90
38237	6	38658	43205	SAMPLE	W08P004407	Strontium 89/90
38237	7	38658	43205	SURR	W08P004407	Strontium 89/90
38237	8	38658	43205	SAMPLE	W08P004410	Strontium 89/90
38237	9	38658	43205	SURR	W08P004410	Strontium 89/90
38237	10	38658	43205	SAMPLE	W08P004412	Strontium 89/90
38237	11	38658	43205	SURR	W08P004412	Strontium 89/90
38303	1	38723	43213	BLANK		Gross Alpha on Alpha Plateau
38303	2	38723	43213	LCS		Gross Alpha on Alpha Plateau
38303	3	38723	43213	DUP	W08P004361	Gross Alpha on Alpha Plateau
38303	7	38723	43213	SAMPLE	W08P004399	Gross Alpha on Alpha Plateau
38303	8	38723	43213	SAMPLE	W08P004401	Gross Alpha on Alpha Plateau
38303	9	38723	43213	SAMPLE	W08P004403	Gross Alpha on Alpha Plateau
38303	10	38723	43213	SAMPLE	W08P004405	Gross Alpha on Alpha Plateau
38303	11	38723	43213	SAMPLE	W08P004408	Gross Alpha on Alpha Plateau

38303	12	38723	43213	SAMPLE	W08P004409	Gross Alpha on Alpha Plateau
38253	1	38603	43307	BLANK		TC99 by Liquid Scin.
38253	2	38603	43307	LCS		TC99 by Liquid Scin.
38253	4	38603	43307	DUP	W08P004361	TC99 by Liquid Scin.
38253	3	38603	43307	MS	W08P004361	TC99 by Liquid Scin.
38253	18	38603	43307	SAMPLE	W08P004399	TC99 by Liquid Scin.
38253	8	38603	43307	SAMPLE	W08P004401	TC99 by Liquid Scin.
38253	9	38603	43307	SAMPLE	W08P004413	TC99 by Liquid Scin.
38253	10	38603	43307	SAMPLE	W08P004414	TC99 by Liquid Scin.
38253	11	38603	43307	SAMPLE	W08P004415	TC99 by Liquid Scin.

# 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.

<b>LA-505-411</b>	<b>LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE</b> <b>HEIS 6010_METALS_ICP</b> Inductively Coupled Plasma-Atomic Emmission Spectrometry
<b>LA-505-412</b>	<b>LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY</b> <b>EPA-600/R-94-111 200.8</b> DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS <b>HEIS 200.8_METALS_ICPMS</b> Inductively Coupled Plasma - Mass Spectrometry <b>HEIS RADISOTOPES_ICPMS</b> Radioisotopes by ICP/MS
<b>LA-531-411</b>	<b>LA-531-411: ALKALINITY (TITRIMETRIC)</b> <b>HEIS 2320B</b> Alkalinity <b>Standard Methods 2320B</b> Alkalinity
<b>LA-533-410</b>	<b>LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY</b> <b>EPA-600/R-94-111 300.0</b> DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY <b>HEIS 300.0_ANIONS_IC</b> Determination of Inorganic Anions by Ion Chromatography
<b>LA-695-402</b>	<b>LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC</b> <b>EPA-600/4-79-020 335.2</b> Cyanide, Total <b>HEIS 335.2_CYANIDE</b> Cyanide, Total

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: 15-oct-2008  
Report#: WSCF20081993  
Report WGPPM/5.2

15 of 101

# 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.

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

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: 15-oct-2008  
Report#: WSCF20081993  
Report WGPPM/5.2

16 of 101

# 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.

<b>LA-508-415</b>	<b>LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS</b>
<b>HEIS ALPHA_GPC</b>	<b>GROSS ALPHA GPC</b>
<b>HEIS BETA_GPC</b>	<b>GROSS BETA GPC</b>
<b>HEIS SRTOT_SEP_PRECIP_GPC</b>	<b>Protium 89/90</b>
<b>LA-508-421</b>	<b>LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER</b>
<b>HEIS ALPHA_LSC</b>	<b>A/B Liquid Scintillation</b>
<b>HEIS BETA_LSC</b>	<b>A/B Liquid Scintillation</b>
<b>HEIS TC99_3MDSK_LSC</b>	<b>TC99 by Liquid Scintillation</b>
<b>HEIS TRITIUM_EIE_LSC</b>	<b>Tritium Liquid Scintillation</b>
<b>LA-508-481</b>	<b>LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE</b>
<b>HEIS GAMMA_GS</b>	<b>Gamma Emission Spectrometry</b>

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: 15-oct-2008  
Report#: WSCF20081993  
Report WGPPM/5.2

17 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P004398  
**Client ID:** B1WJK0

**PNNL-GPP**  
**WSCF**

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411		5.60e + 04	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411		1.32e + 04	ug/L			1.00	1.7e + 02		09/23/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411		4.67e + 04	ug/L			1.00	51		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411		160	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	B	15.5	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		1.92e + 05	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411		1.25e + 03	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

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Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P004399  
**Client ID:** B1WJK1 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402		15.5	ug/L			1.00	4.0		09/24/08
<b>ICP Metals Analysis, Grd H20 P Prep</b>											09/22/08
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-6	LA-505-411	B	91.4	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411		5.44e+04	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411	B	4.90	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	B	5.50	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411		1.30e+04	ug/L			1.00	1.7e+02		09/23/08
Silver	7440-22-4	LA-505-411	B	6.30	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411		4.49e+04	ug/L			1.00	51		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411		162	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	B	19.3	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	B	7.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	B	16.2	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	B	13.5	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		1.96e+05	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411		1.28e+03	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
<b>ICP-200.8 MS All possible meta Prep</b>											09/25/08
<b>ICP-200.8 MS All possible meta</b>											
Uranium	7440-61-1	LA-505-412	X	534	ug/L			1.00	0.0500		09/25/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

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U - Analyzed for but not detected above limiting criteria.

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+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

19 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-008

**Sample #** W08P004399

**Client ID:** B1WJK1 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Inorganic

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO<sub>3</sub></b>											
Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	LA-531-411		89.0	mg/L			1.00	1.0		09/17/08

**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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U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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+ - Indicates more than six qualifier symbols

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GPAP

20 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P004400  
**Client ID:** B1WKW0

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

PNNL-GPP  
WSCF

**Matrix:** WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	B	50.6	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411		4.80e+04	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	B	8.30	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411		1.32e+04	ug/L			1.00	1.7e+02		09/23/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411		3.17e+04	ug/L			1.00	51		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411		163	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		1.74e+05	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411		1.13e+03	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

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

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

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Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P004401  
**Client ID:** B1WKW1

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

PNNL-GPP  
WSCF

**Matrix:** WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	U	< 4.00	ug/L			1.00	4.0		09/24/08
<b>ICP Metals Analysis, Grd H20 P Prep</b>											09/22/08
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-6	LA-505-411	B	43.9	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411		4.20e + 04	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411		1.14e + 04	ug/L			1.00	1.7e + 02		09/23/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411		2.74e + 04	ug/L			1.00	51		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411		142	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	B	16.2	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		1.58e + 05	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411		996	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
<b>ICP-200.8 MS All possible meta Prep</b>											09/25/08
<b>ICP-200.8 MS All possible meta</b>											
Uranium	7440-61-1	LA-505-412		109	ug/L			1.00	0.0500		09/25/08

**MDL=Minimum Detection Limit**

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

22 of 101  
 Report WGPP/ver. 5.2  
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# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004401

Client ID: B1WKW1

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO<sub>3</sub></b>											
Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	LA-531-411		98.0	mg/L			1.00	1.0		09/17/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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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: W08-008

