

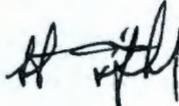
RECEIVED SEPTEMBER 29, 2008

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**FLUOR****Memorandum**

M4W41-SLF-08-1082

To: H. Hampt E6-35 Date: September 29, 2008

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

cc: w/Attachments

T. F. Dale	S3-30	P. D. Mix	S3-30
D. Felmy (PNNL)	K6-75	J. E. Trechter	S3-30
A. J. Kopriva	S3-30	S. J. Trent	E6-35
H. K. Meznarich	S3-30	File/LB	

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081701

Reference: 1) Letter of Instruction for Analytical Services for the Groundwater Performance Assessment Project and Analytical Laboratory Transition Plan, FH-0602422, September 19, 2006

2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This transmittal contains the following information for sample delivery group WSCF20081701:

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

SLF/grf

Attachments 5

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M4W41-SLF-08-1082

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

## WSCF SAF NUMBER CROSS REFERENCE

SAF#	Sample ID	WSCF#	Matrix
	Group#:	WSCF20081701	
	Data Deliverable Date:	10-sep-2008	
	Data Deliverable:	Cover Sheet	
A08-007	B1W1F5	W08P003871	WATER
I08-054	B1WF79	W08P003864	WATER
	B1WFC0	W08P003869	WATER
	B1WFC1	W08P003870	WATER
S08-008	B1WFY1	W08P003878	WATER
	B1WFY2	W08P003879	WATER
	B1WFY9	W08P003883	WATER
	B1WH00	W08P003884	WATER
W08-007	B1W2K1	W08P003872	WATER
	B1W2K2	W08P003873	WATER
	B1W363	W08P003874	WATER
	B1W364	W08P003875	WATER
	B1W365	W08P003876	WATER
	B1W366	W08P003877	WATER
W08-008	B1WJF7	W08P003882	WATER
	B1WJH4	W08P003880	WATER
	B1WJH5	W08P003881	WATER
	B1WK72	W08P003862	WATER
	B1WK73	W08P003863	WATER
	B1WKB0	W08P003865	WATER
	B1WKB2	W08P003867	WATER
W08-08	B1WKB1	W08P003866	WATER
	B1WKB3	W08P003868	WATER

**M4W41-SLF-08-1082**

**ATTACHMENT 2**

**NARRATIVE**

**Consisting of 6 pages  
Including cover page**

### **Introduction**

Twenty-three (23) groundwater samples were received at the WSCF Laboratory on August 11, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A copy of Issue Resolution Form (IRF) #08-160, documenting missed IC hold time, is included as Attachment 3. 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 21 through 24, for a complete listing of approved analytical methods.

### **Inorganic Comments**

**Anions** – Hold time requirements for this analysis were not met. See comment below. 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 55 through 61 for QC details. Analytical Note(s):

- Missed Hold Time – A copy of Issue Resolution Form (IRF) #08-160, documenting missed IC hold time, is included as Attachment 3.
- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit, were B flagged.
- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1WKC8 (SDG# 20081691); B1WKK8 and B1WKJ8 (SDG# 20081703); and B1WJF7 and B1WH00 of this SDG.
  - Batch QC performed on sample# B1WKJ8 – Matrix Spikes for Chloride and Nitrate-N were less than established laboratory limits. Affected sample results in this batch were N flagged.

- Batch QC performed on sample# B1WJF7 – Matrix Spike for Nitrate-N was less than established laboratory limits. Affected sample result in this batch was N flagged.

All other 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 62 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.
- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1WKV1 (SDG# 20081691), B1WRF6 (SDG# 20081732, SAF# F08-094) and B1WJH5 of this SDG.
- Batch QC performed on sample# B1WJH5 – Sample concentration exceeded spiking levels by a factor of 16. Spike recoveries were not valid. Affected sample results in this batch were X flagged.

All other 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 63 through 69 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.
- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1WJH4 of this SDG and B1WKC8 (SDG# 20081691).
- Calcium, Magnesium and Sodium sample concentrations exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Check standard was analyzed to ensure linearity, because the sample results were greater than the calibration standard.
- Batch QC performed on sample# B1WJH4 – Silver and Sodium contamination detected in the Blank was evaluated and there was no affect on sample results in this batch.

All other QC controls are within the established limits.

**ICP-MS Metals** – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery

group per the GRP Letter of Instruction. See pages 70 through 72 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VKX5 and B1VKW7 (SDG# 20081654); and, B1WH08 and B1Wfy6 (SDG# 20081677).
- Batch QC performed on samples B1WH08 and B1Wfy6 of this SDG – Uranium sample concentrations exceeded spiking level by a factor of 4. Spike recoveries are not valid. Affected sample results in this batch were X flagged.

All other QC controls are within the established limits.

**Total Alkalinity** – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 73 for QC details. Analytical Note(s):

- Duplicate QC was analyzed on sample# B1WKC6 (SDG# 20081691).

All QC controls are within the established limits.

**Total Organic Carbon** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Method Spike were analyzed with this delivery group per the GRP Letter of Instruction. See page 74 for QC details.

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VKX5 (SDG# 20081654).
- Contamination detected in the Blank was evaluated and there was no affect on sample results.

All other QC controls are within the established limits.

**Total Organic Halides** – 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 page 75 for QC details. Analytical Note(s):

- Matrix Spikes, Matrix Spike Duplicates were analyzed on samples B1WMB8 (SDG# 20081610) and B1W363 of this SDG.

All QC controls are within the established limits.

### **Organic Comments**

**Semi-VOA** – 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 GPP Letter of Instruction. See pages 88 through 91 for QC details.

All QC controls are within the established limits.

**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 92 through 95 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1WF26 (SDG# 20081696).
- Sample results that were less than the lowest calibration standard, however greater than the method detection limit, were J flagged.
- Acetone contamination detected in the Blank was evaluated and affected sample results were B flagged.

All other QC controls are within the established limits.

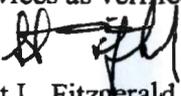
#### **Radiochemistry Comments**

**Rad Chem** – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 107 through 113 for QC details. Analytical Note(s):

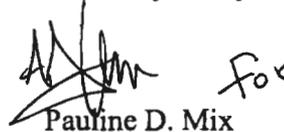
- Gross Alpha – Duplicate QC was also analyzed on sample# B1W FY2 of this SDG. Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits due to low sample count rate. No flags issued.
- Gross Alpha – Duplicate QC was also analyzed on sample# B1WKY9 (SDG# 20081691).
- Americium-241 and 243 (tracer) – Duplicate QC was also analyzed on sample# B1WH08 (SDG# 20081677).
- Strontium-89/90 and 85 (tracer) – Duplicate QC was also analyzed on sample# B1WH08 (SDG# 20081677).
- Technetium-99 – Duplicates and Matrix Spikes were analyzed on samples B1WKB3 of this SDG and B1WKY5 (SDG# 20081691). Matrix Spike recovery on sample B1WKY5 was less than established laboratory limits due to high sample activity. No flags issued.
- Tritium – Duplicates and Matrix Spikes were analyzed on samples B1WKR9 (SDG# 20081677) and B1WF47 (SDG# 20081696).

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

 Fox

Pauline D. Mix  
WSCF Client Services

M4W41-SLF-08-1082

ATTACHMENT 3

**ISSUE RESOLUTION FORM**

Consisting of 3 pages  
Including cover page

**ISSUE RESOLUTION FORM**

**FH TRACKING NUMBER: 08-160**

Date : **9-8-2008**      SAF No. **W08-008, S08-008**

SDG: **WSCF 20081660, 1701**      LOGIN No.:    TEST: ANIONS (@IC-30)

Sample No.(s)    **B1WJJ7, B1WH00**

**W08P003736, W08P003884**

Submitted By:	WW Baird	Submitted To:	H Hampt
Phone No.	373-7189	Phone No.	376-4319
Fax No.	372-0456	Fax No.	

<u>ISSUE</u>	<u>PROPOSED RESOLUTION</u>
<p>The 48-hour regulatory hold time requirement was missed on two groundwater samples for the Nitrate-N analyses.</p> <p>Samples were collected in the field and submitted to the WSCF Laboratory on August 11, 2008 for analysis. Analysis was successfully performed on August 12, 2008. Batch QC detail is offered below</p> <p><b>Sample# B1WJJ7 (SAF# W08-008)</b></p> <ul style="list-style-type: none"> <li>• Batch QC was performed on sample# B1VRL6 (SDG# 20081654, SAF# W08-006)</li> <li>• All Batch QC was within established laboratory limits.</li> </ul> <p><b>Sample# B1WH00 (SAF# S08-008)</b></p> <ul style="list-style-type: none"> <li>• Batch QC was performed on sample# B1WKC8 (SDG# 20081691, SAF# W08-008)</li> <li>• Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and LCS were within established laboratory limits.</li> <li>• Spike Relative Percent Difference (RPD) slightly exceeded established limits @ 21.6% (Range +/- 20%)</li> </ul> <p>However, during final validation, it was determined that sample results exceeded the linear range of the calibration curve and re-analysis would be required after the 48-hour hold time had been exceeded.</p>	<p>Proceed with re-analysis of samples, and document missed holding time in the case narrative.</p>
<p><b><u>GRP COMMENTS</u></b>  Accept proposed resolution.</p> <p style="text-align: right;"><u>Heidi Hampt 9/9/08</u>  Signature and Date</p>	

M4W41-SLF-08-1082

ATTACHMENT 4

**ANALYTICAL RESULTS**

Consisting of 103 pages  
Including cover page

**WSCF  
ANALYTICAL RESULTS REPORT**

for

**GPAP  
Richland, WA 99352**

**Attention: Steve Trent E6-35**

Analytical:

~~AS~~ S. Fitzgerald 9/29/08

Client Services:

P.D. Miy 9/27/2008

*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#: WSCF20081701  
Report Date: 26-sep-2008  
Report WGPP/ver. 5.2  
GPAP

Page 1

Department: Inorganic

## W13q Worklist/Batch/QC Report for Group# WSCF20081701

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37563	2	38001	42342	BLANK		Anions by Ion Chromatography
37563	13	38001	42342	BLANK		Anions by Ion Chromatography
37563	3	38001	42342	LCS		Anions by Ion Chromatography
37563	5	38001	42342	DUP	W08P003847	Anions by Ion Chromatography
37563	6	38001	42342	MS	W08P003847	Anions by Ion Chromatography
37563	7	38001	42342	MSD	W08P003847	Anions by Ion Chromatography
37563	7	38001	42342	SPK-RPD	W08P003847	Anions by Ion Chromatography
37563	12	38001	42342	SAMPLE	W08P003884	Anions by Ion Chromatography
37565	2	38000	42343	BLANK		Anions by Ion Chromatography
37565	13	38000	42343	BLANK		Anions by Ion Chromatography
37565	25	38000	42343	BLANK		Anions by Ion Chromatography
37565	3	38000	42343	LCS		Anions by Ion Chromatography
37565	14	38000	42343	LCS		Anions by Ion Chromatography
37565	5	38000	42343	DUP	W08P003818	Anions by Ion Chromatography
37565	6	38000	42343	MS	W08P003818	Anions by Ion Chromatography
37565	7	38000	42343	MSD	W08P003818	Anions by Ion Chromatography
37565	7	38000	42343	SPK-RPD	W08P003818	Anions by Ion Chromatography
37565	19	38000	42343	SAMPLE	W08P003864	Anions by Ion Chromatography
37565	21	38000	42343	SAMPLE	W08P003869	Anions by Ion Chromatography
37565	22	38000	42343	SAMPLE	W08P003870	Anions by Ion Chromatography
37565	23	38000	42343	SAMPLE	W08P003873	Anions by Ion Chromatography
37565	16	38000	42343	DUP	W08P003892	Anions by Ion Chromatography
37565	17	38000	42343	MS	W08P003892	Anions by Ion Chromatography
37565	18	38000	42343	MSD	W08P003892	Anions by Ion Chromatography
37565	18	38000	42343	SPK-RPD	W08P003892	Anions by Ion Chromatography
37561	2	38003	42345	BLANK		Anions by Ion Chromatography
37561	13	38003	42345	BLANK		Anions by Ion Chromatography
37561	25	38003	42345	BLANK		Anions by Ion Chromatography
37561	3	38003	42345	LCS		Anions by Ion Chromatography
37561	14	38003	42345	LCS		Anions by Ion Chromatography
37561	5	38003	42345	DUP	W08P003845	Anions by Ion Chromatography
37561	6	38003	42345	MS	W08P003845	Anions by Ion Chromatography
37561	7	38003	42345	MSD	W08P003845	Anions by Ion Chromatography
37561	7	38003	42345	SPK-RPD	W08P003845	Anions by Ion Chromatography
37561	19	38003	42345	SAMPLE	W08P003879	Anions by Ion Chromatography
37561	21	38003	42345	SAMPLE	W08P003881	Anions by Ion Chromatography
37561	22	38003	42345	SAMPLE	W08P003882	Anions by Ion Chromatography
37561	16	38003	42345	DUP	W08P003894	Anions by Ion Chromatography
37561	17	38003	42345	MS	W08P003894	Anions by Ion Chromatography
37561	18	38003	42345	MSD	W08P003894	Anions by Ion Chromatography
37561	18	38003	42345	SPK-RPD	W08P003894	Anions by Ion Chromatography
37597	1	38038	42383	BLANK		ICP-200.8 MS All possible meta
37597	2	38038	42383	LCS		ICP-200.8 MS All possible meta
37597	4	38038	42383	MS	W08P003727	ICP-200.8 MS All possible meta
37597	5	38038	42383	MSD	W08P003727	ICP-200.8 MS All possible meta
37597	5	38038	42383	SPK-RPD	W08P003727	ICP-200.8 MS All possible meta
37597	7	38038	42383	MS	W08P003729	ICP-200.8 MS All possible meta
37597	8	38038	42383	MSD	W08P003729	ICP-200.8 MS All possible meta
37597	8	38038	42383	SPK-RPD	W08P003729	ICP-200.8 MS All possible meta

37597	10	38038	42383	MS	W08P003767	ICP-200.8 MS All possible meta
37597	11	38038	42383	MSD	W08P003767	ICP-200.8 MS All possible meta
37597	11	38038	42383	SPK-RPD	W08P003767	ICP-200.8 MS All possible meta
37597	13	38038	42383	MS	W08P003769	ICP-200.8 MS All possible meta
37597	14	38038	42383	MSD	W08P003769	ICP-200.8 MS All possible meta
37597	14	38038	42383	SPK-RPD	W08P003769	ICP-200.8 MS All possible meta
37597	43	38038	42383	SAMPLE	W08P003871	ICP-200.8 MS All possible meta
37597	44	38038	42383	SAMPLE	W08P003878	ICP-200.8 MS All possible meta
37597	45	38038	42383	SAMPLE	W08P003879	ICP-200.8 MS All possible meta
37597	46	38038	42383	SAMPLE	W08P003881	ICP-200.8 MS All possible meta
37597	47	38038	42383	SAMPLE	W08P003882	ICP-200.8 MS All possible meta
37597	48	38038	42383	SAMPLE	W08P003883	ICP-200.8 MS All possible meta
37597	49	38038	42383	SAMPLE	W08P003884	ICP-200.8 MS All possible meta
37605	2	38046	42385	BLANK		Anions by Ion Chromatography
37605	8	38046	42385	BLANK		Anions by Ion Chromatography
37605	3	38046	42385	LCS		Anions by Ion Chromatography
37605	5	38046	42385	DUP	W08P003882	Anions by Ion Chromatography
37605	6	38046	42385	MS	W08P003882	Anions by Ion Chromatography
37605	7	38046	42385	MSD	W08P003882	Anions by Ion Chromatography
37561	22	38046	42385	SAMPLE	W08P003882	Anions by Ion Chromatography
37605	7	38046	42385	SPK-RPD	W08P003882	Anions by Ion Chromatography
37611	1	38051	42398	BLANK		Total Organic Halides
37611	2	38051	42398	LCS		Total Organic Halides
37611	5	38051	42398	MS	W08P003664	Total Organic Halides
37611	6	38051	42398	MSD	W08P003664	Total Organic Halides
37611	6	38051	42398	SPK-RPD	W08P003664	Total Organic Halides
37611	11	38051	42398	MS	W08P003874	Total Organic Halides
37611	12	38051	42398	MSD	W08P003874	Total Organic Halides
37611	10	38051	42398	SAMPLE	W08P003874	Total Organic Halides
37611	12	38051	42398	SPK-RPD	W08P003874	Total Organic Halides
37611	14	38051	42398	SAMPLE	W08P003875	Total Organic Halides
37611	15	38051	42398	SAMPLE	W08P003876	Total Organic Halides
37611	16	38051	42398	SAMPLE	W08P003877	Total Organic Halides
37586	1	38027	42422	BLANK		Cyanide by Midi/Spectrophotom
37586	2	38027	42422	LCS		Cyanide by Midi/Spectrophotom
37586	4	38027	42422	MS	W08P003836	Cyanide by Midi/Spectrophotom
37586	5	38027	42422	MSD	W08P003836	Cyanide by Midi/Spectrophotom
37586	5	38027	42422	SPK-RPD	W08P003836	Cyanide by Midi/Spectrophotom
37586	8	38027	42422	SAMPLE	W08P003879	Cyanide by Midi/Spectrophotom
37586	9	38027	42422	SAMPLE	W08P003882	Cyanide by Midi/Spectrophotom
37703	1	38137	42503	LCS		Total Alkalinity as mg/L CaCO3
37703	13	38137	42503	LCS		Total Alkalinity as mg/L CaCO3
37703	24	38137	42503	LCS		Total Alkalinity as mg/L CaCO3
37703	3	38137	42503	DUP	W08P003845	Total Alkalinity as mg/L CaCO3
37703	9	38137	42503	SAMPLE	W08P003863	Total Alkalinity as mg/L CaCO3
37703	10	38137	42503	SAMPLE	W08P003866	Total Alkalinity as mg/L CaCO3
37703	11	38137	42503	SAMPLE	W08P003868	Total Alkalinity as mg/L CaCO3
37703	12	38137	42503	SAMPLE	W08P003873	Total Alkalinity as mg/L CaCO3
37703	14	38137	42503	SAMPLE	W08P003879	Total Alkalinity as mg/L CaCO3
37703	15	38137	42503	SAMPLE	W08P003881	Total Alkalinity as mg/L CaCO3
37703	16	38137	42503	SAMPLE	W08P003882	Total Alkalinity as mg/L CaCO3
37703	17	38137	42503	SAMPLE	W08P003884	Total Alkalinity as mg/L CaCO3
37739	1	38172	42528	BLANK		Total Organic Carbon
37739	2	38172	42528	METHSPIKE		Total Organic Carbon
37739	3	38172	42528	SPK-RSD		Total Organic Carbon

