

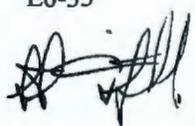
RECEIVED AUGUST 29, 2008

Fluor Hanford  
 WSCF Analytical Lab  
 P.O. Box 1000  
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**FLUOR****Memorandum**

M4W41-SLF-08-926

To: H. Hampt E6-35 Date: August 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 WSCF20081436

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 WSCF20081436:

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

SLF/grf

Attachments 4

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M4W41-SLF-08-926

ATTACHMENT 1

**COVER SHEET**

Consisting of 2 pages  
Including cover page

## WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081436  
Data Deliverable Date: 02-sep-2008  
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I08-038	B1V6C2	W08P003494	WATER
	B1V6C3	W08P003495	WATER
	B1V6D3	W08P003496	WATER
	B1V6D4	W08P003497	WATER
	B1V6D7	W08P003492	WATER
	B1V6D8	W08P003493	WATER
	B1VFC3	W08P003512	WATER
W08-005	B1V957	W08P003490	WATER
	B1V958	W08P003491	WATER
	B1V971	W08P003489	WATER

M4W41-SLF-08-926

ATTACHMENT 2

**NARRATIVE**

Consisting of 4 pages  
Including cover page

## **Introduction**

Ten groundwater samples were received at the WSCF Laboratory on July 14, 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 Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

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

## **Analytical Methodology for Requested Analyses**

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

## **Inorganic Comments**

**Anions** – Hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 29 through 30 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.
- Spike Relative Percent Difference (RPD) for Sulfate slightly exceeded established laboratory limits.

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 32 through 35 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VMH3 (SDG# 20081423).
  - Calcium, Magnesium and Sodium sample concentrations exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Check and high standards were analyzed to ensure linearity.

- Silver contamination detected in the Blank was evaluated and affected sample results were C flagged.
- All other QC controls are within the established limits.
- Bismuth - Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VF98 (SDG# 20081439). Due to a "glitch" in LABCORE, the applicable QC Data are offered below
  - Blank recovery – < 35 ug/L (ppb)
  - Laboratory Control Sample recovery – 106%
  - Matrix Spike recovery – 97.2%
  - Matrix Spike Duplicate recovery – 94.2%
  - All 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 36 through 37 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1V9X7 (SDG# 20081363); and, B1V7P8 and B1V7P9 (SDG# 20081455).

All QC controls are within the established limits.

**Total Alkalinity** – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 38 for QC details. Analytical Note(s):

- Duplicates were analyzed on samples B1W347 (SDG# 20081373) and B1VMH3 (SDG# 20081423).

All QC controls are within the established limits.

### **Organic Comments**

**VOA** – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample, were analyzed with this delivery group per the GRP Letter of Instruction. See pages 45 through 47 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1W314 (SDG# 20081422).

- Sample results that were less than the lowest calibration standard, however greater than the method detection limit were J flagged.

All QC controls are within the established limits.

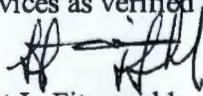
**Radiochemistry Comments**

**Rad Chem** – There are no hold times associated with WSCF’s radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 54 through 59 for QC details. Analytical Note(s):

- GEA – Duplicates were analyzed on samples B1V971 of this SDG and B1VFB0 (SDG# 20081439).
- Gross Alpha/Gross Beta – Duplicates were analyzed on samples B1W523 (SDG# 20081410) and B1V932 (SDG# 20081439).
- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1VMH9 (SDG# 20081423).

All QC controls are within the established limits.

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



Scot L. Fitzgerald  
WSCF Analytical Laboratory Manager



Pauline D. Mix  
WSCF Client Services

M4W41-SLF-08-926

ATTACHMENT 3

**ANALYTICAL RESULTS**

Consisting of 52 pages  
Including cover page

**WSCF**  
**ANALYTICAL RESULTS REPORT**

for

**GPAP**  
**Richland, WA 99352**

**Attention: Steve Trent E6-35**

Analytical: *[Signature]* S. Fitzgerald 8/29/08  
Client Services: *[Signature]* P.O. Mix 8/28/2008