Sample # W08P004402

Client ID: BIWJC7

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411	B	133	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411	U	< 170	ug/L			1.00	1.7e + 02		09/23/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411	B	98.8	ug/L			1.00	51		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		618	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08

**MDL=Minimum Detection Limit**

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# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004403

Client ID: B1WJC8

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	U	< 4.00	ug/L			1.00	4.0		09/24/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>09/22/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411	U	< 50.0	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411	U	< 170	ug/L			1.00	1.7e+02		09/23/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411	U	< 51.0	ug/L			1.00	51		09/23/08
Antimony	7440-38-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411	B	207	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
<b>ICP-200.8 MS All possible meta Prep</b>											<b>09/25/08</b>
<b>ICP-200.8 MS All possible meta</b>											
Uranium	7440-61-1	LA-505-412	UX	< 0.0500	ug/L			1.00	0.0500		09/25/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

25 of 101  
Report WGPP/ver. 5.2  
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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-008

**Sample #** W08P004403

**Client ID:** B1WJC8

PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Inorganic

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO<sub>3</sub></b>											
Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	LA-531-411	U	< 1.00	mg/L			1.00	1.0		09/17/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

26 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P004404  
**Client ID:** B1WJC3

**PNNL-GPP**  
**WSCF**

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411		215	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411		5.18e+04	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411		22.0	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411		1.43e+04	ug/L			1.00	1.7e+02		09/23/08
Silver	7440-22-4	LA-505-411	B	5.10	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411	D	1.89e+05	ug/L			10.00	5.1e+02		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411		174	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	B	40.7	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		1.87e+05	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411		1.31e+03	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

27 of 101

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P004405  
**Client ID:** B1WJC4

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402		395	ug/L			1.00	4.0		09/24/08
<b>ICP Metals Analysis, Grd H20 P Prep</b>											09/22/08
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-8	LA-505-411		324	ug/L			1.00	25		09/23/08
Magnesium	7439-95-4	LA-505-411		5.10e+04	ug/L			1.00	50		09/23/08
Manganese	7439-96-5	LA-505-411		33.1	ug/L			1.00	4.0		09/23/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Potassium	7440-09-7	LA-505-411		1.41e+04	ug/L			1.00	1.7e+02		09/23/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/23/08
Sodium	7440-23-5	LA-505-411	D	1.93e+05	ug/L			10.00	5.1e+02		09/23/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/23/08
Barium	7440-39-3	LA-505-411		172	ug/L			1.00	4.0		09/23/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Chromium	7440-47-3	LA-505-411	B	48.1	ug/L			1.00	13		09/23/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/23/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/23/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/23/08
Calcium	7440-70-2	LA-505-411		1.89e+05	ug/L			1.00	73		09/23/08
Strontium	7440-24-6	LA-505-411		1.30e+03	ug/L			1.00	4.0		09/23/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/23/08
<b>ICP-200.8 MS All possible meta Prep</b>											09/25/08
<b>ICP-200.8 MS All possible meta</b>											
Uranium	7440-61-1	LA-505-412	X	90.4	ug/L			1.00	0.0500		09/25/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

28 of 101  
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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004405

Client ID: B1WJC4 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO<sub>3</sub></b>											
Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	LA-531-411		94.0	mg/L			1.00	1.0		09/17/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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

29 of 101  
Report WGPP/ver. 5.2  
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# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-058

Sample # W08P004406

Client ID: B1WTR9 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO<sub>3</sub></b>											
Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	LA-531-411		74.0	mg/L			1.00	1.0		09/17/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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

Report WGPP/ver. 5.2

GPAP

30 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I08-058

**Sample #** W08P004407

**Client ID:** B1WTT1 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Inorganic

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		74.0	mg/L			1.00	1.0		09/17/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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+ - Indicates more than six qualifier symbols

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GPAP

31 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** G08-009  
**Sample #** W08P004408  
**Client ID:** B1WRN2

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	18984-48-8	LA-533-410	DU	< 0.0484	mg/L			2.00	0.048		09/16/08
Chloride	16887-00-6	LA-533-410	D	3.75	mg/L			2.00	0.094		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	4.40	mg/L			2.00	0.024		09/16/08
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 0.121	mg/L			2.00	0.12		09/16/08
Sulfate	14808-79-8	LA-533-410	D	19.9	mg/L			2.00	0.26		09/16/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**SDF=Dilution Factor**

\* - Indicates results that have NOT been validated;

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

32 of 101  
 GPAP

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** G08-009

**Sample #** W08P004409

**Client ID:** B1WRN3 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Inorganic

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	DU	< 0.0464	mg/L			2.00	0.046		09/16/08
Chloride	16887-00-6	LA-533-410	D	3.75	mg/L			2.00	0.094		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	4.41	mg/L			2.00	0.024		09/16/08
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 0.121	mg/L			2.00	0.12		09/16/08
Sulfate	14808-79-8	LA-533-410	D	20.0	mg/L			2.00	0.26		09/16/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

• - Indicates results that have NOT been validated;

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

33 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-058

Sample # W08P004411

Client ID: B1WTH1

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	BD	0.146	mg/L			2.00	0.046		09/16/08
Chloride	16887-00-6	LA-533-410	D	23.9	mg/L			2.00	0.094		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	11.1	mg/L			2.00	0.024		09/16/08
Sulfate	14808-79-8	LA-533-410	D	77.1	mg/L			2.00	0.26		09/16/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		65.0	mg/L			1.00	1.0		09/17/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

34 of 101  
Report WGPP/ver. 5.2  
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# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-058

Sample # W08P004412

Client ID: B1WTP5 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	DU	< 0.0464	mg/L			2.00	0.046		09/16/08
Chloride	16887-00-6	LA-533-410	D	13.4	mg/L			2.00	0.094		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	9.34	mg/L			2.00	0.024		09/16/08
Sulfate	14808-79-8	LA-533-410	D	72.7	mg/L			2.00	0.26		09/16/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		75.0	mg/L			1.00	1.0		09/17/08

**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)

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

35 of 101

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-009

Sample # W08P004413

Client ID: B1X0B4 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO<sub>3</sub></b>											
Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	LA-531-411		93.0	mg/L			1.00	1.0		09/17/08

**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)

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

36 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: A08-009

Sample # W08P004414

Client ID: B1WRF1 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Uranium	7440-61-1	LA-505-412	X	1.71	ug/L			1.00	0.0500		09/25/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

37 of 101

Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-009  
**Sample #** W08P004415  
**Client ID:** B1X1C7 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Inorganic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		80.0	mg/L			1.00	1.0		09/17/08

**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)  
 D - Analyte was identified at a secondary dilution factor(inorg)  
 U - Analyzed for but not detected above limiting criteria.  
 X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2  
 GPAP

38 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-059

Sample # W08P004416

Client ID: B1WXR2

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Inorganic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											09/25/08
ICP-200.8 MS All possible meta											
Uranium	7440-81-1	LA-505-412	X	0.895	ug/L			1.00	0.0500		09/25/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

Report WGPP/ver. 5.2

GPAP

39 of 101

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-009

**Sample #** W08P004418

**Client ID:** B1X141 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Inorganic

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	16984-48-8	LA-533-410	BD	0.139	mg/L			2.00	0.046		09/16/08
Chloride	16887-00-6	LA-533-410	D	4.45	mg/L			2.00	0.094		09/16/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		09/16/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	1.68	mg/L			2.00	0.024		09/16/08
Sulfate	14808-79-8	LA-533-410	D	22.1	mg/L			2.00	0.26		09/16/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative (inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