37739	4	38172	42528	MS	W08P003727	Total Organic Carbon
37739	5	38172	42528	MSD	W08P003727	Total Organic Carbon
37739	5	38172	42528	SPK-RPD	W08P003727	Total Organic Carbon
37739	9	38172	42528	SAMPLE	W08P003874	Total Organic Carbon
37739	10	38172	42528	SAMPLE	W08P003875	Total Organic Carbon
37739	11	38172	42528	SAMPLE	W08P003876	Total Organic Carbon
37739	12	38172	42528	SAMPLE	W08P003877	Total Organic Carbon
37709	11	38145	42529	BLANK		Cyanide by Midi/Spectrophotom
37709	12	38145	42529	LCS		Cyanide by Midi/Spectrophotom
37709	19	38145	42529	MS	W08GR03334	Cyanide by Midi/Spectrophotom
37709	20	38145	42529	MSD	W08GR03334	Cyanide by Midi/Spectrophotom
37709	20	38145	42529	SPK-RPD	W08GR03334	Cyanide by Midi/Spectrophotom
37709	14	38145	42529	MS	W08P003881	Cyanide by Midi/Spectrophotom
37709	15	38145	42529	MSD	W08P003881	Cyanide by Midi/Spectrophotom
37709	13	38145	42529	SAMPLE	W08P003881	Cyanide by Midi/Spectrophotom
37709	15	38145	42529	SPK-RPD	W08P003881	Cyanide by Midi/Spectrophotom
37709	17	38145	42529	SAMPLE	W08P003884	Cyanide by Midi/Spectrophotom
37942	2	38368	42781	BLANK		Anions by Ion Chromatography
37942	9	38368	42781	BLANK		Anions by Ion Chromatography
37942	3	38368	42781	LCS		Anions by Ion Chromatography
37942	5	38368	42781	DUP	W08P003884	Anions by Ion Chromatography
37942	6	38368	42781	MS	W08P003884	Anions by Ion Chromatography
37942	7	38368	42781	MSD	W08P003884	Anions by Ion Chromatography
37563	12	38368	42781	SAMPLE	W08P003884	Anions by Ion Chromatography
37942	7	38368	42781	SPK-RPD	W08P003884	Anions by Ion Chromatography
37839	1	38269	42786	BLANK		ICP Metals Analysis, Grd H20 P
37839	2	38269	42786	LCS		ICP Metals Analysis, Grd H20 P
37839	4	38269	42786	MS	W08P003880	ICP Metals Analysis, Grd H20 P
37839	5	38269	42786	MSD	W08P003880	ICP Metals Analysis, Grd H20 P
37839	3	38269	42786	SAMPLE	W08P003880	ICP Metals Analysis, Grd H20 P
37839	5	38269	42786	SPK-RPD	W08P003880	ICP Metals Analysis, Grd H20 P
37839	6	38269	42786	SAMPLE	W08P003881	ICP Metals Analysis, Grd H20 P
37839	7	38269	42786	SAMPLE	W08P003882	ICP Metals Analysis, Grd H20 P
37839	8	38269	42786	SAMPLE	W08P003883	ICP Metals Analysis, Grd H20 P
37839	9	38269	42786	SAMPLE	W08P003884	ICP Metals Analysis, Grd H20 P
37838	1	38268	42816	BLANK		ICP Metals Analysis, Grd H20 P
37838	2	38268	42816	LCS		ICP Metals Analysis, Grd H20 P
37838	4	38268	42816	MS	W08P003847	ICP Metals Analysis, Grd H20 P
37838	5	38268	42816	MSD	W08P003847	ICP Metals Analysis, Grd H20 P
37838	5	38268	42816	SPK-RPD	W08P003847	ICP Metals Analysis, Grd H20 P
37838	15	38268	42816	SAMPLE	W08P003862	ICP Metals Analysis, Grd H20 P
37838	16	38268	42816	SAMPLE	W08P003863	ICP Metals Analysis, Grd H20 P
37838	17	38268	42816	SAMPLE	W08P003865	ICP Metals Analysis, Grd H20 P
37838	18	38268	42816	SAMPLE	W08P003866	ICP Metals Analysis, Grd H20 P
37838	19	38268	42816	SAMPLE	W08P003867	ICP Metals Analysis, Grd H20 P
37838	20	38268	42816	SAMPLE	W08P003868	ICP Metals Analysis, Grd H20 P
37838	21	38268	42816	SAMPLE	W08P003872	ICP Metals Analysis, Grd H20 P
37838	22	38268	42816	SAMPLE	W08P003873	ICP Metals Analysis, Grd H20 P
37838	23	38268	42816	SAMPLE	W08P003878	ICP Metals Analysis, Grd H20 P
37838	24	38268	42816	SAMPLE	W08P003879	ICP Metals Analysis, Grd H20 P

Department: Organic

## W13q Worklist/Batch/QC Report for Group# WSCF20081701

WL#	S#	Batch	QC#	Tray	Type	Sample#	Test
			42559		BLANK		SW-846 8270C Semi-Vols
			42559		LCS		SW-846 8270C Semi-Vols
			42559		SAMPLE	W08P003879	SW-846 8270C Semi-Vols
			42559		SURR	W08P003879	SW-846 8270C Semi-Vols
			42559		MS	W08P003884	SW-846 8270C Semi-Vols
			42559		MSD	W08P003884	SW-846 8270C Semi-Vols
			42559		SAMPLE	W08P003884	SW-846 8270C Semi-Vols
			42559		SPK-RPD	W08P003884	SW-846 8270C Semi-Vols
			42559		SURR	W08P003884	SW-846 8270C Semi-Vols
			42725		BLANK		VOA Ground Water Protection
			42725		LCS		VOA Ground Water Protection
			42725		MS	W08P003848	VOA Ground Water Protection
			42725		MSD	W08P003848	VOA Ground Water Protection
			42725		SPK-RPD	W08P003848	VOA Ground Water Protection
			42725		SAMPLE	W08P003864	VOA Ground Water Protection
			42725		SURR	W08P003864	VOA Ground Water Protection
			42725		SAMPLE	W08P003869	VOA Ground Water Protection
			42725		SURR	W08P003869	VOA Ground Water Protection
			42725		SAMPLE	W08P003870	VOA Ground Water Protection
			42725		SURR	W08P003870	VOA Ground Water Protection
			42725		SAMPLE	W08P003879	VOA Ground Water Protection
			42725		SURR	W08P003879	VOA Ground Water Protection
			42725		SAMPLE	W08P003884	VOA Ground Water Protection
			42725		SURR	W08P003884	VOA Ground Water Protection

W13q Worklist/Batch/QC Report for Group# WSCF20081701

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37719	1	38154	42596	BLANK		TC99 by Liquid Scin.
37719	2	38154	42596	LCS		TC99 by Liquid Scin.
37719	4	38154	42596	DUP	W08P003868	TC99 by Liquid Scin.
37719	3	38154	42596	MS	W08P003868	TC99 by Liquid Scin.
37719	5	38154	42596	SAMPLE	W08P003868	TC99 by Liquid Scin.
37719	6	38154	42596	SAMPLE	W08P003871	TC99 by Liquid Scin.
37719	7	38154	42596	SAMPLE	W08P003879	TC99 by Liquid Scin.
37719	8	38154	42596	SAMPLE	W08P003881	TC99 by Liquid Scin.
37719	9	38154	42596	SAMPLE	W08P003882	TC99 by Liquid Scin.
37719	10	38154	42596	SAMPLE	W08P003884	TC99 by Liquid Scin.
37731	1	38165	42610	BLANK		Gross Alpha/Gross Beta (AB32)
37731	2	38165	42610	LCS		Gross Alpha/Gross Beta (AB32)
37731	3	38165	42610	DUP	W08P003838	Gross Alpha/Gross Beta (AB32)
37731	6	38165	42610	SAMPLE	W08P003879	Gross Alpha/Gross Beta (AB32)
37731	7	38165	42610	SAMPLE	W08P003881	Gross Alpha/Gross Beta (AB32)
37731	8	38165	42610	SAMPLE	W08P003882	Gross Alpha/Gross Beta (AB32)
37731	9	38165	42610	SAMPLE	W08P003884	Gross Alpha/Gross Beta (AB32)
37721	1	38157	42676	BLANK		Tritium by Liq Sct column prep
37721	4	38157	42676	LCS		Tritium by Liq Sct column prep
37721	3	38157	42676	DUP	W08P003779	Tritium by Liq Sct column prep
37721	2	38157	42676	MS	W08P003779	Tritium by Liq Sct column prep
37721	5	38157	42676	SAMPLE	W08P003864	Tritium by Liq Sct column prep
37721	6	38157	42676	SAMPLE	W08P003869	Tritium by Liq Sct column prep
37721	7	38157	42676	SAMPLE	W08P003870	Tritium by Liq Sct column prep
37721	8	38157	42676	SAMPLE	W08P003871	Tritium by Liq Sct column prep
37721	9	38157	42676	SAMPLE	W08P003879	Tritium by Liq Sct column prep
37716	1	38153	42682	BLANK		TC99 by Liquid Scin.
37716	2	38153	42682	LCS		TC99 by Liquid Scin.
37716	4	38153	42682	DUP	W08P003835	TC99 by Liquid Scin.
37716	3	38153	42682	MS	W08P003835	TC99 by Liquid Scin.
37716	17	38153	42682	SAMPLE	W08P003863	TC99 by Liquid Scin.
37716	18	38153	42682	SAMPLE	W08P003866	TC99 by Liquid Scin.
37726	1	38160	42715	BLANK		Strontium 89/90
37726	2	38160	42715	LCS		Strontium 89/90
37726	3	38160	42715	DUP	W08P003767	Strontium 89/90
37726	8	38160	42715	SAMPLE	W08P003879	Strontium 89/90
37726	9	38160	42715	SURR	W08P003879	Strontium 89/90
37726	10	38160	42715	SAMPLE	W08P003884	Strontium 89/90
37726	11	38160	42715	SURR	W08P003884	Strontium 89/90
37886	1	38312	42762	BLANK		Gross Alpha on Alpha Plateau
37886	2	38312	42762	LCS		Gross Alpha on Alpha Plateau
37886	3	38312	42762	DUP	W08P003879	Gross Alpha on Alpha Plateau
37886	4	38312	42762	SAMPLE	W08P003879	Gross Alpha on Alpha Plateau
37886	5	38312	42762	SAMPLE	W08P003881	Gross Alpha on Alpha Plateau
37886	6	38312	42762	SAMPLE	W08P003882	Gross Alpha on Alpha Plateau
37886	7	38312	42762	SAMPLE	W08P003884	Gross Alpha on Alpha Plateau

37930	1	38357	42766	BLANK		Tritium by Liq Sct column prep
37930	2	38357	42766	LCS		Tritium by Liq Sct column prep
37930	4	38357	42766	DUP	W08P003849	Tritium by Liq Sct column prep
37930	3	38357	42766	MS	W08P003849	Tritium by Liq Sct column prep
37930	8	38357	42766	SAMPLE	W08P003881	Tritium by Liq Sct column prep
37930	9	38357	42766	SAMPLE	W08P003882	Tritium by Liq Sct column prep
37930	10	38357	42766	SAMPLE	W08P003884	Tritium by Liq Sct column prep
38003	1	38423	43000	BLANK		Americium by AEA
38003	2	38423	43000	LCS		Americium by AEA
38003	3	38423	43000	DUP	W08P003767	Americium by AEA
38003	11	38423	43000	SAMPLE	W08P003879	Americium by AEA
38003	10	38423	43000	SURR	W08P003879	Americium by AEA
38003	4	38423	43000	SAMPLE	W08P003884	Americium by AEA
38003	5	38423	43000	SURR	W08P003884	Americium by AEA
38143	1	38607	43032	BLANK		Plutonium Isotopics by AEA
38143	2	38607	43032	LCS		Plutonium Isotopics by AEA
38143	8	38607	43032	SAMPLE	W08P003879	Plutonium Isotopics by AEA
38143	9	38607	43032	SURR	W08P003879	Plutonium Isotopics by AEA
38143	3	38607	43032	DUP	W08P003884	Plutonium Isotopics by AEA
38143	10	38607	43032	SAMPLE	W08P003884	Plutonium Isotopics by AEA
38143	11	38607	43032	SURR	W08P003884	Plutonium Isotopics by AEA

# WSCF

## METHOD REFERENCES REPORT

Department: Inorganic

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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.

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<b>LA-344-406</b>	<b>LA-344-406: TOTAL ORGANIC CARBON (TOC) BASED ON SW-846</b> EPA SW-846 9060                      TOTAL ORGANIC CARBON HEIS 9060_TOX                      Total Organic Carbon
<b>LA-505-411</b>	<b>LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE</b> HEIS 6010_METALS_ICP              Inductively Coupled Plasma-Atomic Emmision Spectrometry
<b>LA-505-412</b>	<b>LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY</b> EPA-600/R-94-111 200.8              DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS HEIS 200.8_METALS_ICPMS              Inductively Coupled Plasma - Mass Spectrometry HEIS RADISOTOPES_ICPMS              Radioisotopes by ICP/MS
<b>LA-523-444</b>	<b>LA-523-444: TOTAL ORGANIC HALIDES BASED ON SW-846 METHOD 9020B</b> EPA SW-846 9020B                      TOTAL ORGANIC HALIDES (TOX) HEIS 9020_TOX                      Total Organic Halides based on SW846 Method 9020B
<b>LA-531-411</b>	<b>LA-531-411: ALKALINITY (TITRIMETRIC)</b> HEIS 2320B                              Alkalinity Standard Methods 2320B              Alkalinity
<b>LA-533-410</b>	<b>LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY</b> EPA-600/R-94-111 300.0              DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY HEIS 300.0_ANIONS_IC              Determination of Inorganic Anions by Ion Chromatography
<b>LA-695-402</b>	<b>LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC</b>

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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>.

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# WSCF

## METHOD REFERENCES REPORT

Department: Inorganic

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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.

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EPA-600/4-79-020 335.2	Cyanide, Total
HEIS 335.2_CYANIDE	Cyanide, Total

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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>.

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# WSCF

## METHOD REFERENCES REPORT

Department: Organic

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

<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>
<b>LA-523-456</b>	<b>LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C</b>
<b>EPA SW-846 8000B</b>	<b>DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS</b>
<b>EPA SW-846 8270C</b>	<b>SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)</b>
<b>HEIS 8270_SVOA_GCMS</b>	<b>Semivolatile 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>.

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# 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>Plutonium 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-508-471</b>	<b>LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP</b>
<b>HEIS PUIISO_IE_PRECIP_AEA</b>	<b>Plutonium by Alpha Energy Analysis</b>
<b>HEIS RAISO_AEA</b>	<b>Radium-226</b>

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

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003862  
**Client ID:** B1WK72

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		1.68e+04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.62e+03	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	B	9.80	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.32e+04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		55.5	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	20.8	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		5.79e+04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		310	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003863  
**Client ID:** B1WK73 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		132	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		1.70e+04	ug/L			1.00	50		09/11/08
Manganese	7439-98-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.64e+03	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	B	5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.30e+04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		56.6	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	24.8	ug/L			1.00	12		09/11/08
Zinc	7440-86-6	LA-505-411	B	35.5	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		5.89e+04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		313	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		130	mg/L			1.00	1.0		08/19/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria(inorg)

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

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

Report WGPP/ver. 5.2  
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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003864  
**Client ID:** B1WF79 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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	D	0.648	mg/L			2.00	0.046		08/12/08
Chloride	16887-00-6	LA-533-410	D	21.6	mg/L			2.00	0.094		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	19.0	mg/L			10.00	0.12		08/12/08
Sulfate	14808-79-8	LA-533-410	D	43.8	mg/L			2.00	0.26		08/12/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria(inorg)

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

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

Report WGPP/ver. 5.2  
 GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003865  
**Client ID:** B1WKB0 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		09/11/08
Magnesium	7439-95-4	LA-505-411		1.99e +04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.96e +03	ug/L			1.00	1.7e +02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.60e +04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		64.1	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	18.7	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		7.09e +04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		372	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-08  
**Sample #** W08P003866  
**Client ID:** B1WKB1 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H20 P Prep</b>											
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-6	LA-505-411	B	32.1	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		1.96e+04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.80e+03	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.56e+04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		64.8	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	22.4	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		7.14e+04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		372	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		100	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits. (inorg)

U - Analyzed for but not detected above limiting criteria.

# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P003867

Client ID: B1WKB2 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081701

Department: Inorganic

Sampled: 08/11/08

Received: 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	B	32.7	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		1.98e + 04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.84e + 03	ug/L			1.00	1.7e + 02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.55e + 04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	58		09/11/08
Barium	7440-39-3	LA-505-411		83.8	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	23.4	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		7.12e + 04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		371	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-08  
**Sample #** W08P003868  
**Client ID:** B1WKB3

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

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H20 P Prep</b>											
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-6	LA-505-411	B	39.3	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		2.04e+04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.92e+03	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.63e+04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		64.9	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	17.0	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		7.25e+04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		378	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		100	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I08-054

**Sample #** W08P003869

**Client ID:** B1WFC0 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081701

**Department:** Inorganic

**Sampled:** 08/11/08

**Received:** 08/11/08

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	D	0.375	mg/L			2.00	0.046		08/12/08
Chloride	16887-00-6	LA-533-410	D	32.6	mg/L			2.00	0.094		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	30.7	mg/L			10.00	0.12		08/12/08
Sulfate	14808-79-8	LA-533-410	D	61.3	mg/L			2.00	0.26		08/12/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003870  
**Client ID:** B1WFC1

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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	D	0.387	mg/L			2.00	0.046		08/12/08
Chloride	16887-00-6	LA-533-410	D	32.8	mg/L			2.00	0.094		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	30.7	mg/L			10.00	0.12		08/12/08
Sulfate	14808-79-8	LA-533-410	D	60.9	mg/L			2.00	0.26		08/12/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria(inorg)

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

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

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** A08-007  
**Sample #** W08P003871  
**Client ID:** B1W1F5

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											08/14/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412	X	1.04	ug/L			1.00	0.0500		08/14/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-007  
**Sample #** W08P003872  
**Client ID:** B1W2K1 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		1.75e +04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		5.22e +03	ug/L			1.00	1.7e +02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		1.88e +04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		59.3	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	20.0	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		6.37e +04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		351	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

\* - Indicates results that have NOT been validated;

Report WGPP/ver. 5.2

GPAP

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-007  
**Sample #** W08P003873  
**Client ID:** B1W2K2 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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	D	0.260	mg/L			2.00	0.046		08/12/08
Chloride	16887-00-6	LA-533-410	D	16.9	mg/L			2.00	0.094		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	27.5	mg/L			10.00	0.12		08/12/08
Sulfate	14808-79-8	LA-533-410	D	35.4	mg/L			2.00	0.26		08/12/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/31/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	B	53.6	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		2.13e+04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		6.12e+03	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		3.10e+04	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		72.4	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	B	19.8	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411		8.14e+04	ug/L			1.00	73		09/11/08
Strontium	7440-24-6	LA-505-411		467	ug/L			1.00	4.0		09/11/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

\* - Indicates results that have NOT been validated;

Report WGPP/ver. 5.2

GPAP

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-007  
**Sample #** W08P003873  
**Client ID:** B1W2K2

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		110	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-007  
**Sample #** W08P003874  
**Client ID:** B1W363 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Organic Halides Prep</b>											08/13/08
<b>Total Organic Halides</b>											
Total Organic Halides	59473-04-0	LA-523-444		41.0	ug/L			1.00	5.0		08/14/08
<b>Total organic carbon</b>											
Total organic carbon	TOC	LA-344-406		1.09	mg/L			1.00	0.30		08/22/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-007  
**Sample #** W08P003875  
**Client ID:** B1W364

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Organic Halides Prep</b>											<b>08/13/08</b>
<b>Total Organic Halides</b>											
Total Organic Halides	59473-04-0	LA-523-444		40.9	ug/L			1.00	5.0		08/14/08
<b>Total organic carbon</b>											
Total organic carbon	TOC	LA-344-406		1.11	mg/L			1.00	0.30		08/22/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-007  
**Sample #** W08P003876  
**Client ID:** B1W365

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Organic Halides Prep</b>											08/13/08
<b>Total Organic Halides</b>											
Total Organic Halides	59473-04-0	LA-523-444		36.7	ug/L			1.00	5.0		08/14/08
<b>Total organic carbon</b>											
Total organic carbon	TOC	LA-344-406		1.09	mg/L			1.00	0.30		08/22/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-007

Sample # W08P003877

Client ID: B1W366 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081701

Department: Inorganic

Sampled: 08/11/08

Received: 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Organic Halides Prep</b>											08/13/08
<b>Total Organic Halides</b>											
Total Organic Halides	59473-04-0	LA-523-444		39.0	ug/L			1.00	5.0		08/14/08
<b>Total organic carbon</b>											
Total organic carbon	TOC	LA-344-406	U	< 0.300	mg/L			1.00	0.30		08/22/08

**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.(inorg)

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003878  
**Client ID:** B1WFY1

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

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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>08/31/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-8	LA-505-411		448	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		6.20e+04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411	B	18.5	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		1.68e+04	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.36e+05	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		214	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	B	39.2	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08
Calcium	7440-70-2	LA-505-411	D	2.47e+05	ug/L			10.00	7.3e+02		09/15/08
Strontium	7440-24-6	LA-505-411		1.80e+03	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
<b>ICP-200.8 MS All possible meta Prep</b>											<b>08/14/08</b>
<b>ICP-200.8 MS All possible meta</b>											
Aluminum	7429-90-5	LA-505-412	U	< 5.00	ug/L			1.00	5.00		08/14/08
Mercury	7439-97-6	LA-505-412		0.520	ug/L			1.00	0.0500		08/14/08
Arsenic	7440-38-2	LA-505-412		4.77	ug/L			1.00	0.400		08/14/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** S08-008

**Sample #** W08P003878

**Client ID:** B1WFY1 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081701

**Department:** Inorganic

**Sampled:** 08/11/08

**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		08/14/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

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D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003879  
**Client ID:** B1WFY2 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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	0.203	mg/L			5.00	0.12		08/12/08
Chloride	16887-00-8	LA-533-410	DN	45.5	mg/L			5.00	0.23		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0640	mg/L			5.00	0.064		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DN	295	mg/L			1.01e+002	1.2		08/12/08
Sulfate	14808-79-8	LA-533-410	D	222	mg/L			5.00	0.66		08/12/08
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	D	931	ug/L			2.50	10		08/14/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411		466	ug/L			1.00	25		09/11/08
Magnesium	7439-95-4	LA-505-411		6.48e+04	ug/L			1.00	50		09/11/08
Manganese	7439-96-5	LA-505-411		21.7	ug/L			1.00	4.0		09/11/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Potassium	7440-09-7	LA-505-411		1.75e+04	ug/L			1.00	1.7e+02		09/11/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/11/08
Sodium	7440-23-5	LA-505-411		2.49e+05	ug/L			1.00	51		09/11/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/11/08
Barium	7440-39-3	LA-505-411		223	ug/L			1.00	4.0		09/11/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Chromium	7440-47-3	LA-505-411	B	27.3	ug/L			1.00	13		09/11/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/11/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/11/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/11/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

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# WSCF

## ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: S08-008

Sample # W08P003879

Client ID: B1WFY2

PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081701

Department: Inorganic

Sampled: 08/11/08

Received: 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411	D	2.56e+05	ug/L			10.00	7.3e+02		09/15/08
Strontium	7440-24-6	LA-505-411		1.87e+03	ug/L			1.00	4.0		09/11/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/11/08
<b>ICP-200.8 MS All possible meta Prep</b>											<b>08/14/08</b>
<b>ICP-200.8 MS All possible meta</b>											
Aluminum	7429-90-5	LA-505-412		10.2	ug/L			1.00	5.00		08/14/08
Mercury	7439-97-6	LA-505-412		0.500	ug/L			1.00	0.0500		08/14/08
Uranium	7440-61-1	LA-505-412	X	89.5	ug/L			1.00	0.0500		08/14/08
Arsenic	7440-38-2	LA-505-412		4.64	ug/L			1.00	0.400		08/14/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		08/14/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		93.0	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003880  
**Client ID:** B1WJH4 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H20 P Prep</b>											
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-6	LA-505-411		412	ug/L			1.00	25		09/09/08
Magnesium	7439-95-4	LA-505-411		5.86e+04	ug/L			1.00	50		09/09/08
Manganese	7439-96-5	LA-505-411		26.8	ug/L			1.00	4.0		09/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Potassium	7440-09-7	LA-505-411		1.72e+04	ug/L			1.00	1.7e+02		09/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/09/08
Sodium	7440-23-5	LA-505-411		1.74e+05	ug/L			1.00	51		09/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/09/08
Barium	7440-39-3	LA-505-411		191	ug/L			1.00	4.0		09/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Chromium	7440-47-3	LA-505-411	B	42.3	ug/L			1.00	13		09/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/09/08
Calcium	7440-70-2	LA-505-411	D	2.38e+05	ug/L			10.00	7.3e+02		09/15/08
Strontium	7440-24-6	LA-505-411		1.61e+03	ug/L			1.00	4.0		09/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003881  
**Client ID:** B1WJH5

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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	0.236	mg/L			5.00	0.12		08/12/08
Chloride	16887-00-6	LA-533-410	DN	43.8	mg/L			5.00	0.23		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0640	mg/L			5.00	0.064		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DN	265	mg/L			1.01e+002	1.2		08/12/08
Sulfate	14808-79-8	LA-533-410	D	220	mg/L			5.00	0.66		08/12/08
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	X	649	ug/L			1.00	4.0		08/20/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/31/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411		1.14e+03	ug/L			1.00	25		09/09/08
Magnesium	7439-95-4	LA-505-411		6.07e+04	ug/L			1.00	50		09/09/08
Manganese	7439-96-5	LA-505-411		36.7	ug/L			1.00	4.0		09/09/08
Nickel	7440-02-0	LA-505-411	B	4.70	ug/L			1.00	4.0		09/09/08
Potassium	7440-09-7	LA-505-411		1.74e+04	ug/L			1.00	1.7e+02		09/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/09/08
Sodium	7440-23-5	LA-505-411		1.83e+05	ug/L			1.00	51		09/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/09/08
Barium	7440-39-3	LA-505-411		198	ug/L			1.00	4.0		09/09/08
Cadmium	7440-43-9	LA-505-411	B	4.70	ug/L			1.00	4.0		09/09/08
Chromium	7440-47-3	LA-505-411	B	53.7	ug/L			1.00	13		09/09/08
Cobalt	7440-48-4	LA-505-411	B	5.80	ug/L			1.00	4.0		09/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/09/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits. (inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-008

**Sample #** W08P003881

**Client ID:** B1WJH5 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081701

**Department:** Inorganic

**Sampled:** 08/11/08

**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411	D	2.37e+05	ug/L			10.00	7.3e+02		09/15/08
Strontium	7440-24-8	LA-505-411		1.66e+03	ug/L			1.00	4.0		09/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
<b>ICP-200.8 MS All possible meta Prep</b>											<b>08/14/08</b>
<b>ICP-200.8 MS All possible meta</b>											
Uranium	7440-61-1	LA-505-412	X	78.0	ug/L			1.00	0.0500		08/14/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		92.0	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-008

**Sample #** W08P003882

**Client ID:** B1WJF7 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081701

**Department:** Inorganic

**Sampled:** 08/11/08

**Received:** 08/11/08

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		08/12/08
Chloride	16887-00-6	LA-533-410	DN	26.0	mg/L			2.00	0.094		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DN	85.3	mg/L			20.00	0.24		08/13/08
Sulfate	14808-79-8	LA-533-410	D	160	mg/L			10.00	1.3		08/12/08
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	U	< 4.00	ug/L			1.00	4.0		08/14/08
<b>ICP Metals Analysis, Grd H20 P Prep</b>											<b>08/31/08</b>
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-6	LA-505-411	B	120	ug/L			1.00	25		09/09/08
Magnesium	7439-95-4	LA-505-411		4.01e+04	ug/L			1.00	50		09/09/08
Manganese	7439-96-5	LA-505-411	B	8.20	ug/L			1.00	4.0		09/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Potassium	7440-09-7	LA-505-411		1.19e+04	ug/L			1.00	1.7e+02		09/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/09/08
Sodium	7440-23-5	LA-505-411		6.67e+04	ug/L			1.00	51		09/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/09/08
Barium	7440-39-3	LA-505-411		106	ug/L			1.00	4.0		09/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Chromium	7440-47-3	LA-505-411	B	63.7	ug/L			1.00	13		09/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/09/08
Vanadium	7440-62-2	LA-505-411	B	13.1	ug/L			1.00	12		09/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/09/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003882  
**Client ID:** B1WJF7

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411		1.12e + 05	ug/L			1.00	73		09/09/08
Strontium	7440-24-6	LA-505-411		834	ug/L			1.00	4.0		09/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
<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	831	ug/L			1.00	0.0500		08/14/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		110	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003883  
**Client ID:** B1WFY9

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>ICP Metals Analysis, Grd H20 P Prep</b>											
<b>ICP Metals Analysis, Grd H20 P</b>											
Iron	7439-89-8	LA-505-411	U	< 25.0	ug/L			1.00	25		09/09/08
Magnesium	7439-95-4	LA-505-411		2.89e+04	ug/L			1.00	50		09/09/08
Manganese	7439-96-5	LA-505-411	B	5.80	ug/L			1.00	4.0		09/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Potassium	7440-09-7	LA-505-411		1.06e+04	ug/L			1.00	1.7e+02		09/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/09/08
Sodium	7440-23-5	LA-505-411		3.21e+04	ug/L			1.00	51		09/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/09/08
Barium	7440-39-3	LA-505-411		84.8	ug/L			1.00	4.0		09/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Chromium	7440-47-3	LA-505-411	B	29.7	ug/L			1.00	13		09/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/09/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/09/08
Calcium	7440-70-2	LA-505-411		9.86e+04	ug/L			1.00	73		09/09/08
Strontium	7440-24-6	LA-505-411		649	ug/L			1.00	4.0		09/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
<b>ICP-200.8 MS All possible meta Prep</b>											
<b>ICP-200.8 MS All possible meta</b>											
Aluminum	7429-90-5	LA-505-412	U	< 5.00	ug/L			1.00	5.00		08/14/08
Mercury	7439-97-6	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		08/14/08
Arsenic	7440-38-2	LA-505-412		5.89	ug/L			1.00	0.400		08/14/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003883  
**Client ID:** B1WFY9 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		08/14/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria(inorg)

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

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

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003884  
**Client ID:** B1WH00 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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	D	0.218	mg/L			2.00	0.046		08/12/08
Chloride	16887-00-6	LA-533-410	D	19.4	mg/L			2.00	0.094		08/12/08
Nitrogen in Nitrite	NO2-N	LA-533-410	D	0.0346	mg/L			2.00	0.026		08/12/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	47.2	mg/L			20.00	0.24		09/10/08
Sulfate	14808-79-8	LA-533-410	D	121	mg/L			2.00	0.26		08/12/08
<b>Cyanide</b>											
Cyanide	57-12-5	LA-695-402	X	10.1	ug/L			1.00	4.0		08/20/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/31/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/09/08
Magnesium	7439-95-4	LA-505-411		2.87e +04	ug/L			1.00	50		09/09/08
Manganese	7439-96-5	LA-505-411	B	5.40	ug/L			1.00	4.0		09/09/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Potassium	7440-09-7	LA-505-411		1.04e +04	ug/L			1.00	1.7e +02		09/09/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/09/08
Sodium	7440-23-5	LA-505-411		3.17e +04	ug/L			1.00	51		09/09/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/09/08
Barium	7440-39-3	LA-505-411		85.3	ug/L			1.00	4.0		09/09/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Chromium	7440-47-3	LA-505-411	B	32.5	ug/L			1.00	13		09/09/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
Copper	7440-50-8	LA-505-411	B	6.20	ug/L			1.00	6.0		09/09/08
Vanadium	7440-62-2	LA-505-411	B	13.0	ug/L			1.00	12		09/09/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/09/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003884  
**Client ID:** B1WH00

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

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Inorganic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411		9.83e + 04	ug/L			1.00	73		09/09/08
Strontium	7440-24-6	LA-505-411		652	ug/L			1.00	4.0		09/09/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/09/08
<b>ICP-200.8 MS All possible meta Prep</b>											<b>08/14/08</b>
<b>ICP-200.8 MS All possible meta</b>											
Aluminum	7429-90-5	LA-505-412	U	< 5.00	ug/L			1.00	5.00		08/14/08
Mercury	7439-97-6	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		08/14/08
Uranium	7440-61-1	LA-505-412	X	3.75e + 03	ug/L			1.00	0.0500		08/14/08
Arsenic	7440-38-2	LA-505-412		5.75	ug/L			1.00	0.400		08/14/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		08/14/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		120	mg/L			1.00	1.0		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003847</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Chloride	16887-00-6	8.598		RPD			0.410	20.000		08/12/08
DUP	Fluoride	16984-48-8	0.3455		RPD			1.094	20.000		08/12/08
DUP	Nitrogen in Nitrite	NO2-N	< 2.56e-2		RPD			n/a	20.000	U	08/12/08
DUP	Sulfate	14808-79-8	20.503		RPD			0.766	20.000		08/12/08
MS	Chloride	16887-00-6	1.01315	101.824	% Recov	80.000	120.000				08/12/08
MS	Fluoride	16984-48-8	0.50595	102.627	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrite	NO2-N	0.4582	93.130	% Recov	80.000	120.000				08/12/08
MS	Sulfate	14808-79-8	2.01215	102.661	% Recov	80.000	120.000				08/12/08
MSD	Chloride	16887-00-6	1.1614	116.724	% Recov	80.000	120.000				08/12/08
MSD	Fluoride	16984-48-8	0.51895	105.264	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrite	NO2-N	0.4697	95.467	% Recov	80.000	120.000				08/12/08
MSD	Sulfate	14808-79-8	2.26115	115.365	% Recov	80.000	120.000				08/12/08
SPK-RPD	Chloride	16887-00-6	116.724		RPD			13.635	20.000		08/12/08
SPK-RPD	Fluoride	16984-48-8	105.264		RPD			2.537	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	95.467		RPD			2.478	20.000		08/12/08
SPK-RPD	Sulfate	14808-79-8	115.365		RPD			11.654	20.000		08/12/08
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	< 4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Chloride	16887-00-6	< 4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	< 2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	< 2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	< 1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	< 1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Sulfate	14808-79-8	< 0.132	n/a	mg/L	0.000	0.200			U	08/12/08
BLANK	Sulfate	14808-79-8	< 0.132	n/a	mg/L	0.000	0.200			U	08/12/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Chloride	16887-00-6	196.612	97.817	% Recov	80.000	120.000				08/12/08
LCS	Fluoride	16984-48-8	104.5054	104.925	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrite	NO2-N	100.0436	100.647	% Recov	80.000	120.000				08/12/08
LCS	Sulfate	14808-79-8	381.7291	96.396	% Recov	80.000	120.000				08/12/08