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

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Report#: WSCF20081436  
Report Date: 26-aug-2008  
Report WGPP/ver. 5.2  
GPAP

Department: Inorganic

## W13q Worklist/Batch/QC Report for Group# WSCF20081436

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37093	2	37518	41875	BLANK		Anions by Ion Chromatography
37093	12	37518	41875	BLANK		Anions by Ion Chromatography
37093	3	37518	41875	LCS		Anions by Ion Chromatography
37093	5	37518	41875	DUP	W08P003491	Anions by Ion Chromatography
37093	6	37518	41875	MS	W08P003491	Anions by Ion Chromatography
37093	7	37518	41875	MSD	W08P003491	Anions by Ion Chromatography
37093	4	37518	41875	SAMPLE	W08P003491	Anions by Ion Chromatography
37093	7	37518	41875	SPK-RPD	W08P003491	Anions by Ion Chromatography
37093	8	37518	41875	SAMPLE	W08P003493	Anions by Ion Chromatography
37093	9	37518	41875	SAMPLE	W08P003495	Anions by Ion Chromatography
37093	10	37518	41875	SAMPLE	W08P003497	Anions by Ion Chromatography
37135	1	37562	41899	LCS		Total Alkalinity as mg/L CaCO3
37135	13	37562	41899	LCS		Total Alkalinity as mg/L CaCO3
37135	24	37562	41899	LCS		Total Alkalinity as mg/L CaCO3
37135	36	37562	41899	LCS		Total Alkalinity as mg/L CaCO3
37135	44	37562	41899	LCS		Total Alkalinity as mg/L CaCO3
37135	4	37562	41899	DUP	W08P003351	Total Alkalinity as mg/L CaCO3
37135	26	37562	41899	DUP	W08P003485	Total Alkalinity as mg/L CaCO3
37135	30	37562	41899	SAMPLE	W08P003489	Total Alkalinity as mg/L CaCO3
37135	31	37562	41899	SAMPLE	W08P003491	Total Alkalinity as mg/L CaCO3
37445	1	37876	42191	BLANK		ICP-200.8 MS All possible meta
37445	2	37876	42191	LCS		ICP-200.8 MS All possible meta
37445	4	37876	42191	MS	W08P003344	ICP-200.8 MS All possible meta
37445	5	37876	42191	MSD	W08P003344	ICP-200.8 MS All possible meta
37445	5	37876	42191	SPK-RPD	W08P003344	ICP-200.8 MS All possible meta
37445	33	37876	42191	SAMPLE	W08P003496	ICP-200.8 MS All possible meta
37445	34	37876	42191	SAMPLE	W08P003497	ICP-200.8 MS All possible meta
37445	7	37876	42191	MS	W08P003520	ICP-200.8 MS All possible meta
37445	8	37876	42191	MSD	W08P003520	ICP-200.8 MS All possible meta
37445	8	37876	42191	SPK-RPD	W08P003520	ICP-200.8 MS All possible meta
37445	10	37876	42191	MS	W08P003521	ICP-200.8 MS All possible meta
37445	11	37876	42191	MSD	W08P003521	ICP-200.8 MS All possible meta
37445	11	37876	42191	SPK-RPD	W08P003521	ICP-200.8 MS All possible meta
37681	1	37948	42526	BLANK		ICP Metals Analysis, Grd H2O P
37681	2	37948	42526	LCS		ICP Metals Analysis, Grd H2O P
37681	4	37948	42526	MS	W08P003485	ICP Metals Analysis, Grd H2O P
37681	5	37948	42526	MSD	W08P003485	ICP Metals Analysis, Grd H2O P
37681	5	37948	42526	SPK-RPD	W08P003485	ICP Metals Analysis, Grd H2O P
37681	9	37948	42526	SAMPLE	W08P003490	ICP Metals Analysis, Grd H2O P
37681	10	37948	42526	SAMPLE	W08P003491	ICP Metals Analysis, Grd H2O P
37681	11	37948	42526	SAMPLE	W08P003492	ICP Metals Analysis, Grd H2O P
37681	12	37948	42526	SAMPLE	W08P003493	ICP Metals Analysis, Grd H2O P
37681	13	37948	42526	SAMPLE	W08P003494	ICP Metals Analysis, Grd H2O P
37681	14	37948	42526	SAMPLE	W08P003495	ICP Metals Analysis, Grd H2O P
37681	15	37948	42526	SAMPLE	W08P003496	ICP Metals Analysis, Grd H2O P
37681	16	37948	42526	SAMPLE	W08P003497	ICP Metals Analysis, Grd H2O P