Report WGPP/ver. 5.2

GPAP

40 of 101

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004408											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	3.6965		RPD			1.424	20.000		09/16/08
DUP	Fluoride	16984-48-8	<4.64e-2		RPD			n/a	20.000	U	09/16/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	09/16/08
DUP	Nitrogen in Nitrate	NO3-N	4.4075		RPD			0.207	20.000		09/16/08
DUP	Phosphate (P) by IC	PO4-P	<0.1212		RPD			n/a	20.000	U	09/16/08
DUP	Sulfate	14808-79-8	19.9245		RPD			0.056	20.000		09/16/08
MS	Chloride	16887-00-6	0.90045	90.497	% Recov	80.000	120.000				09/16/08
MS	Fluoride	16984-48-8	0.50075	101.572	% Recov	80.000	120.000				09/16/08
MS	Nitrogen in Nitrite	NO2-N	0.5005	101.728	% Recov	80.000	120.000				09/16/08
MS	Nitrogen in Nitrate	NO3-N	0.42205	94.630	% Recov	80.000	120.000				09/16/08
MS	Phosphate (P) by IC	PO4-P	0.91535	95.648	% Recov	80.000	120.000				09/16/08
MS	Sulfate	14808-79-8	1.79375	91.518	% Recov	80.000	120.000				09/16/08
MSD	Chloride	16887-00-6	1.01355	101.864	% Recov	80.000	120.000				09/16/08
MSD	Fluoride	16984-48-8	0.49205	99.807	% Recov	80.000	120.000				09/16/08
MSD	Nitrogen in Nitrite	NO2-N	0.5166	105.000	% Recov	80.000	120.000				09/16/08
MSD	Nitrogen in Nitrate	NO3-N	0.43575	97.702	% Recov	80.000	120.000				09/16/08
MSD	Phosphate (P) by IC	PO4-P	0.94945	99.211	% Recov	80.000	120.000				09/16/08
MSD	Sulfate	14808-79-8	1.8255	93.138	% Recov	80.000	120.000				09/16/08
SPK-RPD	Chloride	16887-00-6	101.864		RPD			11.818	20.000		09/16/08
SPK-RPD	Fluoride	16984-48-8	99.807		RPD			1.753	20.000		09/16/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	105.000		RPD			3.166	20.000		09/16/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	97.702		RPD			3.194	20.000		09/16/08
SPK-RPD	Phosphate (P) by IC	PO4-P	99.211		RPD			3.657	20.000		09/16/08
SPK-RPD	Sulfate	14808-79-8	93.138		RPD			1.755	20.000		09/16/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date: 09/16/08  
 Receive Date: 09/16/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004432</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Chloride	16887-00-6	14.3446		RPD			1.039	20.000		09/16/08
DUP	Fluoride	16984-48-8	0.1767		RPD			1.482	20.000		09/16/08
DUP	Nitrogen in Nitrite	NO2-N	< 2.56e-2		RPD			n/a	20.000	U	09/16/08
DUP	Nitrogen in Nitrate	NO3-N	2.3174		RPD			0.017	20.000		09/16/08
DUP	Sulfate	14808-79-8	22.8852		RPD			1.000	20.000		09/16/08
MS	Chloride	16887-00-6	0.9085	91.307	% Recov	80.000	120.000				09/16/08
MS	Fluoride	16984-48-8	0.5535	112.272	% Recov	80.000	120.000				09/16/08
MS	Nitrogen in Nitrite	NO2-N	0.52535	106.778	% Recov	80.000	120.000				09/16/08
MS	Nitrogen in Nitrate	NO3-N	0.4423	99.170	% Recov	80.000	120.000				09/16/08
MS	Sulfate	14808-79-8	1.8073	92.209	% Recov	80.000	120.000				09/16/08
MSD	Chloride	16887-00-6	0.87795	88.236	% Recov	80.000	120.000				09/16/08
MSD	Fluoride	16984-48-8	0.4339	88.012	% Recov	80.000	120.000				09/16/08
MSD	Nitrogen in Nitrite	NO2-N	0.5078	103.211	% Recov	80.000	120.000				09/16/08
MSD	Nitrogen in Nitrate	NO3-N	0.4488	100.628	% Recov	80.000	120.000				09/16/08
MSD	Sulfate	14808-79-8	1.7988	91.776	% Recov	80.000	120.000				09/16/08
SPK-RPD	Chloride	16887-00-6	88.236		RPD			3.421	20.000		09/16/08
SPK-RPD	Fluoride	16984-48-8	88.012		RPD			24.226	20.000		09/16/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	103.211		RPD			3.397	20.000		09/16/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	100.628		RPD			1.459	20.000		09/16/08
SPK-RPD	Sulfate	14808-79-8	91.776		RPD			0.471	20.000		09/16/08
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	< 4.69e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Chloride	16887-00-6	< 4.69e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Chloride	16887-00-6	< 4.69e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Fluoride	16984-48-8	< 2.32e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Fluoride	16984-48-8	< 2.32e-2	n/a	mg/L	0.000	0.030			U	09/16/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 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	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	09/16/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	09/16/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	09/16/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	09/16/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	09/16/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	09/16/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	09/16/08
BLANK	Phosphate (P) by IC	PO4-P	<6.06e-2	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Phosphate (P) by IC	PO4-P	<6.06e-2	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Phosphate (P) by IC	PO4-P	<6.06e-2	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	09/16/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	09/16/08
LCS	Chloride	16887-00-6	187.2846	93.176	% Recov	80.000	120.000				09/16/08
LCS	Chloride	16887-00-6	194.4177	96.725	% Recov	80.000	120.000				09/16/08
LCS	Fluoride	16984-48-8	104.8507	105.272	% Recov	80.000	120.000				09/16/08
LCS	Fluoride	16984-48-8	98.0487	96.434	% Recov	80.000	120.000				09/16/08
LCS	Nitrogen in Nitrite	NO2-N	98.85	99.447	% Recov	80.000	120.000				09/16/08
LCS	Nitrogen in Nitrite	NO2-N	99.2671	99.866	% Recov	80.000	120.000				09/16/08
LCS	Nitrogen in Nitrate	NO3-N	92.1822	102.311	% Recov	80.000	120.000				09/16/08
LCS	Nitrogen in Nitrate	NO3-N	93.2385	103.483	% Recov	80.000	120.000				09/16/08
LCS	Phosphate (P) by IC	PO4-P	192.4931	99.531	% Recov	80.000	120.000				09/16/08
LCS	Phosphate (P) by IC	PO4-P	188.3948	96.378	% Recov	80.000	120.000				09/16/08
LCS	Sulfate	14808-79-8	386.4394	97.586	% Recov	80.000	120.000				09/16/08
LCS	Sulfate	14808-79-8	389.5338	98.367	% Recov	80.000	120.000				09/16/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004399</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Cyanide by Midi/Spectrophotom	57-12-5	38.9	92.250	% Recov	75.000	125.000				09/24/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	38	95.000	% Recov	75.000	125.000				09/24/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	95.000		RPD			2.937	20.000		09/24/08
<b>BATCH QC</b>											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	09/24/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	51.3	102.600	% Recov	85.000	115.000				09/24/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004398											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	993.5	99.350	% Recov	75.000	125.000				09/23/08