**Lab ID: W08P003818**  
**BATCH QC ASSOCIATED WITH SAMPLE**

DUP	Chloride	16887-00-6	<9.38e-2		RPD			n/a	20.000	U	08/12/08
DUP	Fluoride	16984-48-8	<4.64e-2		RPD			n/a	20.000	U	08/12/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	08/12/08
DUP	Nitrogen in Nitrate	NO3-N	3.8e-2		RPD			7.367	20.000		08/12/08
DUP	Sulfate	14808-79-8	<0.264		RPD			n/a	20.000	U	08/12/08
MS	Chloride	16887-00-6	0.9268	93.146	% Recov	80.000	120.000				08/12/08
MS	Fluoride	16984-48-8	0.4539	92.069	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrite	NO2-N	0.4681	95.142	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrate	NO3-N	0.4433	99.395	% Recov	80.000	120.000				08/12/08
MS	Sulfate	14808-79-8	1.81805	92.758	% Recov	80.000	120.000				08/12/08
MSD	Chloride	16887-00-6	0.93795	94.266	% Recov	80.000	120.000				08/12/08
MSD	Fluoride	16984-48-8	0.4606	93.428	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrite	NO2-N	0.4888	99.350	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrate	NO3-N	0.4504	100.987	% Recov	80.000	120.000				08/12/08
MSD	Sulfate	14808-79-8	1.80215	91.946	% Recov	80.000	120.000				08/12/08
SPK-RPD	Chloride	16887-00-6	94.266		RPD			1.195	20.000		08/12/08
SPK-RPD	Fluoride	16984-48-8	93.428		RPD			1.465	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	99.350		RPD			4.327	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	100.987		RPD			1.589	20.000		08/12/08
SPK-RPD	Sulfate	14808-79-8	91.946		RPD			0.879	20.000		08/12/08

**Lab ID: W08P003892**  
**BATCH QC ASSOCIATED WITH SAMPLE**

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Chloride	16887-00-6	7.107		RPD			6.134	20.000		08/12/08
DUP	Fluoride	16984-48-8	0.2378		RPD			3.814	20.000		08/12/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	08/12/08
DUP	Nitrogen in Nitrate	NO3-N	3.2205		RPD			0.127	20.000		08/12/08
DUP	Sulfate	14808-79-8	47.8034		RPD			0.218	20.000		08/12/08
MS	Chloride	16887-00-6	0.96895	97.382	% Recov	80.000	120.000				08/12/08
MS	Fluoride	16984-48-8	0.51255	103.966	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrite	NO2-N	0.44645	90.742	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrate	NO3-N	0.4663	104.552	% Recov	80.000	120.000				08/12/08
MS	Sulfate	14808-79-8	1.7679	90.199	% Recov	80.000	120.000				08/12/08
MSD	Chloride	16887-00-6	0.91735	92.196	% Recov	80.000	120.000				08/12/08
MSD	Fluoride	16984-48-8	0.50585	102.606	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrite	NO2-N	0.4451	90.467	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrate	NO3-N	0.45645	102.343	% Recov	80.000	120.000				08/12/08
MSD	Sulfate	14808-79-8	1.83955	93.855	% Recov	80.000	120.000				08/12/08
SPK-RPD	Chloride	16887-00-6	92.196		RPD			5.471	20.000		08/12/08
SPK-RPD	Fluoride	16984-48-8	102.606		RPD			1.317	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	90.467		RPD			0.304	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	102.343		RPD			2.135	20.000		08/12/08
SPK-RPD	Sulfate	14808-79-8	93.855		RPD			3.973	20.000		08/12/08
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/12/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/12/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/12/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/12/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/12/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/12/08
LCS	Chloride	16887-00-6	193.008	96.024	% Recov	80.000	120.000				08/12/08
LCS	Chloride	16887-00-6	193.1304	96.085	% Recov	80.000	120.000				08/12/08
LCS	Fluoride	16984-48-8	108.8668	109.304	% Recov	80.000	120.000				08/12/08
LCS	Fluoride	16984-48-8	108.4329	108.868	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrite	NO2-N	101.3503	101.962	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrite	NO2-N	101.5262	102.139	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrate	NO3-N	93.4712	103.742	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrate	NO3-N	93.7199	104.018	% Recov	80.000	120.000				08/12/08
LCS	Sulfate	14808-79-8	386.1962	97.524	% Recov	80.000	120.000				08/12/08
LCS	Sulfate	14808-79-8	389.9732	98.478	% Recov	80.000	120.000				08/12/08

Lab ID: W08P003845  
 BATCH QC ASSOCIATED WITH SAMPLE

DUP	Chloride	16887-00-6	8.3151		RPD			0.818	20.000		08/12/08
DUP	Fluoride	16984-48-8	0.252		RPD			18.229	20.000		08/12/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	08/12/08
DUP	Nitrogen in Nitrate	NO3-N	7.0055		RPD			0.393	20.000		08/12/08
DUP	Sulfate	14808-79-8	20.97		RPD			0.433	20.000		08/12/08
MS	Chloride	16887-00-6	0.95725	96.206	% Recov	80.000	120.000				08/12/08
MS	Fluoride	16984-48-8	0.55995	113.580	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrite	NO2-N	0.44495	90.437	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrate	NO3-N	0.39995	89.675	% Recov	80.000	120.000				08/12/08
MS	Sulfate	14808-79-8	1.7966	91.663	% Recov	80.000	120.000				08/12/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Chloride	16887-00-6	0.9457	95.045	% Recov	80.000	120.000				08/12/08
MSD	Fluoride	16984-48-8	0.59265	120.213	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrite	NO2-N	0.4444	90.325	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrate	NO3-N	0.3931	88.139	% Recov	80.000	120.000				08/12/08
MSD	Sulfate	14808-79-8	1.7821	90.923	% Recov	80.000	120.000				08/12/08
SPK-RPD	Chloride	16887-00-6	95.045		RPD			1.214	20.000		08/12/08
SPK-RPD	Fluoride	16984-48-8	120.213		RPD			5.674	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	90.325		RPD			0.124	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	88.139		RPD			1.728	20.000		08/12/08
SPK-RPD	Sulfate	14808-79-8	90.923		RPD			0.811	20.000		08/12/08

**Lab ID: W08P003894**  
**BATCH QC ASSOCIATED WITH SAMPLE**

DUP	Chloride	16887-00-6	6.2634		RPD			0.750	20.000		08/12/08
DUP	Fluoride	16984-48-8	0.1056		RPD			1.036	20.000		08/12/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	08/12/08
DUP	Nitrogen in Nitrate	NO3-N	3.7891		RPD			0.406	20.000		08/12/08
DUP	Sulfate	14808-79-8	43.6669		RPD			0.011	20.000		08/12/08
MS	Chloride	16887-00-6	0.7106	71.417	% Recov	80.000	120.000				08/12/08
MS	Fluoride	16984-48-8	0.5418	109.899	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrite	NO2-N	0.40045	81.392	% Recov	80.000	120.000				08/12/08
MS	Nitrogen in Nitrate	NO3-N	0.31295	70.168	% Recov	80.000	120.000				08/12/08
MS	Sulfate	14808-79-8	1.6345	83.393	% Recov	80.000	120.000				08/12/08
MSD	Chloride	16887-00-6	1.0118	101.688	% Recov	80.000	120.000				08/12/08
MSD	Fluoride	16984-48-8	0.53705	108.935	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrite	NO2-N	0.4285	87.093	% Recov	80.000	120.000				08/12/08
MSD	Nitrogen in Nitrate	NO3-N	0.4103	91.996	% Recov	80.000	120.000				08/12/08
MSD	Sulfate	14808-79-8	1.67375	85.395	% Recov	80.000	120.000				08/12/08
SPK-RPD	Chloride	16887-00-6	101.688		RPD			34.974	20.000	*	08/12/08
SPK-RPD	Fluoride	16984-48-8	108.935		RPD			0.881	20.000		08/12/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Nitrogen in Nitrite	NO2-N	87.093		RPD			6.767	20.000		08/12/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	91.996		RPD			26.921	20.000		08/12/08
SPK-RPD	Sulfate	14808-79-8	85.395		RPD			2.372	20.000		08/12/08
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/12/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/12/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/12/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/12/08
BLANK	Sulfate	14808-79-8	<0.132	n/e	mg/L	0.000	0.200			U	08/12/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/12/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/12/08
LCS	Chloride	16887-00-6	195.335	97.182	% Recov	80.000	120.000				08/12/08
LCS	Chloride	16887-00-6	195.5853	97.306	% Recov	80.000	120.000				08/12/08
LCS	Fluoride	16984-48-8	107.0673	107.497	% Recov	80.000	120.000				08/12/08
LCS	Fluoride	16984-48-8	105.8143	106.239	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrite	NO2-N	96.7885	97.373	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrite	NO2-N	98.0713	98.663	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrate	NO3-N	92.0513	102.166	% Recov	80.000	120.000				08/12/08
LCS	Nitrogen in Nitrate	NO3-N	91.1132	101.125	% Recov	80.000	120.000				08/12/08
LCS	Sulfate	14808-79-8	384.3703	97.063	% Recov	80.000	120.000				08/12/08
LCS	Sulfate	14808-79-8	392.9638	99.233	% Recov	80.000	120.000				08/12/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 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
<b>Lab ID: W08P003882</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Nitrogen in Nitrate	NO3-N	84.8011		RPD			0.554	20.000		08/13/08
MS	Nitrogen in Nitrate	NO3-N	0.379685	85.131	% Recov	80.000	120.000				08/13/08
MSD	Nitrogen in Nitrate	NO3-N	0.339485	76.118	% Recov	80.000	120.000				08/13/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	76.118		RPD			11.179	20.000		08/13/08
<b>BATCH QC</b>											
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/13/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/13/08
LCS	Nitrogen in Nitrate	NO3-N	89.0038	98.783	% Recov	80.000	120.000				08/13/08
<b>Lab ID: W08P003884</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Nitrogen in Nitrate	NO3-N	47.3236		RPD			0.267	20.000		09/10/08
MS	Nitrogen in Nitrate	NO3-N	0.41768	93.650	% Recov	80.000	120.000				09/10/08
MSD	Nitrogen in Nitrate	NO3-N	0.441115	98.905	% Recov	80.000	120.000				09/10/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	98.905		RPD			5.458	20.000		09/10/08
<b>BATCH QC</b>											
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	09/10/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	09/10/08
LCS	Nitrogen in Nitrate	NO3-N	91.4372	101.484	% Recov	80.000	120.000				09/10/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003836</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Cyanide by Midi/Spectrophotom	57-12-5	35.4	88.500	% Recov	75.000	125.000				08/14/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	34.3	85.750	% Recov	75.000	125.000				08/14/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	85.750		RPD			3.156	20.000		08/14/08
<b>BATCH QC</b>											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	08/14/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	43	86.000	% Recov	85.000	115.000				08/14/08
<b>Lab ID: W08GR03334</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Cyanide by Midi/Spectrophotom	57-12-5	36.1	90.250	% Recov	75.000	125.000				08/20/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	41.3	103.250	% Recov	75.000	125.000				08/20/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	103.250		RPD			13.437	20.000		08/20/08
<b>Lab ID: W08P003881</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Cyanide by Midi/Spectrophotom	57-12-5	103	257.500	% Recov	75.000	125.000			*	08/20/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	83.3	208.250	% Recov	75.000	125.000			*	08/20/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	208.250		RPD			21.149	20.000	*	08/20/08
<b>BATCH QC</b>											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	08/20/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	44.4	88.800	% Recov	85.000	115.000				08/20/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003880											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	949.3	94.930	% Recov	75.000	125.000				09/09/08
MS	Barium	7440-39-3	474.8	94.960	% Recov	75.000	125.000				09/09/08
MS	Beryllium	7440-41-7	490.6	98.120	% Recov	75.000	125.000				09/09/08
MS	Calcium	7440-70-2	-4800	-480.000	% Recov	75.000	125.000				09/09/08
MS	Cadmium	7440-43-9	950	95.000	% Recov	75.000	125.000				09/09/08
MS	Cobalt	7440-48-4	899.8	89.980	% Recov	75.000	125.000				09/09/08
MS	Chromium	7440-47-3	924.6	92.460	% Recov	75.000	125.000				09/09/08
MS	Copper	7440-50-8	920.6	92.060	% Recov	75.000	125.000				09/09/08
MS	Iron	7439-89-6	929.5	92.950	% Recov	75.000	125.000				09/09/08
MS	Potassium	7440-09-7	9250	92.500	% Recov	75.000	125.000				09/09/08
MS	Magnesium	7439-95-4	-1350	-135.000	% Recov	75.000	125.000				09/09/08
MS	Manganese	7439-96-5	948.8	94.880	% Recov	75.000	125.000				09/09/08
MS	Sodium	7440-23-5	-1600	-160.000	% Recov	75.000	125.000				09/09/08
MS	Nickel	7440-02-0	883.3	88.330	% Recov	75.000	125.000				09/09/08
MS	Antimony	7440-36-0	937.7	93.770	% Recov	75.000	125.000				09/09/08
MS	Strontium	7440-24-6	439	87.800	% Recov	75.000	125.000				09/09/08
MS	Vanadium	7440-62-2	934.7	93.470	% Recov	75.000	125.000				09/09/08
MS	Zinc	7440-66-6	929.2	92.920	% Recov	75.000	125.000				09/09/08
MSD	Silver	7440-22-4	948.9	94.890	% Recov	75.000	125.000				09/09/08
MSD	Barium	7440-39-3	479.8	95.960	% Recov	75.000	125.000				09/09/08
MSD	Beryllium	7440-41-7	491.8	98.360	% Recov	75.000	125.000				09/09/08
MSD	Calcium	7440-70-2	-1200	-120.000	% Recov	75.000	125.000				09/09/08
MSD	Cadmium	7440-43-9	946.3	94.630	% Recov	75.000	125.000				09/09/08
MSD	Cobalt	7440-48-4	906.8	90.680	% Recov	75.000	125.000				09/09/08
MSD	Chromium	7440-47-3	939.4	93.940	% Recov	75.000	125.000				09/09/08
MSD	Copper	7440-50-8	918.4	91.840	% Recov	75.000	125.000				09/09/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	931.5	93.150	% Recov	75.000	125.000				09/09/08
MSD	Potassium	7440-09-7	8530	85.300	% Recov	75.000	125.000				09/09/08
MSD	Magnesium	7439-95-4	-1010	-101.000	% Recov	75.000	125.000			•	09/09/08
MSD	Manganese	7439-96-5	955.8	95.580	% Recov	75.000	125.000				09/09/08
MSD	Sodium	7440-23-5	-4300	-430.000	% Recov	75.000	125.000			•	09/09/08
MSD	Nickel	7440-02-0	885.3	88.530	% Recov	75.000	125.000				09/09/08
MSD	Antimony	7440-36-0	911.5	91.150	% Recov	75.000	125.000				09/09/08
MSD	Strontium	7440-24-6	470	94.000	% Recov	75.000	125.000				09/09/08
MSD	Vanadium	7440-62-2	952.3	95.230	% Recov	75.000	125.000				09/09/08
MSD	Zinc	7440-66-6	927.3	92.730	% Recov	75.000	125.000				09/09/08
SPK-RPD	Silver	7440-22-4	94.890		RPD			0.042	20.000		09/09/08
SPK-RPD	Barium	7440-39-3	95.960		RPD			1.048	20.000		09/09/08
SPK-RPD	Beryllium	7440-41-7	98.360		RPD			0.244	20.000		09/09/08
SPK-RPD	Calcium	7440-70-2	-120.000		RPD			-120.000	20.000	•	09/09/08
SPK-RPD	Cadmium	7440-43-9	94.630		RPD			0.390	20.000		09/09/08
SPK-RPD	Cobalt	7440-48-4	90.680		RPD			0.775	20.000		09/09/08
SPK-RPD	Chromium	7440-47-3	93.940		RPD			1.588	20.000		09/09/08
SPK-RPD	Copper	7440-50-8	91.840		RPD			0.239	20.000		09/09/08
SPK-RPD	Iron	7439-89-6	93.150		RPD			0.215	20.000		09/09/08
SPK-RPD	Potassium	7440-09-7	85.300		RPD			8.099	20.000		09/09/08
SPK-RPD	Magnesium	7439-95-4	-101.000		RPD			-28.814	20.000	•	09/09/08
SPK-RPD	Manganese	7439-96-5	95.580		RPD			0.735	20.000		09/09/08
SPK-RPD	Sodium	7440-23-5	-430.000		RPD			-91.525	20.000	•	09/09/08
SPK-RPD	Nickel	7440-02-0	88.530		RPD			0.226	20.000		09/09/08
SPK-RPD	Antimony	7440-36-0	91.150		RPD			2.834	20.000		09/09/08
SPK-RPD	Strontium	7440-24-6	94.000		RPD			6.821	20.000		09/09/08
SPK-RPD	Vanadium	7440-62-2	95.230		RPD			1.865	20.000		09/09/08
SPK-RPD	Zinc	7440-66-6	92.730		RPD			0.205	20.000		09/09/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H20 P