W13q Worklist/Batch/QC Report for Group# WSCF20081436

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			42319	BLANK		VOA Ground Water Protection
			42319	LCS		VOA Ground Water Protection
			42319	MS	W08P003469	VOA Ground Water Protection
			42319	MSD	W08P003469	VOA Ground Water Protection
			42319	SPK-RPD	W08P003469	VOA Ground Water Protection
			42319	SAMPLE	W08P003493	VOA Ground Water Protection
			42319	SURR	W08P003493	VOA Ground Water Protection
			42319	SAMPLE	W08P003495	VOA Ground Water Protection
			42319	SURR	W08P003495	VOA Ground Water Protection
			42319	SAMPLE	W08P003497	VOA Ground Water Protection
			42319	SURR	W08P003497	VOA Ground Water Protection

Department: Radiochemistry

## W13q Worklist/Batch/QC Report for Group# WSCF20081436

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37368	1	37793	42146	BLANK		Gross Alpha/Gross Beta (AB32)
37368	2	37793	42146	LCS		Gross Alpha/Gross Beta (AB32)
37368	3	37793	42146	DUP	W08P003421	Gross Alpha/Gross Beta (AB32)
37368	18	37793	42146	SAMPLE	W08P003489	Gross Alpha/Gross Beta (AB32)
37368	19	37793	42146	SAMPLE	W08P003491	Gross Alpha/Gross Beta (AB32)
37401	1	37826	42159	BLANK		Gross Alpha on Alpha Plateau
37401	2	37826	42159	LCS		Gross Alpha on Alpha Plateau
37401	3	37826	42159	DUP	W08P003421	Gross Alpha on Alpha Plateau
37401	18	37826	42159	SAMPLE	W08P003489	Gross Alpha on Alpha Plateau
37401	19	37826	42159	SAMPLE	W08P003491	Gross Alpha on Alpha Plateau
37365	1	37788	42160	BLANK		Gross Alpha/Gross Beta (AB32)
37365	2	37788	42160	LCS		Gross Alpha/Gross Beta (AB32)
37365	3	37788	42160	DUP	W08P003502	Gross Alpha/Gross Beta (AB32)
37365	8	37788	42160	SAMPLE	W08P003512	Gross Alpha/Gross Beta (AB32)
37415	1	37840	42234	BLANK		Gross Alpha on Alpha Plateau
37415	2	37840	42234	LCS		Gross Alpha on Alpha Plateau
37415	3	37840	42234	DUP	W08P003502	Gross Alpha on Alpha Plateau
37415	8	37840	42234	SAMPLE	W08P003512	Gross Alpha on Alpha Plateau
37246	1	37685	42235	BLANK		Gamma Energy Analysis-grd H2O
37246	2	37685	42235	LCS		Gamma Energy Analysis-grd H2O
37246	3	37685	42235	DUP	W08P003489	Gamma Energy Analysis-grd H2O
37246	4	37685	42235	SAMPLE	W08P003489	Gamma Energy Analysis-grd H2O
37247	1	37686	42239	BLANK		Gamma Energy Analysis-grd H2O
37247	2	37686	42239	LCS		Gamma Energy Analysis-grd H2O
37247	3	37686	42239	DUP	W08P003511	Gamma Energy Analysis-grd H2O
37247	8	37686	42239	SAMPLE	W08P003512	Gamma Energy Analysis-grd H2O
37191	1	37621	42254	BLANK		TC99 by Liquid Scin.
37191	4	37621	42254	LCS		TC99 by Liquid Scin.
37191	3	37621	42254	DUP	W08P003491	TC99 by Liquid Scin.
37191	2	37621	42254	MS	W08P003491	TC99 by Liquid Scin.
37191	7	37621	42254	SAMPLE	W08P003491	TC99 by Liquid Scin.
37191	8	37621	42254	SAMPLE	W08P003493	TC99 by Liquid Scin.
37191	9	37621	42254	SAMPLE	W08P003495	TC99 by Liquid Scin.
37191	10	37621	42254	SAMPLE	W08P003497	TC99 by Liquid Scin.
37162	1	37588	42261	BLANK		Tritium by Liq Sct column prep
37162	4	37588	42261	LCS		Tritium by Liq Sct column prep
37162	3	37588	42261	DUP	W08P003475	Tritium by Liq Sct column prep
37162	2	37588	42261	MS	W08P003475	Tritium by Liq Sct column prep
37162	7	37588	42261	SAMPLE	W08P003491	Tritium by Liq Sct column prep
37162	8	37588	42261	SAMPLE	W08P003493	Tritium by Liq Sct column prep
37162	9	37588	42261	SAMPLE	W08P003495	Tritium by Liq Sct column prep
37162	10	37588	42261	SAMPLE	W08P003497	Tritium by Liq Sct column prep