MS	Barium	7440-39-3	496	99.200	% Recov	75.000	125.000				09/23/08
MS	Beryllium	7440-41-7	525.3	105.060	% Recov	75.000	125.000				09/23/08
MS	Calcium	7440-70-2	6200	620.000	% Recov	75.000	125.000				09/23/08
MS	Cadmium	7440-43-9	991.1	99.110	% Recov	75.000	125.000				09/23/08
MS	Cobalt	7440-48-4	971.9	97.190	% Recov	75.000	125.000				09/23/08
MS	Chromium	7440-47-3	1016	101.600	% Recov	75.000	125.000				09/23/08
MS	Copper	7440-50-8	949.5	94.950	% Recov	75.000	125.000				09/23/08
MS	Iron	7439-89-6	997.9	99.790	% Recov	75.000	125.000				09/23/08
MS	Potassium	7440-09-7	9240	92.400	% Recov	75.000	125.000				09/23/08
MS	Magnesium	7439-95-4	110	11.000	% Recov	75.000	125.000				09/23/08
MS	Manganese	7439-96-5	1031	103.100	% Recov	75.000	125.000				09/23/08
MS	Sodium	7440-23-5	-990	-99.000	% Recov	75.000	125.000				09/23/08
MS	Nickel	7440-02-0	954.6	95.460	% Recov	75.000	125.000				09/23/08
MS	Antimony	7440-36-0	986.5	98.650	% Recov	75.000	125.000				09/23/08
MS	Strontium	7440-24-6	520	104.000	% Recov	75.000	125.000				09/23/08
MS	Vanadium	7440-62-2	978.6	97.860	% Recov	75.000	125.000				09/23/08
MS	Zinc	7440-66-6	992.1	99.210	% Recov	75.000	125.000				09/23/08
MSD	Silver	7440-22-4	1008	100.800	% Recov	75.000	125.000				09/23/08
MSD	Barium	7440-39-3	512.7	102.540	% Recov	75.000	125.000				09/23/08
MSD	Beryllium	7440-41-7	526.1	105.220	% Recov	75.000	125.000				09/23/08
MSD	Calcium	7440-70-2	-900	-90.000	% Recov	75.000	125.000				09/23/08
MSD	Cadmium	7440-43-9	991.3	99.130	% Recov	75.000	125.000				09/23/08
MSD	Cobalt	7440-48-4	950.8	95.080	% Recov	75.000	125.000				09/23/08
MSD	Chromium	7440-47-3	999	99.900	% Recov	75.000	125.000				09/23/08
MSD	Copper	7440-50-8	991.3	99.130	% Recov	75.000	125.000				09/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1047	104.700	% Recov	75.000	125.000				09/23/08
MSD	Potassium	7440-09-7	10750	107.500	% Recov	75.000	125.000				09/23/08
MSD	Magnesium	7439-95-4	1800	180.000	% Recov	75.000	125.000			•	09/23/08
MSD	Manganese	7439-96-5	1014	101.400	% Recov	75.000	125.000				09/23/08
MSD	Sodium	7440-23-5	3330	333.000	% Recov	75.000	125.000			•	09/23/08
MSD	Nickel	7440-02-0	940.3	94.030	% Recov	75.000	125.000				09/23/08
MSD	Antimony	7440-36-0	1010	101.000	% Recov	75.000	125.000				09/23/08
MSD	Strontium	7440-24-6	535	107.000	% Recov	75.000	125.000				09/23/08
MSD	Vanadium	7440-62-2	973.8	97.380	% Recov	75.000	125.000				09/23/08
MSD	Zinc	7440-66-6	989.4	98.940	% Recov	75.000	125.000				09/23/08
SPK-RPD	Silver	7440-22-4	100.800		RPD			1.449	20.000		09/23/08
SPK-RPD	Barium	7440-39-3	102.540		RPD			3.311	20.000		09/23/08
SPK-RPD	Beryllium	7440-41-7	105.220		RPD			0.152	20.000		09/23/08
SPK-RPD	Calcium	7440-70-2	-90.000		RPD			267.925	20.000	•	09/23/08
SPK-RPD	Cadmium	7440-43-9	99.130		RPD			0.020	20.000		09/23/08
SPK-RPD	Cobalt	7440-48-4	95.080		RPD			2.195	20.000		09/23/08
SPK-RPD	Chromium	7440-47-3	99.900		RPD			1.687	20.000		09/23/08
SPK-RPD	Copper	7440-50-8	99.130		RPD			4.308	20.000		09/23/08
SPK-RPD	Iron	7439-89-6	104.700		RPD			4.802	20.000		09/23/08
SPK-RPD	Potassium	7440-09-7	107.500		RPD			15.108	20.000		09/23/08
SPK-RPD	Magnesium	7439-95-4	180.000		RPD			176.963	20.000	•	09/23/08
SPK-RPD	Manganese	7439-96-5	101.400		RPD			1.663	20.000		09/23/08
SPK-RPD	Sodium	7440-23-5	333.000		RPD			369.231	20.000	•	09/23/08
SPK-RPD	Nickel	7440-02-0	94.030		RPD			1.509	20.000		09/23/08
SPK-RPD	Antimony	7440-36-0	101.000		RPD			2.354	20.000		09/23/08
SPK-RPD	Strontium	7440-24-6	107.000		RPD			2.844	20.000		09/23/08
SPK-RPD	Vanadium	7440-62-2	97.380		RPD			0.492	20.000		09/23/08
SPK-RPD	Zinc	7440-66-6	98.940		RPD			0.273	20.000		09/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 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
<b>BATCH QC</b>											
BLANK	Silver	7440-22-4	<5	n/a	ug/L					U	09/23/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	09/23/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	09/23/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	09/23/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	09/23/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	09/23/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	09/23/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	09/23/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	09/23/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	09/23/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	09/23/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	09/23/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	09/23/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	09/23/08
BLANK	Antimony	7440-38-0	<56	n/a	ug/L					U	09/23/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	09/23/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	09/23/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	09/23/08
LCS	Silver	7440-22-4	977.3	97.730	% Recov	80.000	120.000				09/23/08
LCS	Barium	7440-39-3	468.6	93.720	% Recov	80.000	120.000				09/23/08
LCS	Beryllium	7440-41-7	536.1	107.220	% Recov	80.000	120.000				09/23/08
LCS	Calcium	7440-70-2	1087	108.700	% Recov	80.000	120.000				09/23/08
LCS	Cadmium	7440-43-9	1011	101.100	% Recov	80.000	120.000				09/23/08
LCS	Cobalt	7440-48-4	1021	102.100	% Recov	80.000	120.000				09/23/08
LCS	Chromium	7440-47-3	1005	100.500	% Recov	80.000	120.000				09/23/08
LCS	Copper	7440-50-8	948.8	94.860	% Recov	80.000	120.000				09/23/08
LCS	Iron	7439-89-6	1009	100.900	% Recov	80.000	120.000				09/23/08
LCS	Potassium	7440-09-7	9634	96.340	% Recov	80.000	120.000				09/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 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	930.4	93.040	% Recov	80.000	120.000				09/23/08
LCS	Manganese	7439-96-5	1030	103.000	% Recov	80.000	120.000				09/23/08
LCS	Sodium	7440-23-5	922.3	92.230	% Recov	80.000	120.000				09/23/08
LCS	Nickel	7440-02-0	1029	102.900	% Recov	80.000	120.000				09/23/08
LCS	Antimony	7440-36-0	1019	101.900	% Recov	80.000	120.000				09/23/08
LCS	Strontium	7440-24-6	496	99.200	% Recov	80.000	120.000				09/23/08
LCS	Vanadium	7440-82-2	992.4	99.240	% Recov	80.000	120.000				09/23/08
LCS	Zinc	7440-86-6	997.7	99.770	% Recov	80.000	120.000				09/23/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: ICP-200.8 MS All possible meta