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>BATCH QC</b>											
BLANK	Silver	7440-22-4	6	6.000	ug/L						09/09/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	09/09/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	09/09/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	09/09/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	09/09/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	09/09/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	09/09/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	09/09/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	09/09/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	09/09/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	09/09/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	09/09/08
BLANK	Sodium	7440-23-5	666.3	666.300	ug/L						09/09/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	09/09/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	09/09/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	09/09/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	09/09/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	09/09/08
LCS	Silver	7440-22-4	956.7	95.670	% Recov	80.000	120.000				09/09/08
LCS	Barium	7440-39-3	459.9	91.980	% Recov	80.000	120.000				09/09/08
LCS	Beryllium	7440-41-7	516.6	103.320	% Recov	80.000	120.000				09/09/08
LCS	Calcium	7440-70-2	1029	102.900	% Recov	80.000	120.000				09/09/08
LCS	Cadmium	7440-43-9	1004	100.400	% Recov	80.000	120.000				09/09/08
LCS	Cobalt	7440-48-4	976.1	97.610	% Recov	80.000	120.000				09/09/08
LCS	Chromium	7440-47-3	947.3	94.730	% Recov	80.000	120.000				09/09/08
LCS	Copper	7440-50-8	978.2	97.820	% Recov	80.000	120.000				09/09/08
LCS	Iron	7439-89-6	944.4	94.440	% Recov	80.000	120.000				09/09/08
LCS	Potassium	7440-09-7	11060	110.600	% Recov	80.000	120.000				09/09/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Magnesium	7439-95-4	980.9	98.090	% Recov	80.000	120.000				09/09/08
LCS	Manganese	7439-96-5	958.2	95.820	% Recov	80.000	120.000				09/09/08
LCS	Sodium	7440-23-5	1093	109.300	% Recov	80.000	120.000				09/09/08
LCS	Nickel	7440-02-0	986.1	98.610	% Recov	80.000	120.000				09/09/08
LCS	Antimony	7440-36-0	1001	100.100	% Recov	80.000	120.000				09/09/08
LCS	Strontium	7440-24-6	497.4	99.480	% Recov	80.000	120.000				09/09/08
LCS	Vanadium	7440-62-2	953.8	95.380	% Recov	80.000	120.000				09/09/08
LCS	Zinc	7440-66-6	986.1	98.610	% Recov	80.000	120.000				09/09/08

**Lab ID: W08P003847**  
**BATCH QC ASSOCIATED WITH SAMPLE**

MS	Silver	7440-22-4	1027	102.700	% Recov	75.000	125.000				09/11/08
MS	Barium	7440-39-3	517.9	103.580	% Recov	75.000	125.000				09/11/08
MS	Beryllium	7440-41-7	551.9	110.380	% Recov	75.000	125.000				09/11/08
MS	Calcium	7440-70-2	4760	476.000	% Recov	75.000	125.000				09/11/08
MS	Cadmium	7440-43-9	1075.3	107.530	% Recov	75.000	125.000				09/11/08
MS	Cobalt	7440-48-4	1064.7	106.470	% Recov	75.000	125.000				09/11/08
MS	Chromium	7440-47-3	1039.5	103.950	% Recov	75.000	125.000				09/11/08
MS	Copper	7440-50-8	1048.2	104.820	% Recov	75.000	125.000				09/11/08
MS	Iron	7439-89-6	920.4	92.040	% Recov	75.000	125.000				09/11/08
MS	Potassium	7440-09-7	11991	119.910	% Recov	75.000	125.000				09/11/08
MS	Magnesium	7439-95-4	1265	126.500	% Recov	75.000	125.000				09/11/08
MS	Manganese	7439-96-5	1060.4	106.040	% Recov	75.000	125.000				09/11/08
MS	Sodium	7440-23-5	970	97.000	% Recov	75.000	125.000				09/11/08
MS	Nickel	7440-02-0	1054.3	105.430	% Recov	75.000	125.000				09/11/08
MS	Antimony	7440-36-0	1044	104.400	% Recov	75.000	125.000				09/11/08
MS	Strontium	7440-24-6	565.6	113.120	% Recov	75.000	125.000				09/11/08
MS	Vanadium	7440-62-2	1021	102.100	% Recov	75.000	125.000				09/11/08
MS	Zinc	7440-66-6	1071.1	107.110	% Recov	75.000	125.000				09/11/08
MSD	Silver	7440-22-4	1005	100.500	% Recov	75.000	125.000				09/11/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H20 P

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Barium	7440-39-3	508.4	101.880	% Recov	75.000	125.000				09/11/08
MSD	Beryllium	7440-41-7	543.3	108.860	% Recov	75.000	125.000				09/11/08
MSD	Calcium	7440-70-2	5010	501.000	% Recov	75.000	125.000				09/11/08
MSD	Cadmium	7440-43-9	1062.3	106.230	% Recov	75.000	125.000				09/11/08
MSD	Cobalt	7440-48-4	1054.7	105.470	% Recov	75.000	125.000				09/11/08
MSD	Chromium	7440-47-3	1015.5	101.550	% Recov	75.000	125.000				09/11/08
MSD	Copper	7440-50-8	1017.2	101.720	% Recov	75.000	125.000				09/11/08
MSD	Iron	7439-89-6	791.4	79.140	% Recov	75.000	125.000				09/11/08
MSD	Potassium	7440-09-7	11481	114.810	% Recov	75.000	125.000				09/11/08
MSD	Magnesium	7439-95-4	1328	132.800	% Recov	75.000	125.000				09/11/08
MSD	Manganese	7439-96-5	1049.4	104.940	% Recov	75.000	125.000				09/11/08
MSD	Sodium	7440-23-5	870	87.000	% Recov	75.000	125.000				09/11/08
MSD	Nickel	7440-02-0	1039.3	103.930	% Recov	75.000	125.000				09/11/08
MSD	Antimony	7440-36-0	992.3	99.230	% Recov	75.000	125.000				09/11/08
MSD	Strontium	7440-24-6	555.6	111.120	% Recov	75.000	125.000				09/11/08
MSD	Vanadium	7440-62-2	1015	101.500	% Recov	75.000	125.000				09/11/08
MSD	Zinc	7440-68-6	1060.1	106.010	% Recov	75.000	125.000				09/11/08
SPK-RPD	Silver	7440-22-4	100.500		RPD			2.165	20.000		09/11/08
SPK-RPD	Barium	7440-39-3	101.680		RPD			1.851	20.000		09/11/08
SPK-RPD	Beryllium	7440-41-7	108.860		RPD			1.570	20.000		09/11/08
SPK-RPD	Calcium	7440-70-2	501.000		RPD			5.118	20.000		09/11/08
SPK-RPD	Cadmium	7440-43-9	106.230		RPD			1.216	20.000		09/11/08
SPK-RPD	Cobalt	7440-48-4	105.470		RPD			0.944	20.000		09/11/08
SPK-RPD	Chromium	7440-47-3	101.550		RPD			2.336	20.000		09/11/08
SPK-RPD	Copper	7440-50-8	101.720		RPD			3.002	20.000		09/11/08
SPK-RPD	Iron	7439-89-6	79.140		RPD			15.072	20.000		09/11/08
SPK-RPD	Potassium	7440-09-7	114.810		RPD			4.346	20.000		09/11/08
SPK-RPD	Magnesium	7439-95-4	132.800		RPD			4.859	20.000		09/11/08
SPK-RPD	Manganese	7439-96-5	104.940		RPD			1.043	20.000		09/11/08
SPK-RPD	Sodium	7440-23-5	87.000		RPD			10.870	20.000		09/11/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H20 P

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Nickel	7440-02-0	103.930		RPD			1.433	20.000		09/11/08
SPK-RPD	Antimony	7440-36-0	99.230		RPD			5.078	20.000		09/11/08
SPK-RPD	Strontium	7440-24-6	111.120		RPD			1.784	20.000		09/11/08
SPK-RPD	Vanadium	7440-62-2	101.500		RPD			0.589	20.000		09/11/08
SPK-RPD	Zinc	7440-66-6	106.010		RPD			1.032	20.000		09/11/08

## BATCH QC

BLANK	Silver	7440-22-4	<5	n/a	ug/L					U	09/11/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	09/11/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	09/11/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	09/11/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	09/11/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	09/11/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	09/11/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	09/11/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	09/11/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	09/11/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	09/11/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	09/11/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	09/11/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	09/11/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	09/11/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	09/11/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	09/11/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	09/11/08
LCS	Silver	7440-22-4	999.3	99.930	% Recov	80.000	120.000				09/11/08
LCS	Barium	7440-39-3	496.1	99.220	% Recov	80.000	120.000				09/11/08
LCS	Beryllium	7440-41-7	555.4	111.080	% Recov	80.000	120.000				09/11/08
LCS	Calcium	7440-70-2	1076	107.600	% Recov	80.000	120.000				09/11/08
LCS	Cadmium	7440-43-9	1036	103.600	% Recov	80.000	120.000				09/11/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 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	Cobalt	7440-48-4	1073	107.300	% Recov	80.000	120.000				09/11/08
LCS	Chromium	7440-47-3	1037	103.700	% Recov	80.000	120.000				09/11/08
LCS	Copper	7440-50-8	971.1	97.110	% Recov	80.000	120.000				09/11/08
LCS	Iron	7439-89-6	1052	105.200	% Recov	80.000	120.000				09/11/08
LCS	Potassium	7440-09-7	10080	100.800	% Recov	80.000	120.000				09/11/08
LCS	Magnesium	7439-95-4	940.8	94.080	% Recov	80.000	120.000				09/11/08
LCS	Manganese	7439-96-5	1065	106.500	% Recov	80.000	120.000				09/11/08
LCS	Sodium	7440-23-5	932.3	93.230	% Recov	80.000	120.000				09/11/08
LCS	Nickel	7440-02-0	1077	107.700	% Recov	80.000	120.000				09/11/08
LCS	Antimony	7440-36-0	952	95.200	% Recov	80.000	120.000				09/11/08
LCS	Strontium	7440-24-6	525.9	105.180	% Recov	80.000	120.000				09/11/08
LCS	Vanadium	7440-62-2	1036	103.600	% Recov	80.000	120.000				09/11/08
LCS	Zinc	7440-66-6	1009	100.900	% Recov	80.000	120.000				09/11/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/05/08  
 Receive Date: 08/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P003727  
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Arsenic	7440-38-2	35.55	88.875	% Recov	70.000	130.000				08/14/08
MS	Mercury	7439-97-6	1.78	89.000	% Recov	70.000	130.000				08/14/08
MS	Uranium	7440-61-1	36.72	91.800	% Recov	70.000	130.000				08/14/08
MSD	Arsenic	7440-38-2	35.93	89.825	% Recov	70.000	130.000				08/14/08
MSD	Mercury	7439-97-6	1.83	91.500	% Recov	70.000	130.000				08/14/08
MSD	Uranium	7440-61-1	37.3	93.250	% Recov	70.000	130.000				08/14/08
SPK-RPD	Arsenic	7440-38-2	89.825		RPD			1.063	20.000		08/14/08
SPK-RPD	Mercury	7439-97-6	91.500		RPD			2.770	20.000		08/14/08
SPK-RPD	Uranium	7440-61-1	93.250		RPD			1.567	20.000		08/14/08

Lab ID: W08P003729  
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Arsenic	7440-38-2	36.32	90.800	% Recov	70.000	130.000				08/14/08
MS	Mercury	7439-97-6	1.83	91.500	% Recov	70.000	130.000				08/14/08
MS	Uranium	7440-61-1	38.019	95.047	% Recov	70.000	130.000				08/14/08
MSD	Arsenic	7440-38-2	36.25	90.625	% Recov	70.000	130.000				08/14/08
MSD	Mercury	7439-97-6	1.86	93.000	% Recov	70.000	130.000				08/14/08
MSD	Uranium	7440-61-1	38.159	95.398	% Recov	70.000	130.000				08/14/08
SPK-RPD	Arsenic	7440-38-2	90.625		RPD			0.193	20.000		08/14/08
SPK-RPD	Mercury	7439-97-6	93.000		RPD			1.626	20.000		08/14/08
SPK-RPD	Uranium	7440-61-1	95.398		RPD			0.369	20.000		08/14/08

Lab ID: W08P003767  
 BATCH QC ASSOCIATED WITH SAMPLE

MS	Aluminum	7429-90-5	346.94	86.735	% Recov	70.000	130.000				08/14/08
MS	Arsenic	7440-38-2	36.53	91.325	% Recov	70.000	130.000				08/14/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/07/08  
 Receive Date: 08/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Mercury	7439-97-6	1.91	95.500	% Recov	70.000	130.000				08/14/08
MS	Thallium	7440-28-0	37.88	94.700	% Recov	70.000	130.000				08/14/08
MS	Uranium	7440-61-1	26.7	66.750	% Recov	70.000	130.000				08/14/08
MSD	Aluminum	7429-90-5	341.54	85.385	% Recov	70.000	130.000				08/14/08
MSD	Arsenic	7440-38-2	37.64	94.100	% Recov	70.000	130.000				08/14/08
MSD	Mercury	7439-97-6	1.96	98.000	% Recov	70.000	130.000				08/14/08
MSD	Thallium	7440-28-0	38.55	96.375	% Recov	70.000	130.000				08/14/08
MSD	Uranium	7440-61-1	33.3	83.250	% Recov	70.000	130.000				08/14/08
SPK-RPD	Aluminum	7429-90-5	85.385		RPD			1.569	20.000		08/14/08
SPK-RPD	Arsenic	7440-38-2	94.100		RPD			2.993	20.000		08/14/08
SPK-RPD	Mercury	7439-97-6	98.000		RPD			2.584	20.000		08/14/08
SPK-RPD	Thallium	7440-28-0	96.375		RPD			1.753	20.000		08/14/08
SPK-RPD	Uranium	7440-61-1	83.250		RPD			22.000	20.000		08/14/08

**Lab ID: W08P003769**  
**BATCH QC ASSOCIATED WITH SAMPLE**

MS	Aluminum	7429-90-5	329.3	82.325	% Recov	70.000	130.000				08/14/08
MS	Arsenic	7440-38-2	36.19	90.475	% Recov	70.000	130.000				08/14/08
MS	Mercury	7439-97-6	1.94	97.000	% Recov	70.000	130.000				08/14/08
MS	Thallium	7440-28-0	38.03	95.075	% Recov	70.000	130.000				08/14/08
MS	Uranium	7440-61-1	25.2	63.000	% Recov	70.000	130.000				08/14/08
MSD	Aluminum	7429-90-5	331.3	82.825	% Recov	70.000	130.000				08/14/08
MSD	Arsenic	7440-38-2	36.11	90.275	% Recov	70.000	130.000				08/14/08
MSD	Mercury	7439-97-6	1.96	98.000	% Recov	70.000	130.000				08/14/08
MSD	Thallium	7440-28-0	38.65	96.625	% Recov	70.000	130.000				08/14/08
MSD	Uranium	7440-61-1	27.4	68.500	% Recov	70.000	130.000				08/14/08
SPK-RPD	Aluminum	7429-90-5	82.825		RPD			0.606	20.000		08/14/08
SPK-RPD	Arsenic	7440-38-2	90.275		RPD			0.221	20.000		08/14/08
SPK-RPD	Mercury	7439-97-6	98.000		RPD			1.026	20.000		08/14/08
SPK-RPD	Thallium	7440-28-0	96.625		RPD			1.617	20.000		08/14/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/07/08  
 Receive Date: 08/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Uranium	7440-61-1	68.500		RPD			8.365	20.000		08/14/08
<b>BATCH QC</b>											
BLANK	Aluminum	7429-90-5	<5	n/a	ug/L	-999.000	999.000			U	08/14/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	08/14/08
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	08/14/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	08/14/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	08/14/08
LCS	Aluminum	7429-90-5	392.3	98.075	% Recov	85.000	115.000				08/14/08
LCS	Arsenic	7440-38-2	38.68	96.700	% Recov	85.000	115.000				08/14/08
LCS	Mercury	7439-97-6	1.95	97.500	% Recov	85.000	115.000				08/14/08
LCS	Thallium	7440-28-0	39.55	98.875	% Recov	85.000	115.000				08/14/08
LCS	Uranium	7440-61-1	39.96	99.900	% Recov	85.000	115.000				08/14/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Total Alkalinity as mg/L CaCO<sub>3</sub>

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003845</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	87.94		RPD			0.080	20.000		08/19/08
<b>BATCH QC</b>											
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	32.56	109.262	%Recover	80.000	120.000				08/19/08
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	32.52	109.128	%Recover	80.000	120.000				08/19/08
LCS	Total Alkalinity as mg/L CaCO <sub>3</sub>	ALKALINITY	32.90	110.403	%Recover	80.000	120.000				08/19/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Total Organic Carbon

Sample Date: 08/05/08  
 Receive Date: 08/06/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003727</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Total Organic Carbon	TOC	2.157	107.850	% Recov	75.000	125.000				08/22/08
MSD	Total Organic Carbon	TOC	2.173	108.650	% Recov	75.000	125.000				08/22/08
SPK-RPD	Total Organic Carbon	TOC	108.650		RPD			0.739	20.000		08/22/08
<b>BATCH QC</b>											
BLANK	Total Organic Carbon	TOC	0.045	0.045	mg/L	0.000	300.000				08/22/08
METHSPIKE	Total Organic Carbon	TOC	1.029	102.900	% Recov	80.000	120.000				08/22/08
SPK-RSD	Total Organic Carbon	TOC	1.333	1.333	% RSD	0.000	20.000				08/22/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Total Organic Halides

Sample Date: 07/31/08  
 Receive Date: 07/31/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003664</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Total Organic Halides	TOX	39.9	99.750	% Recov	50.000	150.000				08/14/08
MSD	Total Organic Halides	TOX	42.6	106.500	% Recov	50.000	150.000				08/14/08
SPK-RPD	Total Organic Halides	TOX	106.500		RPD			6.545	20.000		08/14/08
<b>Lab ID: W08P003874</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Total Organic Halides	TOX	45.2	113.000	% Recov	50.000	150.000				08/14/08
MSD	Total Organic Halides	TOX	43.6	109.000	% Recov	50.000	150.000				08/14/08
SPK-RPD	Total Organic Halides	TOX	109.000		RPD			3.604	20.000		08/14/08
<b>BATCH QC</b>											
BLANK	Total Organic Halides	TOX	<5	n/a	ug/L	0.000	300.000			U	08/14/08
LCS	Total Organic Halides	TOX	390	97.500	%rec	80.000	120.000				08/14/08

# WSCF ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent E6-35

**Group #:** WSCF20081701  
**Department:** Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>ICP-MS: Uranium spike amount less than 25% of the sample result. Spike recovery data not valid. "X" flag</p> <p>Cyanide: Sample result more than 16X spike amount. MS and MSD recovery information not valid. "X" flag</p> <p>Tc-99 matrix spike failure is due to the high Tc-99 activity in the sample. Imh</p> <p>W08P003879/Pu242 tracer recovery is slightly over the limit. Most of the tracers came out fine, so this batch has been approved. Imh</p> <p>Gross alpha duplicate is flagged for poor RPD but the sample countrate is low. RPD does not apply in this case. The sample and dup masses were identical, indicating that the samples were prepared properly.</p> <p>ICP-AES: B-Flag for samples &lt; 5X MDL ICP-AES: [Samples W08P3880-3884] High silver and sodium preparation blank results; "C" flag if applicable. No zirconium present in the LCS standard. Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.</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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# WSCF ANALYTICAL COMMENT REPORT

**Attention:** Steve Trent E6-35

**Group #:** WSCF20081701  
**Department:** Inorganic

Sample #	Client ID	Lab Area	Test	Comment
W08P003882	B1WJF7	PNNL-GPP	VALTEST	Anions by Ion Chromatography

Check and high standards used to ensure sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.  
  