# WSCF

## METHOD REFERENCES REPORT

Department: Inorganic

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

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

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

Report Date: 26-aug-2008

Report#: WSCF20081436

Report: WGPPM/5.2

13  
OF  
67

# WSCF

## METHOD REFERENCES REPORT

Department: Organic

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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-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>

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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>.

Report Date: 26-aug-2008  
Report #: WSCF20081436  
Report WGPPM/5.2

14  
of  
67

# 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>	GROSS ALPHA GPC
<b>HEIS BETA_GPC</b>	GROSS BETA GPC
<b>HEIS SRTOT_SEP_PRECIP_GPC</b>	Strontium 89/90
<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>	A/B Liquid Scintillation
<b>HEIS BETA_LSC</b>	A/B Liquid Scintillation
<b>HEIS TC99_3MDSK_LSC</b>	TC99 by Liquid Scintillation
<b>HEIS TRITIUM_EIE_LSC</b>	Tritium Liquid Scintillation
<b>LA-508-481</b>	<b>LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE</b>
<b>HEIS GAMMA_GS</b>	Gamma Emission Spectrometry

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

Report Date: 26-aug-2008

Report#: WSCF20081436

Report WGPPM/5.2

15 of 67

Page 2

# WSCF

## ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-005  
**Sample #** W08P003489  
**Client ID:** B1V971

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

**TRENT**

**Matrix: WATER**

**WSCF**

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		150	mg/L			1.00	1.0		07/16/08

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

C - The Analyte was found in the Associated Blank.(inorg)  
 D - Analyte was identified at a secondary dilution factor(inorg)  
 U - Analyzed for but not detected above limiting criteria(inorg)  
 U - Analyzed for but not detected above limiting criteria.(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.

- 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:** W08-005  
**Sample #** W08P003490  
**Client ID:** B1V957

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/21/08
Magnesium	7439-95-4	LA-505-411		3.99e+04	ug/L			1.00	50		08/21/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		8.07e+03	ug/L			1.00	1.7e+02		08/21/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		1.18e+05	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/21/08
Barium	7440-39-3	LA-505-411		150	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		198	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-62-2	LA-505-411		20.1	ug/L			1.00	12		08/21/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		1.42e+05	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		712	ug/L			1.00	4.0		08/21/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

17 of 67

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-005  
**Sample #** W08P003491  
**Client ID:** B1V958

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

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	0.783	mg/L			3.00	0.063		07/15/08
Chloride	16887-00-6	LA-533-410	D	24.9	mg/L			51.00	5.6		07/15/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0297	mg/L			3.00	0.030		07/15/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	162	mg/L			51.00	1.8		07/15/08
Sulfate	14808-79-8	LA-533-410	D	61.1	mg/L			3.00	0.23		07/15/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/19/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411		43.0	ug/L			1.00	25		08/21/08
Magnesium	7439-95-4	LA-505-411		4.02e+04	ug/L			1.00	50		08/21/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		7.92e+03	ug/L			1.00	1.7e+02		08/21/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		1.14e+05	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/21/08
Barium	7440-39-3	LA-505-411		152	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		206	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/21/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		1.46e+05	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		722	ug/L			1.00	4.0		08/21/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

C - Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

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GPAP

8/16/07

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-005  
**Sample #** W08P003491  
**Client ID:** B1V958

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

WSCF      TRENT      Matrix:      WATER

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		08/21/08
<b>Total Alkalinity as mg/L CaCO3</b>											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		150	mg/L			1.00	1.0		07/18/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

19 OF 67

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003492  
**Client ID:** B1V6D7

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

**TRENT**

**Matrix: WATER**

**WSCF**

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		08/21/08
Magnesium	7439-95-4	LA-505-411		2.26e+04	ug/L			1.00	50		08/21/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		5.64e+03	ug/L			1.00	1.7e+02		08/21/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		4.52e+04	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/21/08
Barium	7440-39-3	LA-505-411		74.4	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		110	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-62-2	LA-505-411		16.5	ug/L			1.00	12		08/21/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		7.68e+04	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		396	ug/L			1.00	4.0		08/21/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08

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

C - The Analyte was found in the Associated Blank.(Inorg)  
 D - Analyte was identified at a secondary dilution factor(Inorg)  
 U - Analyzed for but not detected above limiting criteria(Inorg)  
 U - Analyzed for but not detected above limiting criteria.(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.

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

20 of 67  
 Report WGPP/ver. 5.2  
 GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003493  
**Client ID:** B1V6D8

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

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	0.801	mg/L			2.00	0.042		07/15/08
Chloride	16887-00-6	LA-533-410	D	14.4	mg/L			2.00	0.22		07/15/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		07/15/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	55.5	mg/L			10.00	0.36		07/15/08
Sulfate	14808-79-8	LA-533-410	D	50.3	mg/L			2.00	0.15		07/15/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/19/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/21/08
Magnesium	7439-95-4	LA-505-411		2.36e + 04	ug/L			1.00	50		08/21/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		5.86e + 03	ug/L			1.00	1.7e + 02		08/21/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		4.63e + 04	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/21/08
Barium	7440-39-3	LA-505-411		77.6	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		109	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-62-2	LA-505-411		21.4	ug/L			1.00	12		08/21/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		7.94e + 04	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		411	ug/L			1.00	4.0		08/21/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

21 of 67

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003493  
**Client ID:** B1V6D8

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

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		08/21/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

22 of 67

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GPAP



# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003495  
**Client ID:** B1V6C3

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

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	1.95	mg/L			3.00	0.063		07/15/08
Chloride	16887-00-6	LA-533-410	D	25.7	mg/L			3.00	0.33		07/15/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0297	mg/L			3.00	0.030		07/15/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	120	mg/L			51.00	1.8		07/15/08
Sulfate	14808-79-8	LA-533-410	D	59.0	mg/L			3.00	0.23		07/15/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/19/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/21/08
Magnesium	7439-95-4	LA-505-411		2.78e+04	ug/L			1.00	50		08/21/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		6.49e+03	ug/L			1.00	1.7e+02		08/21/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		1.17e+05	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/21/08
Barium	7440-39-3	LA-505-411		102	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		136	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-62-2	LA-505-411		23.9	ug/L			1.00	12		08/21/08
Zinc	7440-66-6	LA-505-411		29.6	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		9.88e+04	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		522	ug/L			1.00	4.0		08/21/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

24 of 67  
 Report WGPP/ver. 5.2  
 GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003495  
**Client ID:** B1V6C3

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

**TRENT**

**Matrix:** WATER

**WSCF**

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		08/21/08
Bismuth	7440-69-9	LA-505-411	U	< 35.0	ug/L			1.00	35		08/25/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

C - The Analyte was found in the Associated Blank.(inorg)  
 D - Analyte was identified at a secondary dilution factor(inorg)  
 U - Analyzed for but not detected above limiting criteria(inorg)  
 U - Analyzed for but not detected above limiting criteria.(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.