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004399</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Uranium	7440-61-1	21.7	54.250	% Recov	70.000	130.000			*	09/25/08
MSD	Uranium	7440-61-1	2.4	6.000	% Recov	70.000	130.000			*	09/25/08
SPK-RPD	Uranium	7440-61-1	6.000		RPD			160.166	20.000	*	09/25/08
<b>Lab ID: W08P004401</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Uranium	7440-61-1	40.8	102.000	% Recov	70.000	130.000				09/25/08
MSD	Uranium	7440-61-1	39.8	99.500	% Recov	70.000	130.000				09/25/08
SPK-RPD	Uranium	7440-61-1	99.500		RPD			2.481	20.000		09/25/08
<b>BATCH QC</b>											
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	09/25/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	09/25/08
LCS	Uranium	7440-61-1	39.72	99.300	% Recov	85.000	115.000				09/25/08
LCS	Uranium	7440-61-1	38.49	96.225	% Recov	85.000	115.000				09/25/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Total Alkalinity as mg/L CaCO<sub>3</sub>

Sample Date: 09/08/08  
 Receive Date: 09/08/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08GR03628</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	<1		RPD			n/a	20.000	U	09/17/08
<b>Lab ID: W08P004389</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	471.8		RPD			0.844	20.000		09/17/08
<b>BATCH QC</b>											
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	30.69	102.987	%Recover	80.000	120.000				09/17/08
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	31.33	105.134	%Recover	80.000	120.000				09/17/08
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	31.39	105.336	%Recover	80.000	120.000				09/17/08
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	31.53	105.805	%Recover	80.000	120.000				09/17/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081993  
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>ICP-AES: [Samples W08P4398-4405] No zirconium present in the LCS standard. Elements having results &lt;5X the MDL; "B" flag. Sodium, magnesium, 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 sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard. Tc-99 MS slightly high. All other QC is acceptable so this batch is approved.</p> <p>ICP-MS: Sample result for sample P-4399 more than 10 times the spike amount. Recovery data not valid.</p> <p>Sr85 tracer recovery is low. Since most of the other tracer recoveries came out fine, this batch has been approved. lmh</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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ggppc/5.2 Report#: WSCF20081993 Report Date: 15-oct-2008

Page 3

51 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-059

Sample # W08P004416

Client ID: B1WXR2

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Organic

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Carbon tetrachloride	56-23-5	LA-523-455		30.0	ug/L			1.00	1.0		09/17/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		09/17/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		09/17/08
trans-1,2-Dichloroethylene	156-80-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

52 of 101  
Report WGPP/ver. 5.2  
GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-059

Sample # W08P004416

Client ID: B1WXR2 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Organic

Sampled: 09/15/08

Received: 09/15/08

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		09/17/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08

**MDL=Minimum Detection Limit**

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**TP Err=Total Propagated Error**

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

53 of 101

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P004417  
**Client ID:** B1WMV5

**Group #:** WSCF20081993  
**Department:** Organic  
**Sampled:** 09/15/08  
**Received:** 09/15/08

PNNL-GPP  
WSCF

**Matrix:** WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,1,1-Trichloroethane	71-55-8	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
Methylenechloride	75-09-2	LA-523-455		12.0	ug/L			1.00	1.0		09/17/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		09/17/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		09/17/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

54 of 101  
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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** S08-008

**Sample #** W08P004417

**Client ID:** B1WMV5 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Organic

**Sampled:** 09/15/08

**Received:** 09/15/08

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		09/17/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		09/17/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

- Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

55 of 101

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004416</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,1-Dichloroethene	75-35-4	25.230	101.000	% Recov	63.000	117.000				09/17/08
MS	Benzene	71-43-2	24.140	96.600	% Recov	75.000	129.000				09/17/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	47.870	95.700	% Recov	75.000	125.000				09/17/08
MS	Chlorobenzene	108-90-7	24.860	99.400	% Recov	79.000	119.000				09/17/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.410	103.000	% Recov	75.000	125.000				09/17/08
MS	Toluene-d8(Surr)	2037-26-5	47.030	94.100	% Recov	75.000	125.000				09/17/08
MS	Toluene	108-88-3	24.310	97.200	% Recov	76.000	120.000				09/17/08
MS	Trichloroethene	79-01-6	20.000	80.000	% Recov	73.000	123.000				09/17/08
MSD	1,1-Dichloroethene	75-35-4	22.490	90.000	% Recov	63.000	117.000				09/17/08
MSD	Benzene	71-43-2	23.780	95.100	% Recov	75.000	129.000				09/17/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	47.570	95.100	% Recov	75.000	125.000				09/17/08
MSD	Chlorobenzene	108-90-7	24.820	99.300	% Recov	79.000	119.000				09/17/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.400	103.000	% Recov	75.000	125.000				09/17/08
MSD	Toluene-d8(Surr)	2037-26-5	46.900	93.800	% Recov	75.000	125.000				09/17/08
MSD	Toluene	108-88-3	23.950	95.800	% Recov	76.000	120.000				09/17/08
MSD	Trichloroethene	79-01-6	20.400	81.600	% Recov	73.000	123.000				09/17/08
SPK-RPD	1,1-Dichloroethene	75-35-4	90.000		RPD			11.518	20.000		09/17/08
SPK-RPD	Benzene	71-43-2	95.100		RPD			1.565	20.000		09/17/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	95.100		RPD			0.629	20.000		09/17/08
SPK-RPD	Chlorobenzene	108-90-7	99.300		RPD			0.101	20.000		09/17/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	103.000		RPD			0.000	20.000		09/17/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	93.800		RPD			0.319	20.000		09/17/08
SPK-RPD	Toluene	108-88-3	95.800		RPD			1.451	20.000		09/17/08
SPK-RPD	Trichloroethene	79-01-6	81.600		RPD			1.980	20.000		09/17/08
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.680	95.300	% Recov	75.000	125.000				09/17/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.830	104.000	% Recov	75.000	125.000				09/17/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	Toluene-d8(Surr)	2037-26-5	47.370	94.700	% Recov	75.000	125.000				09/17/08
<b>Lab ID: W08P004417</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.510	95.000	% Recov	75.000	125.000				09/17/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.980	102.000	% Recov	75.000	125.000				09/17/08
SURR	Toluene-d8(Surr)	2037-26-5	47.730	95.500	% Recov	75.000	125.000				09/17/08
<b>BATCH QC</b>											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	09/17/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	09/17/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	09/17/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	09/17/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/e	ug/L					U	09/17/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	09/17/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	09/17/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	09/17/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	47.980	96.000	% Recov	75.000	125.000				09/17/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	09/17/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	09/17/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.120	102.000	% Recov	75.000	125.000				09/17/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/e	ug/L					U	09/17/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	09/17/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	09/17/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081993  
 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	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	09/17/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	09/17/08
BLANK	Toluene-d8(Surr)	2037-26-5	47.310	94.600	% Recov	75.000	125.000				09/17/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	09/17/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	09/17/08
LCS	1,1-Dichloroethene	75-35-4	22.730	90.900	% Recov	75.000	125.000				09/18/08
LCS	Benzene	71-43-2	24.230	96.900	% Recov	75.000	125.000				09/18/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	47.000	94.000	% Recov	75.000	125.000				09/18/08
LCS	Chlorobenzene	108-90-7	24.580	98.300	% Recov	75.000	125.000				09/18/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.090	102.000	% Recov	75.000	125.000				09/18/08
LCS	Toluene-d8(Surr)	2037-26-5	47.300	94.600	% Recov	75.000	125.000				09/18/08
LCS	Toluene	108-88-3	24.100	96.400	% Recov	75.000	125.000				09/18/08
LCS	Trichloroethene	79-01-6	20.660	82.600	% Recov	75.000	125.000				09/18/08

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004399

Client ID: B1WJK1

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		120	pCi/L	+ -19.2	pCi/L	1.00	8.2		10/07/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		3.00e+03	pCi/L	+ -300	pCi/L	1.00	10		10/06/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		8.30e+03	pCi/L	+ -1.66e+03	pCi/L	1.00	5.9		10/02/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		5.50e+03	pCi/L	+ -1.16e+03	pCi/L	1.00	2.2e+02		10/03/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