 ICP-AES: [Samples W08P3862-3863; 3865-3868; 3872-3873; 3878-3879]  
 No zirconium is present in the LCS standard.  
 Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.  
 Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard.  
 IC Anion - MSD recovery low for nitrate in sample W08P003882 (re-run for nitrate); Data N-flagged. DTS

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

VALTEST - Test Validation  
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003864  
**Client ID:** B1WF79 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		08/20/08
Trichloroethene	79-01-6	LA-523-455	J	4.10	ug/L			1.00	1.0		08/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon tetrachloride	56-23-5	LA-523-455		980	ug/L			1.00	25		08/22/08
Acetone	67-64-1	LA-523-455	B	35.0	ug/L			1.00	1.0		08/20/08
Chloroform	67-66-3	LA-523-455		7.60	ug/L			1.00	1.0		08/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Methylenechloride	75-09-2	LA-523-455	J	1.80	ug/L			1.00	1.0		08/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003864  
**Client ID:** B1WF79

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

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		08/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003869  
**Client ID:** B1WFC0 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		08/20/08
Trichloroethene	79-01-6	LA-523-455	J	4.50	ug/L			1.00	1.0		08/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Tetrachloroethene	127-18-4	LA-523-455	J	2.00	ug/L			1.00	1.0		08/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon tetrachloride	56-23-5	LA-523-455		1.00e + 03	ug/L			1.00	25		08/22/08
Acetone	67-64-1	LA-523-455	B	31.0	ug/L			1.00	1.0		08/20/08
Chloroform	67-66-3	LA-523-455		7.90	ug/L			1.00	1.0		08/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Methylenechloride	75-09-2	LA-523-455	J	1.70	ug/L			1.00	1.0		08/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e + 02		08/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003869  
**Client ID:** B1WFC0

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		08/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003870  
**Client ID:** B1WFC1

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		08/20/08
Trichloroethene	79-01-6	LA-523-455	J	4.60	ug/L			1.00	1.0		08/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Tetrachloroethene	127-18-4	LA-523-455	J	2.00	ug/L			1.00	1.0		08/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon tetrachloride	56-23-5	LA-523-455		1.00e+03	ug/L			1.00	25		08/22/08
Acetone	67-64-1	LA-523-455	B	42.0	ug/L			1.00	1.0		08/20/08
Chloroform	67-66-3	LA-523-455		8.00	ug/L			1.00	1.0		08/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** 108-054  
**Sample #** W08P003870  
**Client ID:** B1WFC1 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		08/20/08
1,4-Dichlorobenzene	108-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria(inorg)

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

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003879  
**Client ID:** B1WFY2

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

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>SW-846 8270C Semi-Vols Prep</b>											
<b>SW-846 8270C Semi-Vols</b>											
4-Nitrophenol	100-02-7	LA-523-456	U	< 0.950	ug/L			1.00	0.95		08/26/08
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 1.30	ug/L			1.00	1.3		08/26/08
Phenol	108-95-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 2.10	ug/L			1.00	2.1		08/26/08
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Pyrene	129-00-0	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 0.570	ug/L			1.00	0.57		08/26/08
Acenaphthene	83-32-9	LA-523-456	U	< 2.50	ug/L			1.00	2.5		08/26/08
Pentachlorophenol	87-86-5	LA-523-456	U	< 1.40	ug/L			1.00	1.4		08/26/08
2-Chlorophenol	95-57-8	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 0.760	ug/L			1.00	0.76		08/26/08
2,4-Dichlorophenol	120-83-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
2-Nitrophenol	88-75-5	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Naphthalene	91-20-3	LA-523-456	U	< 2.00	ug/L			1.00	2.0		08/26/08
2-Methylphenol (cresol, o-)	95-48-7	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
3 & 4 Methylphenol Total	65794-96-9	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Tributyl phosphate	126-73-8	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Benzothiazole	95-16-9	LA-523-456	U	< 0.570	ug/L			1.00	0.57		08/26/08
2-Picoline	109-06-8	LA-523-456	U	< 4.80	ug/L			1.00	4.8		08/26/08
Tris-2-chloroethyl phosphate	115-96-8	LA-523-456	U	< 0.620	ug/L			1.00	0.62		08/26/08
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria.(inorg)

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

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

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003879  
**Client ID:** B1WFY2 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Trichloroethene	79-01-8	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon tetrachloride	56-23-5	LA-523-455	J	3.40	ug/L			1.00	1.0		08/20/08
Acetone	67-64-1	LA-523-455	B	37.0	ug/L			1.00	1.0		08/20/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e + 02		08/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
trans-1,2-Dichloroethylene	156-80-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003884  
**Client ID:** B1WH00

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>SW-846 8270C Semi-Vols Prep</b>											
<b>SW-846 8270C Semi-Vols</b>											
4-Nitrophenol	100-02-7	LA-523-456	U	< 0.950	ug/L			1.00	0.95		08/26/08
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 1.30	ug/L			1.00	1.3		08/26/08
Phenol	108-95-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 2.10	ug/L			1.00	2.1		08/26/08
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Pyrene	129-00-0	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 0.570	ug/L			1.00	0.57		08/26/08
Acenaphthene	83-32-9	LA-523-456	U	< 2.50	ug/L			1.00	2.5		08/26/08
Pentachlorophenol	87-86-5	LA-523-456	U	< 1.40	ug/L			1.00	1.4		08/26/08
2-Chlorophenol	95-57-8	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 0.760	ug/L			1.00	0.76		08/26/08
2,4-Dichlorophenol	120-83-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
2-Nitrophenol	88-75-5	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Naphthalene	91-20-3	LA-523-456	U	< 2.00	ug/L			1.00	2.0		08/26/08
2-Methylphenol (cresol, o-)	95-48-7	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
3 & 4 Methylphenol Total	65794-96-9	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Tributyl phosphate	126-73-8	LA-523-456	U	< 0.480	ug/L			1.00	0.48		08/26/08
Benzothiazole	95-16-9	LA-523-456	U	< 0.570	ug/L			1.00	0.57		08/26/08
2-Picoline	109-06-8	LA-523-456	U	< 4.80	ug/L			1.00	4.8		08/26/08
Tris-2-chloroethyl phosphate	115-96-8	LA-523-456	U	< 0.620	ug/L			1.00	0.62		08/26/08
<b>VOA Ground Water Protection</b>											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003884  
**Client ID:** B1WH00

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

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Organic  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Carbon tetrachloride	58-23-5	LA-523-455	J	1.20	ug/L			1.00	1.0		08/20/08
Acetone	67-64-1	LA-523-455	B	36.0	ug/L			1.00	1.0		08/20/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Methylenechloride	75-09-2	LA-523-455	J	1.80	ug/L			1.00	1.0		08/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/20/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

B - The Analyte detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003879</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	2-Fluorophenol(Surr)	367-12-4	14.780	77.600	% Recov	50.000	110.000				08/26/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	18.125	95.200	% Recov	58.000	109.000				08/26/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	18.160	95.300	% Recov	60.000	118.000				08/26/08
SURR	Phenol-d5(Surr)	4165-62-2	16.248	85.300	% Recov	59.000	116.000				08/26/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	14.886	78.200	% Recov	60.000	120.000				08/26/08
SURR	Terphenyl-d14(Surr)	98904-43-9	19.464	102.000	% Recov	60.000	120.000				08/26/08
<b>Lab ID: W08P003884</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,2,4-Trichlorobenzene	120-82-1	17.576	92.300	% Recov	50.000	120.000				08/26/08
MS	1,4-Dichlorobenzene	106-46-7	17.858	93.800	% Recov	41.000	113.000				08/26/08
MS	2,4-Dinitrotoluene	121-14-2	16.105	84.600	% Recov	65.000	109.000				08/26/08
MS	2-Fluorophenol(Surr)	367-12-4	14.608	76.700	% Recov	50.000	110.000				08/26/08
MS	Acenaphthene	83-32-9	17.540	92.100	% Recov	62.000	112.000				08/26/08
MS	4-Chloro-3-methylphenol	59-50-7	24.695	86.400	% Recov	59.000	115.000				08/26/08
MS	2-Chlorophenol	95-57-8	25.557	89.400	% Recov	69.000	111.000				08/26/08
MS	N-Nitrosodi-n-dipropylamine	621-64-7	17.080	89.700	% Recov	69.000	115.000				08/26/08
MS	2-Fluorobiphenyl(Surr)	321-60-8	18.475	97.000	% Recov	58.000	109.000				08/26/08
MS	Phenol	108-95-2	22.230	77.800	% Recov	59.000	115.000				08/26/08
MS	Nitrobenzene-d5(Surr)	4165-60-0	18.266	95.900	% Recov	60.000	118.000				08/26/08
MS	4-Nitrophenol	100-02-7	23.353	81.700	% Recov	32.000	130.000				08/26/08
MS	Pentachlorophenol	87-86-5	25.628	89.700	% Recov	51.000	121.000				08/26/08
MS	Phenol-d5(Surr)	4165-62-2	16.928	88.900	% Recov	59.000	116.000				08/26/08
MS	Pyrene	129-00-0	19.847	104.000	% Recov	58.000	116.000				08/26/08
MS	2,4,6-Tribromophenol(Surr)	118-79-6	16.622	87.300	% Recov	60.000	120.000				08/26/08
MS	Terphenyl-d14(Surr)	98904-43-9	21.489	113.000	% Recov	60.000	120.000				08/26/08

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	1,2,4-Trichlorobenzene	120-82-1	17.972	94.400	% Recov	50.000	120.000				08/26/08
MSD	1,4-Dichlorobenzene	106-46-7	18.076	94.900	% Recov	41.000	113.000				08/26/08
MSD	2,4-Dinitrotoluene	121-14-2	16.372	86.000	% Recov	65.000	109.000				08/26/08
MSD	2-Fluorophenol(Surr)	367-12-4	14.451	75.900	% Recov	50.000	110.000				08/26/08
MSD	Acenaphthene	83-32-9	18.058	94.800	% Recov	62.000	112.000				08/26/08
MSD	4-Chloro-3-methylphenol	59-50-7	26.177	91.600	% Recov	59.000	115.000				08/26/08
MSD	2-Chlorophenol	95-57-8	25.432	89.000	% Recov	69.000	111.000				08/26/08
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	18.109	95.100	% Recov	69.000	115.000				08/26/08
MSD	2-Fluorobiphenyl(Surr)	321-60-8	18.845	98.900	% Recov	58.000	109.000				08/26/08
MSD	Phenol	108-95-2	23.481	82.200	% Recov	59.000	115.000				08/26/08
MSD	Nitrobenzene-d5(Surr)	4165-60-0	18.640	97.900	% Recov	60.000	118.000				08/26/08
MSD	4-Nitrophenol	100-02-7	25.014	87.500	% Recov	32.000	130.000				08/26/08
MSD	Pentachlorophenol	87-86-5	26.222	91.800	% Recov	51.000	121.000				08/26/08
MSD	Phenol-d5(Surr)	4165-62-2	17.003	89.300	% Recov	59.000	116.000				08/26/08
MSD	Pyrene	129-00-0	20.905	110.000	% Recov	58.000	116.000				08/26/08
MSD	2,4,6-Tribromophenol(Surr)	118-79-6	17.280	90.700	% Recov	60.000	120.000				08/26/08
MSD	Terphenyl-d14(Surr)	98904-43-9	19.309	101.000	% Recov	60.000	120.000				08/26/08
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	94.400		RPD			2.250	25.000		08/26/08
SPK-RPD	1,4-Dichlorobenzene	106-46-7	94.900		RPD			1.166	25.000		08/26/08
SPK-RPD	2,4-Dinitrotoluene	121-14-2	86.000		RPD			1.641	25.000		08/26/08
SPK-RPD	2-Fluorophenol(Surr)	367-12-4	75.900		RPD			1.048	25.000		08/26/08
SPK-RPD	Acenaphthene	83-32-9	94.800		RPD			2.889	25.000		08/26/08
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	91.600		RPD			5.843	25.000		08/26/08
SPK-RPD	2-Chlorophenol	95-57-8	89.000		RPD			0.448	25.000		08/26/08
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	95.100		RPD			5.844	25.000		08/26/08
SPK-RPD	2-Fluorobiphenyl(Surr)	321-60-8	98.900		RPD			1.940	25.000		08/26/08
SPK-RPD	Phenol	108-95-2	82.200		RPD			5.500	16.000		08/26/08
SPK-RPD	Nitrobenzene-d5(Surr)	4165-60-0	97.900		RPD			2.064	25.000		08/26/08
SPK-RPD	4-Nitrophenol	100-02-7	87.500		RPD			6.856	25.000		08/26/08
SPK-RPD	Pentachlorophenol	87-86-5	91.800		RPD			2.314	25.000		08/26/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Phenol-d5(Surr)	4185-62-2	89.300		RPD			0.449	25.000		08/26/08
SPK-RPD	Pyrene	129-00-0	110.000		RPD			5.607	25.000		08/26/08
SPK-RPD	2,4,6-Tribromophenol(Surr)	118-79-6	90.700		RPD			3.820	25.000		08/26/08
SPK-RPD	Terphenyl-d14(Surr)	98904-43-9	101.000		RPD			11.215	25.000		08/26/08
SURR	2-Fluorophenol(Surr)	367-12-4	14.292	75.000	% Recov	50.000	110.000				08/26/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	18.449	96.900	% Recov	58.000	109.000				08/26/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	18.456	96.900	% Recov	60.000	118.000				08/26/08
SURR	Phenol-d5(Surr)	4165-62-2	16.201	85.100	% Recov	59.000	116.000				08/26/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	16.392	86.100	% Recov	60.000	120.000				08/26/08
SURR	Terphenyl-d14(Surr)	98904-43-9	20.789	109.000	% Recov	60.000	120.000				08/26/08

## BATCH QC

BLANK	1,2,4-Trichlorobenzene	120-82-1	< 2.2	n/a	ug/L					U	08/26/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.4	n/a	ug/L					U	08/26/08
BLANK	2,4-Dichlorophenol	120-83-2	< 0.50	n/a	ug/L					U	08/26/08
BLANK	2,4-Dinitrotoluene	121-14-2	< 0.50	n/a	ug/L					U	08/26/08
BLANK	2-Fluorophenol(Surr)	367-12-4	16.494	82.500	% Recov	50.000	110.000				08/26/08
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 0.50	n/a	ug/L					U	08/26/08
BLANK	2-Nitrophenol	88-75-5	< 0.50	n/e	ug/L					U	08/26/08
BLANK	2-Picoline	109-06-8	< 5.0	n/a	ug/L					U	08/26/08
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 0.50	n/a	ug/L	0.000	5.000			U	08/26/08
BLANK	Acenaphthene	83-32-9	< 2.6	n/a	ug/L					U	08/26/08
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 0.80	n/a	ug/L					U	08/26/08
BLANK	Benzothiazole	95-16-9	< 0.60	n/a	ug/L	0.000	300.000			U	08/26/08
BLANK	4-Chloro-3-methylphenol	59-50-7	< 0.50	n/a	ug/L					U	08/26/08
BLANK	2-Chlorophenol	95-57-8	< 0.50	n/a	ug/L					U	08/26/08
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 0.60	n/a	ug/L					U	08/26/08
BLANK	2-Fluorobiphenyl(Surr)	321-60-8	19.001	95.000	% Recov	58.000	109.000				08/26/08
BLANK	Phenol	108-95-2	< 0.50	n/a	ug/L					U	08/26/08
BLANK	Naphthalene	91-20-3	< 2.1	n/a	ug/L					U	08/26/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: SW-846 8270C Semi-Vols

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Nitrobenzene-d5(Surr)	4165-60-0	19.053	95.300	% Recov	60.000	118.000				08/26/08
BLANK	4-Nitrophenol	100-02-7	< 1.0	n/a	ug/L					U	08/26/08
BLANK	Pentachlorophenol	87-86-5	< 1.5	n/a	ug/L					U	08/26/08
BLANK	Phenol-d5(Surr)	4165-62-2	17.736	88.700	% Recov	59.000	116.000				08/26/08
BLANK	Pyrene	129-00-0	< 0.50	n/a	ug/L					U	08/26/08
BLANK	Tris-2-chloroethyl phosphate	115-96-8	< 0.65	n/a	ug/L	0.000	300.000			U	08/26/08
BLANK	Tributyl phosphate	126-73-8	< 0.50	n/a	ug/L					U	08/26/08
BLANK	2,4,6-Tribromophenol(Surr)	118-79-6	16.014	80.100	% Recov	60.000	120.000				08/26/08
BLANK	Terphenyl-d14(Surr)	98904-43-9	21.441	107.000	% Recov	60.000	120.000				08/26/08
LCS	1,2,4-Trichlorobenzene	120-82-1	18.416	92.100	% Recov	46.000	107.000				08/26/08
LCS	1,4-Dichlorobenzene	106-46-7	19.142	95.700	% Recov	42.000	111.000				08/26/08
LCS	2,4-Dinitrotoluene	121-14-2	17.239	86.200	% Recov	59.000	106.000				08/26/08
LCS	2-Fluorophenol(Surr)	367-12-4	16.587	62.900	% Recov	50.000	110.000				08/26/08
LCS	Acenaphthene	83-32-9	19.359	96.800	% Recov	61.000	116.000				08/26/08
LCS	4-Chloro-3-methylphenol	59-50-7	27.729	92.400	% Recov	61.000	106.000				08/26/08
LCS	2-Chlorophenol	95-57-8	28.010	93.400	% Recov	66.000	106.000				08/26/08
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	18.902	94.500	% Recov	71.000	114.000				08/26/08
LCS	2-Fluorobiphenyl(Surr)	321-60-8	19.678	98.400	% Recov	58.000	109.000				08/26/08
LCS	Phenol	108-95-2	23.289	77.600	% Recov	67.000	105.000				08/26/08
LCS	Nitrobenzene-d5(Surr)	4165-60-0	19.475	97.400	% Recov	60.000	118.000				08/26/08
LCS	4-Nitrophenol	100-02-7	25.709	85.700	% Recov	32.000	118.000				08/26/08
LCS	Pentachlorophenol	87-86-5	24.671	82.200	% Recov	62.000	114.000				08/26/08
LCS	Phenol-d5(Surr)	4165-62-2	17.596	88.000	% Recov	59.000	116.000				08/26/08
LCS	Pyrene	129-00-0	21.924	110.000	% Recov	66.000	118.000				08/26/08
LCS	2,4,6-Tribromophenol(Surr)	118-79-6	17.438	87.200	% Recov	60.000	120.000				08/26/08
LCS	Terphenyl-d14(Surr)	98904-43-9	22.374	112.000	% Recov	60.000	120.000				08/26/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003848</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,1-Dichloroethene	75-35-4	27.680	111.000	% Recov	63.000	117.000				08/20/08
MS	Benzene	71-43-2	22.720	90.900	% Recov	75.000	129.000				08/20/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	46.430	92.900	% Recov	75.000	125.000				08/20/08
MS	Chlorobenzene	108-90-7	24.940	99.800	% Recov	79.000	119.000				08/20/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.990	104.000	% Recov	75.000	125.000				08/20/08
MS	Toluene-d8(Surr)	2037-26-5	47.860	95.700	% Recov	75.000	125.000				08/20/08
MS	Toluene	108-88-3	23.740	95.000	% Recov	76.000	120.000				08/20/08
MS	Trichloroethene	79-01-6	22.190	88.800	% Recov	73.000	123.000				08/20/08
MSD	1,1-Dichloroethene	75-35-4	25.810	103.000	% Recov	63.000	117.000				08/20/08
MSD	Benzene	71-43-2	22.780	91.100	% Recov	75.000	129.000				08/20/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	46.650	93.300	% Recov	75.000	125.000				08/20/08
MSD	Chlorobenzene	108-90-7	25.180	101.000	% Recov	79.000	119.000				08/20/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.720	103.000	% Recov	75.000	125.000				08/20/08
MSD	Toluene-d8(Surr)	2037-26-5	47.700	95.400	% Recov	75.000	125.000				08/20/08
MSD	Toluene	108-88-3	23.760	95.000	% Recov	76.000	120.000				08/20/08
MSD	Trichloroethene	79-01-6	21.950	87.800	% Recov	73.000	123.000				08/20/08
SPK-RPD	1,1-Dichloroethene	75-35-4	103.000		RPD			7.477	20.000		08/20/08
SPK-RPD	Benzene	71-43-2	91.100		RPD			0.220	20.000		08/20/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	93.300		RPD			0.430	20.000		08/20/08
SPK-RPD	Chlorobenzene	108-90-7	101.000		RPD			1.195	20.000		08/20/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	103.000		RPD			0.966	20.000		08/20/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	95.400		RPD			0.314	20.000		08/20/08
SPK-RPD	Toluene	108-88-3	95.000		RPD			0.000	20.000		08/20/08
SPK-RPD	Trichloroethene	79-01-6	87.800		RPD			1.133	20.000		08/20/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: VOA Ground Water Protection

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003864</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	46.980	94.000	% Recov	75.000	125.000				08/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.880	106.000	% Recov	75.000	125.000				08/20/08
SURR	Toluene-d8(Surr)	2037-26-5	48.670	97.300	% Recov	75.000	125.000				08/20/08
<b>Lab ID: W08P003869</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	46.250	92.500	% Recov	75.000	125.000				08/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17080-07-0	52.470	105.000	% Recov	75.000	125.000				08/20/08
SURR	Toluene-d8(Surr)	2037-26-5	48.540	97.100	% Recov	75.000	125.000				08/20/08
<b>Lab ID: W08P003870</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	46.240	92.500	% Recov	75.000	125.000				08/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.080	104.000	% Recov	75.000	125.000				08/20/08
SURR	Toluene-d8(Surr)	2037-26-5	48.520	97.000	% Recov	75.000	125.000				08/20/08
<b>Lab ID: W08P003879</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	45.940	91.900	% Recov	75.000	125.000				08/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.650	103.000	% Recov	75.000	125.000				08/20/08
SURR	Toluene-d8(Surr)	2037-26-5	48.810	97.600	% Recov	75.000	125.000				08/20/08
<b>Lab ID: W08P003884</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	46.000	92.000	% Recov	75.000	125.000				08/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.280	103.000	% Recov	75.000	125.000				08/20/08
SURR	Toluene-d8(Surr)	2037-26-5	48.850	97.700	% Recov	75.000	125.000				08/20/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: VOA Ground Water Protection

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>BATCH QC</b>											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	08/20/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Acetone	67-64-1	15	15.000	ug/L						08/20/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	08/20/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	46.440	92.900	% Recov	75.000	125.000				08/20/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	08/20/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	08/20/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.760	104.000	% Recov	75.000	125.000				08/20/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	08/20/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	08/20/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	08/20/08
BLANK	Toluene-d8(Surr)	2037-26-5	48.550	97.100	% Recov	75.000	125.000				08/20/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	08/20/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	08/20/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081701  
 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	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	08/20/08
LCS	1,1-Dichloroethene	75-35-4	24.600	98.400	% Recov	75.000	125.000				08/20/08
LCS	Benzene	71-43-2	22.910	91.600	% Recov	75.000	125.000				08/20/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	46.270	92.500	% Recov	75.000	125.000				08/20/08
LCS	Chlorobenzene	108-90-7	24.610	98.400	% Recov	75.000	125.000				08/20/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.840	104.000	% Recov	75.000	125.000				08/20/08
LCS	Toluene-d8(Surr)	2037-26-5	48.400	96.800	% Recov	75.000	125.000				08/20/08
LCS	Toluene	108-88-3	23.740	95.000	% Recov	75.000	125.000				08/20/08
LCS	Trichloroethene	79-01-6	22.610	90.400	% Recov	75.000	125.000				08/20/08

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003863  
**Client ID:** B1WK73 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		300	pCi/L	+ -60.0	pCi/L	1.00	5.5		08/24/08
Tc-99 by Liquid Scin.											

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria.(inorg)

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

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

Report WGPP/ver. 5.2  
 GPAP

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003864  
**Client ID:** B1WF79 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		7.60e+03	pCi/L	+ -1.52e+03	pCi/L	1.00	2.2e+02		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-08  
**Sample #** W08P003866  
**Client ID:** B1WKB1 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		1.30e+03	pCi/L	+ -260	pCi/L	1.00	5.5		08/24/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria.(inorg)

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

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

Report WGPP/ver. 5.2  
 GPAP

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** W08-08

**Sample #** W08P003868

**Client ID:** B1WKB3 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081701

**Department:** Radiochemistry

**Sampled:** 08/11/08

**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.	14133-78-7	LA-508-421		1.50e +03	pCi/L	+ -300	pCi/L	1.00	5.8		08/22/08
Tc-99 by Liquid Scin.											

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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GPAP

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-054  
**Sample #** W08P003869  
**Client ID:** B1WFC0

PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		4.90e +03	pCi/L	+ -1.03e +03	pCi/L	1.00	2.2e +02		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35

**SAF Number:** I08-054

**Sample #** W08P003870

**Client ID:** B1WFC1 PNNL-GPP  
WSCF

**Matrix:** WATER

**Group #:** WSCF20081701

**Department:** Radiochemistry

**Sampled:** 08/11/08

**Received:** 08/11/08

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		4.80e+03	pCi/L	+ -1.01e+03	pCi/L	1.00	2.2e+02		08/19/08

**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 detected in both the BLANK and the SAMPLE.(org)

D - Analyte was identified at a secondary dilution factor

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

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

+ - Indicates more than six qualifier symbols

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** A08-007  
**Sample #** W08P003871  
**Client ID:** B1W1F5 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		250	pCi/L	+50.0	pCi/L	1.00	5.8		08/22/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		1.40e+03	pCi/L	+336	pCi/L	1.00	2.2e+02		08/19/08

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

B - The Analyte detected in both the BLANK and the SAMPLE.(org)  
 D - Analyte was identified at a secondary dilution factor  
 J - Analyte < lowest calibration but > = MDL.(org)  
 U - Analyzed for but not detected above limiting criteria(inorg)

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

\* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003879  
**Client ID:** B1WFY2 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	8.90e-03	pCi/L	+0.0890	pCi/L	1.00	0.21		09/15/08
Am-243 tracer by AEA	AM243	LA-508-471		20.0	pCi/L			1.00	0.11		09/15/08
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		50.0	pCi/L	+13.5	pCi/L	1.00	9.0		09/08/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		1.20e+04	pCi/L	+1.20e+03	pCi/L	1.00	17		08/22/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	0.0820	pCi/L	+0.113	pCi/L	1.00	0.18		09/24/08
Pu-239/240 by AEA	PU-239/240	LA-508-471		1.50	pCi/L	+0.450	pCi/L	1.00	0.022		09/24/08
Pu-242 tracer by AEA	PU242	LA-508-471		31.0	pCi/L			1.00	0.060		09/24/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.0550	pCi/L	+0.550	pCi/L	1.00	1.0		08/21/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		87.2	Percent			1.00	0.0		08/21/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		2.80e+04	pCi/L	+5.60e+03	pCi/L	1.00	5.8		08/22/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		7.00e+03	pCi/L	+1.40e+03	pCi/L	1.00	2.2e+02		08/19/08

**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)

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N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-008  
**Sample #** W08P003881  
**Client ID:** B1WJH5

**PNNL-GPP  
WSCF**

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

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		40.0	pCi/L	+ -11.6	pCi/L	1.00	8.5		09/08/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		7.50e +03	pCi/L	+ -750	pCi/L	1.00	16		08/22/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		2.20e +04	pCi/L	+ -4.40e +03	pCi/L	1.00	5.8		08/22/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		6.20e +03	pCi/L	+ -1.24e +03	pCi/L	1.00	2.4e +02		09/09/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

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D - Analyte was identified at a secondary 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)

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P003882

Client ID: B1WJF7 PNNL-GPP  
WSCF

Matrix: WATER

Group #: WSCF20081701

Department: Radiochemistry

Sampled: 08/11/08

Received: 08/11/08

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		300	pCi/L	+ -36.0	pCi/L	1.00	4.1		09/08/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		4.10e+03	pCi/L	+ -410	pCi/L	1.00	5.7		08/22/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		2.00e+04	pCi/L	+ -4.00e+03	pCi/L	1.00	5.8		08/22/08
<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	2.4e+02		09/09/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

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

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

N - Spike sample recovery is outside control limits.(inorg)

U - Analyzed for but not detected above limiting criteria.

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** S08-008  
**Sample #** W08P003884  
**Client ID:** B1WH00 PNNL-GPP  
 WSCF

**Matrix:** WATER

**Group #:** WSCF20081701  
**Department:** Radiochemistry  
**Sampled:** 08/11/08  
**Received:** 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Americium by AEA</b>											
Americium-241	14596-10-2	LA-508-471	U	0.130	pCi/L	+0.117	pCi/L	1.00	0.17		09/15/08
Am-243 tracer by AEA	AM243	LA-508-471		20.0	pCi/L			1.00	0.11		09/15/08
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		1.40e+03	pCi/L	+140	pCi/L	1.00	3.1		09/08/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		6.00e+03	pCi/L	+600	pCi/L	1.00	4.7		08/22/08
<b>Plutonium Isotopics by AEA</b>											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0490	pCi/L	+0.117	pCi/L	1.00	0.23		09/24/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	9.80e-03	pCi/L	+0.0980	pCi/L	1.00	0.072		09/24/08
Pu-242 tracer by AEA	PU242	LA-508-471		31.0	pCi/L			1.00	0.091		09/24/08
<b>Strontium 89/90</b>											
Strontium-89/90	SR-RAD	LA-508-415		2.70	pCi/L	+2.16	pCi/L	1.00	0.95		08/21/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		91.0	Percent			1.00	0.0		08/21/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		1.80e+04	pCi/L	+3.60e+03	pCi/L	1.00	5.8		08/22/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		1.10e+04	pCi/L	+2.20e+03	pCi/L	1.00	2.4e+02		09/09/08

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

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

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Gross Alpha on Alpha Plateau

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003879 BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	3.6E+01		RPD			32.558	20.000		09/08/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U2.1E-01	n/a	pCi/L	-100.000	100.000				09/08/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	54.2	87.448	% Recov	80.000	120.000				09/08/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 08/10/08  
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003838</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Gross beta	12587-47-2	9.5E +03		RPD			5.128	20.000		08/22/08
<b>BATCH QC</b>											
BLANK	Gross beta	12587-47-2	U-6.1E-01	n/a	pCi/L	-10.000	10.000				08/22/08
LCS	Gross beta	12587-47-2	123.0	109.626	% Recov	80.000	120.000				08/22/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Americium by AEA

Sample Date: 08/07/08  
 Receive Date: 08/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003767</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Americium-241	14596-10-2	U5e-2		RPD			n/a	20.000		09/15/08
DUP	Am-243 tracer by AEA	AM243	20.01	99.540	% Recov	30.000	105.000				09/15/08
<b>Lab ID: W08P003879</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	20.01	94.370	% Recov	30.000	105.000				09/15/08
<b>Lab ID: W08P003884</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Am-243 tracer by AEA	AM243	20.01	92.550	% Recov	30.000	105.000				09/15/08
<b>BATCH QC</b>											
BLANK	Americium-241	14596-10-2	U0.13	n/a	pCi/L	-10.000	1000.000				09/15/08
BLANK	Am-243 tracer by AEA	AM243	20.01	88.420	% Recov	30.000	105.000				09/15/08
LCS	Americium-241	14596-10-2	12.95	109.283	% Recov	80.000	120.000				09/15/08
LCS	Am-243 tracer by AEA	AM243	11.11	90.770	% Recov	30.000	105.000				09/15/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Plutonium Isotopics by AEA

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003879</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Pu-242 tracer by AEA	PU242	31.18	107.080	% Recov	30.000	105.000				09/24/08
<b>Lab ID: W08P003884</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Plutonium-238	13981-16-3	U9.2e-3		RPD			n/a	20.000		09/24/08
DUP	Pu-239/240 by AEA	PU-239/240	U9.2e-3		RPD			n/a	20.000		09/24/08
DUP	Pu-242 tracer by AEA	PU242	31.18	91.850	% Recov	30.000	105.000				09/24/08
SURR	Pu-242 tracer by AEA	PU242	31.18	85.620	% Recov	30.000	105.000				09/24/08
<b>BATCH QC</b>											
BLANK	Plutonium-238	13981-16-3	U4.8e-2	n/a	pCi/L	-10.000	1000.000				09/24/08
BLANK	Pu-239/240 by AEA	PU-239/240	U9.6e-3	n/a	pCi/L	-10.000	1000.000				09/24/08
BLANK	Pu-242 tracer by AEA	PU242	31.18	84.940	% Recov	30.000	105.000				09/24/08
LCS	Pu-239/240 by AEA	PU-239/240	12.29	95.679	% Recov	80.000	120.000				09/24/08
LCS	Pu-242 tracer by AEA	PU242	17.3	89.410	% Recov	30.000	105.000				09/24/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Strontium 89/90

Sample Date: 08/07/08  
 Receive Date: 08/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003767</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Sr-85 Tracer by Beta Counting	SR85	100.4	100.400	% Recov	30.000	105.000				08/21/08
DUP	Strontium-89/90	SR-RAD	U-1.5		RPD			n/a	20.000		08/21/08
<b>Lab ID: W08P003879</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	87.2	87.200	% Recov	30.000	105.000				08/21/08
<b>Lab ID: W08P003884</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	Sr-85 Tracer by Beta Counting	SR85	91	91.000	% Recov	30.000	105.000				08/21/08
<b>BATCH QC</b>											
BLANK	Sr-85 Tracer by Beta Counting	SR85	82.2	82.200	% Recov	30.000	105.000				08/21/08
BLANK	Strontium-89/90	10098-97-2	U-9.6E-02	n/a	pCi/L	-10.000	100.000				08/21/08
LCS	Sr-85 Tracer by Beta Counting	SR85	88.8	88.800	% Recov	30.000	105.000				08/21/08
LCS	Strontium-89/90	10098-97-2	134.0	96.496	% Recov	80.000	120.000				08/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: TC99 by Liquid Scin.