\* - Indicates results that have NOT been validated;

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

59 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004401

Client ID: B1WKW1

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		22.0	pCi/L	+ -6.60	pCi/L	1.00	5.9		10/07/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		1.90e +03	pCi/L	+ -190	pCi/L	1.00	6.9		10/06/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		4.80e +03	pCi/L	+ -960	pCi/L	1.00	5.9		09/26/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		4.90e +03	pCi/L	+ -1.03e +03	pCi/L	1.00	2.2e +02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

60 of 101  
Report WGPP/ver. 5.2  
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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004403

Client ID: B1WJC8

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	-0.0450	pCi/L	+ -0.414	pCi/L	1.00	0.81		10/07/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415	U	1.20	pCi/L	+ -0.816	pCi/L	1.00	1.3		10/06/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421	U	85.0	pCi/L	+ -152	pCi/L	1.00	2.2e+02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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:** W08-008  
**Sample #** W08P004405  
**Client ID:** B1WJC4

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Radiochemistry  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		28.0	pCi/L	+ -9.80	pCi/L	1.00	10		10/07/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		4.40e +03	pCi/L	+ -440	pCi/L	1.00	12		10/06/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		4.80e +03	pCi/L	+ -1.01e +03	pCi/L	1.00	2.2e +02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

02 of 101  
 GPAP

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I08-058

**Sample #** W08P004406

**Client ID:** B1WTR9 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Radiochemistry

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415		1.20e +03	pCi/L	+ -156	pCi/L	1.00	1.0		09/29/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		90.3	Percent			1.00	0.0		09/29/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		5.90e +03	pCi/L	+ -1.24e +03	pCi/L	1.00	2.2e +02		10/03/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

• - Indicates results that have NOT been validated;

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

63 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I08-058

**Sample #** W08P004407

**Client ID:** B1WTT1 PNNL-GPP

WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Radiochemistry

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415		1.10e+03	pCi/L	+ -132	pCi/L	1.00	1.6		09/29/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		55.6	Percent			1.00	0.0		09/29/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		5.90e+03	pCi/L	+ -1.18e+03	pCi/L	1.00	2.2e+02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

64 of 101

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** G08-009

**Sample #** W08P004408

**Client ID:** B1WRN2 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Radiochemistry

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	3.00e-03	pCi/L	+ -3.00e-03	pCi/L	1.00	1.2		10/07/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		2.20e+03	pCi/L	+ -220	pCi/L	1.00	1.5		10/06/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

65 of 101

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** G08-009  
**Sample #** W08P004409  
**Client ID:** B1WRN3

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Radiochemistry  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.770	pCi/L	+0.809	pCi/L	1.00	1.3		10/07/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		2.30e+03	pCi/L	+230	pCi/L	1.00	1.5		10/06/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

66 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: G08-009

Sample # W08P004410

Client ID: B1WRK5 PNNL-GPP

WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415		1.30e +03	pCi/L	+ -156	pCi/L	1.00	0.94		09/29/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		95.8	Percent			1.00	0.0		09/29/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

67 of 101

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** 108-058  
**Sample #** W08P004411  
**Client ID:** B1WTH1 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Radiochemistry  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		1.90e+03	pCi/L	+ -190	pCi/L	1.00	2.0		10/06/08
<b>Tritium by Liq Set column prep</b>											
Tritium	10028-17-8	LA-508-421		1.60e+04	pCi/L	+ -3.20e+03	pCi/L	1.00	2.2e+02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative (inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

6801101

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-058  
**Sample #** W08P004412  
**Client ID:** B1WTP5

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081993  
**Department:** Radiochemistry  
**Sampled:** 09/15/08  
**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gamma Energy Analysis-grd H2O</b>											
Antimony-125	14234-35-8	LA-508-481	U	4.20	pCi/L	+ -12.3	pCi/L	1.00	21		10/06/08
Cobalt-60	10198-40-0	LA-508-481	U	-0.976	pCi/L	+ -3.94	pCi/L	1.00	7.0		10/06/08
Cesium-134	13967-70-9	LA-508-481	U	1.36	pCi/L	+ -4.21	pCi/L	1.00	7.6		10/06/08
Cesium-137	10045-97-3	LA-508-481	U	-3.04	pCi/L	+ -4.37	pCi/L	1.00	7.4		10/06/08
Europium-152	14683-23-9	LA-508-481	U	5.24	pCi/L	+ -13.2	pCi/L	1.00	23		10/06/08
Europium-154	15585-10-1	LA-508-481	U	-3.92	pCi/L	+ -11.7	pCi/L	1.00	20		10/06/08
Europium-155	14391-16-3	LA-508-481	U	-3.25	pCi/L	+ -15.0	pCi/L	1.00	25		10/06/08
Potassium-40	13966-00-2	LA-508-481	U	-28.5	pCi/L	+ -67.6	pCi/L	1.00	1.2e + 02		10/06/08
Ruthenium-106	13967-48-1	LA-508-481	U	2.34	pCi/L	+ -23.4	pCi/L	1.00	66		10/06/08
Be-7 by GEA	13966-02-4	LA-508-481	U	18.4	pCi/L	+ -37.0	pCi/L	1.00	64		10/06/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		1.00e + 03	pCi/L	+ -100	pCi/L	1.00	2.1		10/06/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415		970	pCi/L	+ -272	pCi/L	1.00	9.5		09/29/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		9.30	Percent			1.00	0.0		09/29/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		1.40e + 04	pCi/L	+ -2.80e + 03	pCi/L	1.00	2.2e + 02		10/03/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

\* - Indicates results that have NOT been validated;

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative (inorg)

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

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

69 of 101

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-009

Sample # W08P004413

Client ID: B1X0B4 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

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	U	3.40	pCi/L	+ -3.74	pCi/L	1.00	5.9		09/26/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

70 of 101

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: A08-009

Sample # W08P004414

Client ID: B1WRF1 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421	U	-1.60	pCi/L	+ -3.52	pCi/L	1.00	5.9		09/26/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421	U	37.0	pCi/L	+ -185	pCi/L	1.00	2.2e+02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

- Indicates results that have NOT been validated;

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GPAP

71 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-009

**Sample #** W08P004415

**Client ID:** B1X1C7 PNNL-GPP

WSCF

**Matrix:** WATER

**Group #:** WSCF20081993

**Department:** Radiochemistry

**Sampled:** 09/15/08

**Received:** 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.	14133-76-7	LA-508-421		4.20e +03	pCi/L	+ -42.0	pCi/L	1.00	5.9		09/26/08
Tc-99 by Liquid Scin.											

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

72 of 101

# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-059

Sample # W08P004416

Client ID: B1WXR2 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081993

Department: Radiochemistry

Sampled: 09/15/08

Received: 09/15/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		1.60e+03	pCi/L	+ -368	pCi/L	1.00	2.2e+02		10/03/08

**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)

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

U - Analyzed for but not detected above limiting criteria.