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003868</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tc-99 by Liquid Scin.	14133-76-7	1.3E +03		RPD			14.286	20.000		08/22/08
MS	Tc-99 by Liquid Scin.	14133-76-7	644.9	101.297	% Recov	75.000	125.000				08/22/08
<b>BATCH QC</b>											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-1.9	n/a	pCi/L	-10.000	10.000				08/22/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	168.1	105.590	% Recov	80.000	120.000				08/22/08
<b>Lab ID: W08P003835</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tc-99 by Liquid Scin.	14133-76-7	2.4E +04		RPD			0.000	20.000		08/24/08
MS	Tc-99 by Liquid Scin.	14133-76-7	-336.3	-52.824	% Recov	75.000	125.000				08/24/08
<b>BATCH QC</b>											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U1.0	n/a	pCi/L	-10.000	10.000				08/24/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	166.4	104.523	% Recov	80.000	120.000				08/24/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081701  
 Matrix: WATER  
 Test: Tritium by Liq Sct column prep

Sample Date: 08/07/08  
 Receive Date: 08/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003779</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tritium	10028-17-8	2.1E+03		RPD			0.000	20.000		08/19/08
MS	Tritium	10028-17-8	23550	91.808	% Recov	75.000	125.000				08/19/08
<b>BATCH QC</b>											
BLANK	Tritium	10028-17-8	U-9.3E+01	n/a	pCi/L	-10.000	1000.000				08/19/08
LCS	Tritium	10028-17-8	3040	89.409	% Recov	80.000	120.000				08/19/08
<b>Lab ID: W08P003849</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tritium	10028-17-8	7.9E+03		RPD			1.258	20.000		09/09/08
MS	Tritium	10028-17-8	19050	84.721	% Recov	75.000	125.000				09/09/08
<b>BATCH QC</b>											
BLANK	Tritium	10028-17-8	U-1.4E+02	n/a	pCi/L	-10.000	1000.000				09/09/08
LCS	Tritium	10028-17-8	2990.0	88.274	% Recov	80.000	120.000				09/09/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081701  
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>ICP-MS: Uranium spike amount less than 25% of the sample result. Spike recovery data not valid. "X" flag</p> <p>Cyanide: Sample result more than 16X spike amount. MS and MSD recovery information not valid. "X" flag</p> <p>Tc-99 matrix spike failure is due to the high Tc-99 activity in the sample. lmh</p> <p>W08P003879/Pu242 tracer recovery is slightly over the limit. Most of the tracers came out fine, so this batch has been approved. lmh</p> <p>Gross alpha duplicate is flagged for poor RPD but the sample countrate is low. RPD does not apply in this case. The sample and dup masses were identical, indicating that the samples were prepared properly.</p> <p>ICP-AES: B-Flag for samples &lt; 5X MDL ICP-AES: [Samples W08P3880-3884] High silver and sodium preparation blank results; "C" flag if applicable. No zirconium present in the LCS standard. Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.</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#: WSCF20081701

Report Date: 26-sep-2008

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**WSCF**  
**ANALYTICAL COMMENT REPORT**

**Attention:** Steve Trent E6-35

**Group #:** WSCF20081701  
**Department:** Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
				<p>Check and high standards used to ensure sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.</p> <p>ICP-AES: (Samples W08P3862-3863; 3865-3868; 3872-3873; 3878-3879)</p> <p>No zirconium is present in the LCS standard.</p> <p>Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid.</p> <p>Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard.</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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M4W41-SLF-08-1082

ATTACHMENT 5

**SAMPLE RECEIPT INFORMATION**

Consisting of 17 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*  
*09/10/08*  
*tel*

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20081701

The following samples were received from you on 08/11/08. 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
W08P003862	B1WK72	PNNL-GPP @GPP6010	Water	08/11/08
W08P003863	B1WK73	PNNL-GPP @GPP6010 @TC99-30	Water ALKALI	08/11/08
W08P003864	B1WF79	PNNL-GPP @H3-33 @IC-30	Water @VOA-GPP	08/11/08
W08P003865	B1WKB0	PNNL-GPP @GPP6010	Water	08/11/08
W08P003866	B1WKB1	PNNL-GPP @GPP6010 @TC99-30	Water ALKALI	08/11/08
W08P003867	B1WKB2	PNNL-GPP @GPP6010	Water	08/11/08
W08P003868	B1WKB3	PNNL-GPP @GPP6010 @TC99-30	Water ALKALI	08/11/08
W08P003869	B1WFC0	PNNL-GPP @H3-33 @IC-30	Water @VOA-GPP	08/11/08
W08P003870	B1WFC1	PNNL-GPP @H3-33 @IC-30	Water @VOA-GPP	08/11/08
W08P003871	B1W1F5	PNNL-GPP @2008 @H3-33	Water @TC99-30	08/11/08
W08P003872	B1W2K1	PNNL-GPP @GPP6010	Water	08/11/08
W08P003873	B1W2K2	PNNL-GPP @GPP6010 @IC-30	Water ALKALI	08/11/08
W08P003874	B1W363	PNNL-GPP TOC-30	Water TOX	08/11/08
W08P003875	B1W364	PNNL-GPP TOC-30	Water TOX	08/11/08
W08P003876	B1W365	PNNL-GPP TOC-30	Water TOX	08/11/08

GPAP

Richland, WA 99352  
 Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
 PO#: 122543  
 Group#: 20081701

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08P003877	B1W366	PNNL-GPP TOC-30 TOX	Water	08/11/08
W08P003878	B1WFY1	PNNL-GPP @2008 @GPP6010	Water	08/11/08
W08P003879	B1WFY2	PNNL-GPP @2008 @AB-32 @AEA-30 @AEA-31 @ALPHA @GPP6010 @H3-33 @IC-30 @SR89_90 @SVOCGPP @TC99 @VOA-GPP ALKALI CN-02	Water	08/11/08
W08P003880	B1WJH4	PNNL-GPP @GPP6010	Water	08/11/08
W08P003881	B1WJH5	PNNL-GPP @2008 @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @TC99-30 ALKALI CN-02	Water	08/11/08
W08P003882	B1WJF7	PNNL-GPP @2008 @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @TC99-30 ALKALI CN-02	Water	08/11/08
W08P003883	B1WFY9	PNNL-GPP @2008 @GPP6010	Water	08/11/08
W08P003884	B1WH00	PNNL-GPP @2008 @AB-32 @AEA-30 @AEA-31 @ALPHA @GPP6010 @H3-33 @IC-30 @SR89_90 @SVOCGPP @TC99 @VOA-GPP ALKALI CN-02	Water	08/11/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@ALPHA	Gross Alpha on Alpha Plateau
@GPP6010	ICP Metals Analysis, Grd H2O P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@SVOCGPP	SW-846 8270C Semi-Vols
@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
TOC-30	Total Organic Carbon
TOX	Total Organic Halides









FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

108-054-147

Collector <b>Scott E. Hamaker</b>	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN FAX
SAF No. 108-054	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title 2ZPI AUGUST 2008	<i>HAF-N-506-14/58</i>	Ice Chest No. <i>021</i>	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 200 Area Generator Knowledge Information Form applies.	
		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WFC0	3869	W	<i>8-11-08</i>	<i>1130</i>	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool-4C
B1WFC0	<i>↓</i>	W	<i>L</i>	<i>L</i>	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WFC0	<i>↓</i>	W	<i>L</i>	<i>L</i>	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED

Relinquished By <b>Scott E. Hamaker</b> <i>Scott Hamaker</i>	Date/Time <i>AUG 11 2008 1410</i>	Received By <i>DAVID ...</i>	Date/Time <i>AUG 11 2008 1410</i>	<b>Matrix *</b> S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = 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	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

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FLUOR HANFORD

### CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

108-054-148  
Page 1 of 1

Collector <b>Scott E. Hamaker</b>	Contact/Requester <b>Steve Trent</b>	Telephone No. 509-373-5869	MSIN FAX
SAF No. 108-054	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title 27P1 AUGUST 2008	HNF-N-506-14/50	Ice Chest No. 021	Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt Vehicle	Bill of Lading/Air Bill No.	
Protocol CERCLA	Priority: 30 Days	Priority	
OFFSITE PROPERTY No.		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> ** ** 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)		<b>SPECIAL INSTRUCTIONS</b> 200 Area Generator Knowledge Information Form applies.		<b>Hold Time</b>	<b>Total Activity Exemption:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WFC1	3870	W	8-11-08	1130	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool-4C
B1WFC1	↓	W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WFC1	↓	W	↓	↓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

# ICED

Relinquished By <b>Scott E Hamaker</b>	Print <i>Scott Hamaker</i> Sign	Date/Time AUG 11 2008 1410	Received By <i>CA Hudson</i>	Print Sign	Date/Time AUG 11 2008 1410	<b>Matrix *</b> S = Soil DS = Drum Solid SF = Sediment DI = Drum Linn 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	

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Collector <b>Scott E. Hamaker</b>	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN FAX
SAF No. W08-007	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title RCRA JULY 2008	<b>HNF-N-506-14/58</b>	Ice Chest No. <b>021</b>	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.	

<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> ** ** 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)	<b>SPECIAL INSTRUCTIONS</b> Hold Time Site-Wide Generator Knowledge Information Form applies.	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W2K1 (F)	3872	W	8-1-08	1303	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1W2K2	3873	W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool-4C
B1W2K2	↓	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1W2K2	↓	W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1W363	3874	W			1x1000-mL aGs*	9020_TOX: TOX (1)	H2SO4 to pH <2 Cool-4C
B1W363	↓	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool-4C
B1W364	3875	W			1x1000-mL aGs*	9020_TOX: TOX (1)	H2SO4 to pH <2 Cool-4C
B1W364	↓	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool-4C
B1W365	3876	W			1x1000-mL aGs*	9020_TOX: TOX (1)	H2SO4 to pH <2 Cool-4C
B1W365	↓	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool-4C
B1W366	3877	W			1x1000-mL aGs*	9020_TOX: TOX (1)	H2SO4 to pH <2 Cool-4C
B1W366	↓	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool-4C

**ICED**

Relinquished By Print: <b>Scott E. Hamaker</b> Sign: <i>[Signature]</i> Date/Time: <b>AUG 11 2008 1410</b>	Received By Print: <b>CA Hudson</b> Sign: <i>[Signature]</i> Date/Time: <b>AUG 11 2008</b>	Matrix *
Relinquished By Date/Time	Received By Date/Time	S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid 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	
<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By Date/Time

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FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

S08-008-26

Page 1 of 1

Collector <b>KE Hamilton</b>	Contact/Requester <b>Steve Trent</b>	Telephone No. <b>509-373-5869</b>	MSIN <b>FAX</b>
SAF No. <b>S08-008</b>	Sampling Origin <b>Hanford Site</b>	Purchase Order/Charge Code	
Project Title <b>SURV AUGUST 2008</b>	<b>HNF-N-S08-18</b>	Ice Chest No. <b>6W5007</b>	Temp.
Shipped To (Lab) <b>Waste Sampling &amp; Characterization</b>	Method of Shipment <b>Govt. Vehicle</b>	Bill of Lading/Air Bill No.	
Protocol <b>SURV</b>	Priority: 30 Days <b>PRIORITY</b>		Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	<b>ICED</b>	SPECIAL INSTRUCTIONS Site-Wide Generator Knowledge Information Form applies.	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WFY1 (F)	3878	W	8-11-08	1337	1x500-mL G/P	200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Mercury (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1WFY1 (F)	↓	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WFY2	3879	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1WFY2		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1WFY2		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WFY2		W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool-4C
B1WFY2		W			4x1000-mL aG	8270_SVOA_GCMS: List-1 (13)	Cool-4C
B1WFY2		W			1x500-mL G/P	200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Mercury (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1WFY2		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1WFY2		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WFY2		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool-4C
B1WFY2		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool-4C
B1WFY2	↓	W	↓	↓	1x1000-mL G/P	AMCMISO_EIE_PLT_AEA: Am-241 (1)	HNO3 to pH <2

Relinquished By <b>KE Hamilton</b>	Print <i>Kevin E Hamilton</i>	Sign <i>KE Hamilton</i>	Date/Time <b>AUG 11 2008 1425</b>	Received By <i>CA Hudson</i>	Print <i>CA Hudson</i>	Sign <i>CA Hudson</i>	Date/Time <b>AUG 11 2008 1425</b>	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	S = Soil DS = Drum Solid SF = Sediment DL = Drum Lining SO = Solid T = Tissue SL = Sludge WL = 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	Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
S08-008-26

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SAF No. S08-008      Contact/Requestor Steve Trent      Telephone No. 509-373-5869      MSIN      FAX

B1WIFY2		W	8/11-08	1337	1x1000-mL P	~ PUIISO_IE_PRECIP_AEA: Pu-238 + 239/240 (2)	HNO3 to pH <2
B1WIFY2	↓	W	↓	↓	1x1-L G/P	~ Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1WIFY2	↓	W	↓	↓	1x1000-mL G/P	~ TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2

ICED

Relinquished By KE Hamilton	Print <i>KE Hamilton</i>	Sign <i>KE Hamilton</i>	Date/Time AUG 11 2008	Received By CH Hudson	Print <i>CH Hudson</i>	Sign <i>CH Hudson</i>	Date/Time 8/11/08	<b>Matrix *</b> S = Soil      DS = Dried Solid SF = Sediment      DL = Dried Liquid 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					
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		

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FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-008-80

Page 1 of 1

Collector <b>KE Hamilton</b>	Contact/Requester <b>Steve Trent</b>	Telephone No. 509-373-5869	MSIN FAX
SAF No. W08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title RCRA AUGUST 2008	<b>HNF-N-506-18</b>	Ice Chest No. <b>6WS-009</b>	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	Preservative
B1WJH4 (F)	3880	W	8-11-08	1026	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WJH5	3881	W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1WJH5		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WJH5		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool-4C
B1WJH5		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WJH5		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool-4C
B1WJH5		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1WJH5		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1WJH5		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2

ICED

Relinquished By <b>KE Hamilton</b>	Print <i>Kevin E Hamilton</i>	Sign <i>KE Hamilton</i>	Date/Time <b>AUG 11 2008</b>	Received By <b>CH Hudson</b>	Print <i>CH Hudson</i>	Sign <i>CH Hudson</i>	Date/Time <b>AUG 11 2008</b>	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	

- S = Soil
- SE = Sediment
- SO = Solid
- SI = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solid
- DL = Drum Liquid
- T = Tissue
- WI = Wine
- L = Liquid
- V = Vegetation
- X = Other

<b>FINAL SAMPLE DISPOSITION</b>	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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Collector: <b>KE Hamilton</b>	Contact/Requester <b>Steve Trent</b>	Telephone No. 509-373-5869	MSIN FAX
SAF No. W08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title RCRA AUGUST 2008	<b>HANF-N-506-18</b>	Ice Chest No. <b>6WS-009</b>	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 Site-Wide Generator Knowledge Information Form applies.	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
<del>B1WJF6 (F)</del>		W	<del>8/11/08</del>	<del>1135</del>	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	<del>HNO3 to pH &lt;2</del>
B1WJF7	3882	W	8/11/08	1135	1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1WJF7		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WJF7		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool-4C
B1WJF7		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WJF7		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool-4C
B1WJF7		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1WJF7		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1WJF7		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
<b>ICED</b>							

Relinquished By Print Sign <b>KE Hamilton</b> <i>Ken E. Hamilton</i>	Date/Time <b>8/11/08</b>	Received By Print Sign <b>A. Hudson</b> <i>A. Hudson</i>	Date/Time <b>8/11/08</b>	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Lint 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	

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

U.C.C. # S08-008-38  
Page 1 of 1

Collector <b>KE Hamilton</b>	Contact/Requester Steve Trent	Telephone No. MSIN FAX 509-373-5869
SAF No. S08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV AUGUST 2008	<b>HNF-N-506-18</b>	Ice Chest No. <b>6WS-009</b> Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol SURV	Priority: 30 Days <b>PRIORITY</b>	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS  
\* \* \*

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

# ICED

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WY9 (F)	3883	W	8/1/08	1228	1x500-mL G/P	200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Mercury (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1WY9 (F)	↓	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WH00	3884	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1WH00		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1WH00		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WH00		W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool-4C
B1WH00		W			4x1000-mL aG	8270_SVOA_GCMS: List-1 (13)	Cool-4C
B1WH00		W			1x500-mL G/P	200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Mercury (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1WH00		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1WH00		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WH00		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool-4C
B1WH00		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool-4C
B1WH00		W			1x1000-mL G/P	AMCMISO_EIE_PLT_AEA: Am-241 (1)	HNO3 to pH <2

Relinquished By <b>KE Hamilton</b>	Print <i>KE Hamilton</i>	Sign <i>KE Hamilton</i>	Date/Time <b>AUG 11 2008</b>	Received By <i>DA Howard</i>	Print <i>DA Howard</i>	Sign <i>DA Howard</i>	Date/Time <b>AUG 11 2008</b>	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time	S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid 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	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			

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FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

S08-008-38

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SAF No. S08-008	Contact/Requestor Steve Trent	Telephone No. 509-373-5869	MSIN	FAX
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B1WH00		W	8-1-08	1228	1x1000-mL P	PUISO_IE_PRECIP_AEA: Pu-238 + 239/240 (2)	HNO3 to pH <2
B1WH00	↓	W	↓	↓	1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1WH00	↓	W	↓	↓	1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2

ICED

Relinquished By KE Hamilton	Print <i>KE Hamilton</i>	Sign <i>[Signature]</i>	Date/Time AUG 11 2008	Received By <i>[Signature]</i>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time AUG 11 2008	Matrix *
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Received By	Date/Time	S = Soil SF = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solid DL = Drum Liquid T = Tissue WI = Wine L = Liquid V = Vegetation X = Other
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Received By	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

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