X - Other flags/notes described in the comments/narrative(inorg)

D - Analyte was identified at a secondary dilution factor

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

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

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Report WGPP/ver. 5.2

GPAP

73  
OF  
101

# WSCF

## TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081993  
Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08P004412	B1WTP5	PNNL-GPP	Gamma Energy Analysis-grd H2O	BI-214			91	pCi/L
W08P004412	B1WTP5	PNNL-GPP	Gamma Energy Analysis-grd H2O	BI-214 Count Error			43	%
W08P004412	B1WTP5	PNNL-GPP	Gamma Energy Analysis-grd H2O	PB-214			1.0e + 02	pCi/L
W08P004412	B1WTP5	PNNL-GPP	Gamma Energy Analysis-grd H2O	PB-214 Count Error			25	%
W08P004412	B1WTP5	PNNL-GPP	Gamma Energy Analysis-grd H2O	RA-228			86	pCi/L
W08P004412	B1WTP5	PNNL-GPP	Gamma Energy Analysis-grd H2O	RA-228 Count Error			31	%

RQ=Result Qualifier

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74 GPAP

WGPE v 5.2 Report#: WSCF20081993 Report Date: 15-oct-2008

Page 1

74 OF 101

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004412</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Cobalt-60	10198-40-0	U-2.243		RPD			n/a	20.000		10/06/08
DUP	Cesium-134	13967-70-9	U-3.527		RPD			n/a	20.000		10/06/08
DUP	Cesium-137	10045-97-3	U-2.386		RPD			n/a	20.000		10/06/08
DUP	Europium-152	14683-23-9	U-1.418		RPD			n/a	20.000		10/06/08
DUP	Europium-154	15585-10-1	U1.182		RPD			n/a	20.000		10/06/08
DUP	Europium-155	14391-16-3	U-0.2297		RPD			n/a	20.000		10/06/08
DUP	Potassium-40	13966-00-2	U39.6		RPD			n/a	20.000		10/06/08
DUP	Ruthenium-106	13967-48-1	U-6.91		RPD			n/a	20.000		10/06/08
DUP	Antimony-125	14234-35-6	U-0.8802		RPD			n/a	20.000		10/06/08
<b>BATCH QC</b>											
BLANK	Cobalt-60	10198-40-0	U-4.896	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Cesium-134	13967-70-9	U-5.58	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Cesium-137	10045-97-3	U-3.639	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Europium-152	14683-23-9	U0.4164	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Europium-154	15585-10-1	U-8.186	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Europium-155	14391-16-3	U1.713	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Potassium-40	13966-00-2	U-35.64	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Ruthenium-106	13967-48-1	U-31.78	n/a	pCi/L	-10.000	1000.000				10/06/08
BLANK	Antimony-125	14234-35-6	U1.649	n/a	pCi/L	-10.000	1000.000				10/06/08
LCS	Cobalt-60	10198-40-0	10080	101.408	% Recov	80.000	120.000				10/06/08
LCS	Cesium-137	10045-97-3	6328	104.768	% Recov	80.000	120.000				10/06/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Gross Alpha on Alpha Plateau

Sample Date: 09/08/08  
 Receive Date: 09/08/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004361 BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	U1.3			RPD		n/a	20.000		10/07/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-9.0E-02	n/a	pCi/L	<100.000	100.000				10/07/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	40.2	103.528	% Recov	80.000	120.000				10/07/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 09/08/08  
 Receive Date: 09/08/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004361											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	5.8E +02		RPD			6.897	20.000		10/02/08
BATCH QC											
BLANK	Gross beta	12587-47-2	8.7E-01	0.870	pCi/L	-10.000	10.000				10/02/08
LCS	Gross beta	12587-47-2	128	114.082	% Recov	80.000	120.000				10/02/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Strontium 89/90

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004406</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Sr-85 Tracer by Beta Counting	SR85	87.6	87.600	% Recov	30.000	105.000				09/29/08
DUP	Strontium-89/90	SR-RAD	1.2E+03		RPD			0.000	20.000		09/29/08
SURR	Sr-85 Tracer by Beta Counting	SR85	90.3	90.300	% Recov	30.000	105.000				09/29/08
<b>Lab ID: W08P004407</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	55.6	55.600	% Recov	30.000	105.000				09/29/08
<b>Lab ID: W08P004410</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	95.8	95.800	% Recov	30.000	105.000				09/29/08
<b>Lab ID: W08P004412</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	9.3	9.300	% Recov	30.000	105.000				09/29/08
<b>BATCH QC</b>											
BLANK	Sr-85 Tracer by Beta Counting	SR85	93	93.000	% Recov	30.000	105.000				09/29/08
BLANK	Strontium-89/90	10098-97-2	U-5.0E-01	n/a	pCi/L	-10.000	100.000				09/29/08
LCS	Sr-85 Tracer by Beta Counting	SR85	91.7	91.700	% Recov	30.000	105.000				09/29/08
LCS	Strontium-89/90	10098-97-2	148.0	106.605	% Recov	80.000	120.000				09/29/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: TC99 by Liquid Scin.

Sample Date: 09/08/08  
 Receive Date: 09/08/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004361</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tc-99 by Liquid Scin.	14133-76-7	1.1E+03		RPD			9.524	20.000		10/02/08
MS	Tc-99 by Liquid Scin.	14133-76-7	798.2	125.377	% Recov	75.000	125.000				10/02/08
<b>BATCH QC</b>											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	00.4	n/a	pCi/L	-10.000	10.000				10/02/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	169.8	106.658	% Recov	80.000	120.000				10/02/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081993  
 Matrix: WATER  
 Test: Tritium by Liq Sct column prep

Sample Date: 09/15/08  
 Receive Date: 09/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P004399</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tritium	10028-17-8	5.2E+03		RPD			5.607	20.000		10/03/08
MS	Tritium	10028-17-8	20720	92.373	% Recov	75.000	125.000				10/03/08
<b>BATCH QC</b>											
BLANK	Tritium	10028-17-8	U4.6E+01	n/a	pCi/L	-10.000	1000.000				10/03/08
LCS	Tritium	10028-17-8	3070.0	90.858	% Recov	80.000	120.000				10/03/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081993  
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>ICP-AES: [Samples W08P4398-4405] No zirconium present in the LCS standard. Elements having results &lt;5X the MDL; "B" flag. Sodium, magnesium, 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 sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard. Tc-99 MS slightly high. All other QC is acceptable so this batch is approved.</p> <p>ICP-MS: Sample result for sample P-4399 more than 10 times the spike amount. Recovery data not valid.</p> <p>Sr85 tracer recovery is low. Since most of the other tracer recoveries came out fine, this batch has been approved. 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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wgppc/5.2 Report#: WSCF20081993

Report Date: 15-oct-2008

Page 2

81  
of  
101

M4W41-SLF-08-1158

ATTACHMENT 4

**SAMPLE RECEIPT INFORMATION**

Consisting of 20 pages  
Including cover page

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

*File*

ACKNOWLEDGMENT OF SAMPLES RECEIVED

*10/15/08*  
*tal*

GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20081993

The following samples were received from you on 09/15/08. 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
W08P004398	B1WJK0	PNNL-GPP @GPP6010	Water	09/15/08
W08P004399	B1WJK1	PNNL-GPP @2008 @AB-32 @TC99-30 ALKALI	Water @ALPHA CN-02	09/15/08
W08P004400	B1WKW0	PNNL-GPP @GPP6010	Water	09/15/08
W08P004401	B1WKW1	PNNL-GPP @2008 @AB-32 @TC99-30 ALKALI	Water @ALPHA CN-02	09/15/08
W08P004402	B1WJC7	PNNL-GPP @GPP6010	Water	09/15/08
W08P004403	B1WJC8	PNNL-GPP @2008 @AB-32 ALKALI CN-02	Water @ALPHA	09/15/08
W08P004404	B1WJC3	PNNL-GPP @GPP6010	Water	09/15/08
W08P004405	B1WJC4	PNNL-GPP @2008 @AB-32 ALKALI CN-02	Water @ALPHA	09/15/08
W08P004406	B1WTR9	PNNL-GPP @H3-33 @SR89_90	Water ALKALI	09/15/08
W08P004407	B1WTT1	PNNL-GPP @H3-33 @SR89_90	Water ALKALI	09/15/08
W08P004408	B1WRN2	PNNL-GPP @AB-32 @ALPHA	Water @IC-30	09/15/08
W08P004409	B1WRN3	PNNL-GPP @AB-32 @ALPHA	Water @IC-30	09/15/08
W08P004410	B1WRK5	PNNL-GPP @SR89_90	Water	09/15/08

GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20081993

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08P004411	B1WTH1	PNNL-GPP @AB-32	Water @H3-33 @IC-30	09/15/08
W08P004412	B1WTP5	PNNL-GPP @AB-32 ALKALI	Water @GEA-GPP @H3-33 @IC-30	09/15/08 @SR89_90
W08P004413	B1X0B4	PNNL-GPP @TC99-30	Water ALKALI	09/15/08
W08P004414	B1WRF1	PNNL-GPP @2008	Water @H3-33 @TC99-30	09/15/08
W08P004415	B1X1C7	PNNL-GPP @TC99-30	Water ALKALI	09/15/08
W08P004416	B1WXR2	PNNL-GPP @2008	Water @H3-33 @VOA-GPP	09/15/08
W08P004417	B1WMV5	PNNL-GPP @VOA-GPP	Water	09/15/08
W08P004418	B1X141	PNNL-GPP @IC-30	Water	09/15/08

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
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H2O P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection
ALKALI	Total Alkalinity as mg/L CaCO3
CN-02	Cyanide by Midi/Spectrophotom

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
**W08-008-104**  
 Page 1 of 1

10/15/08 20081993

Collector <b>D. Woehle</b>	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN FAX
SAF No. W08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title RCRA AUGUST 2008	Method of Shipment Govt. Vehicle	Ice Chest No. FRC-1	Temp.
Shipped To (Lab) Waste Sampling & Characterization	Priority: 30 Days <b>PRIORITY</b>	Bill of Lading/Air Bill No.	
Protocol RCRA	Offsite Property No.		

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

**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No   
 Site-Wide Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B1WJK0 (F)	W08P004398	W	4-15-08	1225	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B1WJK1	4399	W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B1WJK1		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B1WJK1		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	14 Days	Cool-4C
B1WJK1		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	14 Days	NaOH to pH >= 12 Cool-4C
B1WJK1		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	6 Months	None
B1WJK1		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	6 Months	HNO3 to pH <2
B1WJK1		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	6 Months	HCl to pH <2

**ICED**

Relinquished By <b>D. Woehle</b>	Print <i>D. Woehle</i>	Sign <i>D. Woehle</i>	Date/Time SEP 15 2008 1400	Received By <i>DA Hudson</i>	Print <i>DA Hudson</i>	Sign <i>DA Hudson</i>	Date/Time SEP 15 2008 1400	<b>Matrix *</b> S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge W = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		

85 of 101



FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

W08-008-39

Page 1 of 1

Collector <b>D. Woehle</b>	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN FAX
SAF No. W08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title RCRA AUGUST 2008	Method of Shipment Govt. Vehicle	Ice Chest No. FPC 1	Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.	
Protocol RCRA	Priority: 30 Days	OFFSITE PROPERTY No.	

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

**SPECIAL INSTRUCTIONS** Hold Time  
 Site-Wide Generator Knowledge Information Form applies. Total Activity Exemption: Yes  No

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B1WJC7 (F)	4402	W	9-15-08	0930	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B1WJC8	4403	W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B1WJC8		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B1WJC8		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	14 Days	Cool-4C
B1WJC8		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	14 Days	NaOH to pH >= 12 Cool-4C
B1WJC8		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	6 Months	None
B1WJC8		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	6 Months	HNO3 to pH <2

**ICED**

Relinquished By <b>D. Woehle</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	SEP 15 2008 1400	Date/Time	Received By <b>CA Hudson</b>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	SEP 15 2008 1400	Date/Time	<b>Matrix *</b> S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By			Date/Time	Received By			Date/Time			
Relinquished By			Date/Time	Received By			Date/Time			
Relinquished By			Date/Time	Received By			Date/Time			
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time			

87 of 101

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C.#

W08-008-38

Page 1 of 1

Collector <b>D. Woehle</b>	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN	FAX
SAF No. W08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code		
Project Title RCRA AUGUST 2008	<i>HNF-14-500-14/83</i>	Ice Chest No. <i>626-01</i>	Temp.	
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt Vehicle	Bill of Lading/Air Bill No.		
Protocol RCRA	Priority: 30 Days	<b>PRIORITY</b>		
OFFSITE PROPERTY NO.				

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

**SPECIAL INSTRUCTIONS** Hold Time  
 Site-Wide Generator Knowledge Information Form applies. Total Activity Exemption: Yes  No

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B1WJC3 (F)	<i>4404</i>	W	<i>9-15-08</i>	<i>1110</i>	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B1WJC4	<i>4405</i>	W	<i> </i>	<i> </i>	1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	6 Months	HNO3 to pH <2
B1WJC4	<i> </i>	W	<i> </i>	<i> </i>	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	6 Months	HNO3 to pH <2
B1WJC4	<i> </i>	W	<i> </i>	<i> </i>	1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	14 Days	Cool-4C
B1WJC4	<i> </i>	W	<i> </i>	<i> </i>	1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	14 Days	NaOH to pH >= 12 Cool-4C
B1WJC4	<i> </i>	W	<i> </i>	<i> </i>	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	6 Months	None
B1WJC4	<i> </i>	W	<i> </i>	<i> </i>	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	6 Months	HNO3 to pH <2

**ICED**

Relinquished By <b>D. Woehle</b> <i>[Signature]</i>	Date/Time <i>SEP 15 2008 1400</i>	Received By <i>[Signature]</i>	Date/Time <i>SEP 15 2008 1400</i>	<b>Matrix *</b> S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge W1 = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

88 of 101













FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

108-058-78

Page 1 of 1

Collector <b>KE Hamilton</b>	Contact/Requester Mike Neely	Telephone No. 509-373-0654	MSIN	FAX
SAF No. 108-058	Sampling Origin Hanford Site	Purchase Order/Charge Code		
Project Title 100NR21AM, SEPTEMBER 2008	<b>HWF-N-506-17</b>	Ice Chest No. <b>ERC99</b>	Temp.	
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.		
Protocol CERCLA	Priority: 30 Days <b>PRIORITY</b>	Offsite Property No.		

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

**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No   
 100 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B1WTP5	4412	W	9-15-08	1632	1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	14 Days	Cool-4C
B1WTP5	↓	W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	28 Days/48 Hours	Cool-4C
B1WTP5	↓	W	↓	↓	1x500-mL G/P	Gross Beta	6 Months	HNO3 to pH <2
B1WTP5	↓	W	↓	↓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	6 Months	None
B1WTP5	↓	W	↓	↓	1x500-mL G/P	GAMMA_GS: List-1 (10)	6 Months	HNO3 to pH <2
B1WTP5	↓	W	↓	↓	1x1-L G/P	Strontium-89,90 -- Total Sr	6 Months	HNO3 to pH <2

**ICED**

Relinquished By KE Hamilton	Print KE Hamilton	Sign <i>KE Hamilton</i>	Date/Time 1440 SEP 15 2008	Received By TAMAZIM Jares. Zhi	Print TAMAZIM Jares. Zhi	Sign <i>Tamazim Jares. Zhi</i>	Date/Time 1440 SEP 15 2008	<b>Matrix *</b> S = Soil DS = Drum Solid SF = Sediment DI = Drum Linn SO = Solid T = Tissue SI = Sludge W1 = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Date/Time		
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Date/Time		
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Date/Time		
<b>FINAL SAMPLE DISPOSITION</b>			Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By		Date/Time		

95 of 101