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

25 of 67

Report WGPP/ver. 5.2  
GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003496  
**Client ID:** B1V6D3

TRENT

Matrix: WATER

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
WSCF											
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/21/08
Magnesium	7439-95-4	LA-505-411		2.58e +04	ug/L			1.00	50		08/21/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		6.87e +03	ug/L			1.00	1.7e +02		08/21/08
Silver	7440-22-4	LA-505-411	C	20.2	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		1.39e +05	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	58		08/21/08
Barium	7440-39-3	LA-505-411		103	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		152	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-82-2	LA-505-411		15.3	ug/L			1.00	12		08/21/08
Zinc	7440-86-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		8.95e +04	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		473	ug/L			1.00	4.0		08/21/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Arsenic	7440-38-2	LA-505-412		1.02	ug/L			1.00	0.400		08/05/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(Inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

26 of 67

Report WGPP/ver. 5.2

GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003497  
**Client ID:** B1V6D4

**Group #:** WSCF20081436  
**Department:** Inorganic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Anions by Ion Chromatography</b>											
Fluoride	18984-48-8	LA-533-410	D	2.41	mg/L			3.00	0.063		07/15/08
Chloride	16887-00-6	LA-533-410	D	22.1	mg/L			3.00	0.33		07/15/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0297	mg/L			3.00	0.030		07/15/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	127	mg/L			51.00	1.8		07/15/08
Sulfate	14808-79-8	LA-533-410	D	51.9	mg/L			3.00	0.23		07/15/08
<b>ICP Metals Analysis, Grd H2O P Prep</b>											<b>08/19/08</b>
<b>ICP Metals Analysis, Grd H2O P</b>											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/21/08
Magnesium	7439-95-4	LA-505-411		2.58e + 04	ug/L			1.00	50		08/21/08
Manganese	7439-98-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Potassium	7440-09-7	LA-505-411		6.87e + 03	ug/L			1.00	1.7e + 02		08/21/08
Silver	7440-22-4	LA-505-411	C	16.3	ug/L			1.00	5.0		08/21/08
Sodium	7440-23-5	LA-505-411		1.40e + 05	ug/L			1.00	51		08/21/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/21/08
Barium	7440-39-3	LA-505-411		103	ug/L			1.00	4.0		08/21/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Chromium	7440-47-3	LA-505-411		153	ug/L			1.00	13		08/21/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/21/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/21/08
Vanadium	7440-62-2	LA-505-411		17.3	ug/L			1.00	12		08/21/08
Zinc	7440-68-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/21/08
Calcium	7440-70-2	LA-505-411		8.94e + 04	ug/L			1.00	73		08/21/08
Strontium	7440-24-6	LA-505-411		476	ug/L			1.00	4.0		08/21/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)  
 D - Analyte was identified at a secondary dilution factor(inorg)  
 U - Analyzed for but not detected above limiting criteria(inorg)  
 U - Analyzed for but not detected above limiting criteria.(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.

+ - Indicates more than six qualifier symbols

27 Oct 07

Report WGPP/ver. 5.2

GPAP



# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Anions by Ion Chromatography

Sample Date: 07/14/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003491</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Chloride	16887-00-6	23.6748		RPD			5.179	20.000		07/15/08
DUP	Fluoride	16984-48-8	0.7677		RPD			1.961	20.000		07/15/08
DUP	Nitrogen in Nitrite	NO2-N	<2.97e-2		RPD			n/a	20.000	U	07/15/08
DUP	Nitrogen in Nitrate	NO3-N	161.2698		RPD			0.729	20.000		07/15/08
DUP	Sulfate	14808-79-8	61.9497		RPD			1.365	20.000		07/15/08
MS	Chloride	16887-00-6	0.885182	88.963	% Recov	80.000	120.000				07/15/08
MS	Fluoride	16984-48-8	0.523267	106.139	% Recov	80.000	120.000				07/15/08
MS	Nitrogen in Nitrite	NO2-N	0.485867	98.753	% Recov	80.000	120.000				07/15/08
MS	Nitrogen in Nitrate	NO3-N	0.357678	80.197	% Recov	80.000	120.000				07/15/08
MS	Sulfate	14808-79-8	2.100133	107.150	% Recov	80.000	120.000				07/15/08
MSD	Chloride	16887-00-6	0.88362	88.806	% Recov	80.000	120.000				07/15/08
MSD	Fluoride	16984-48-8	0.5056	102.556	% Recov	80.000	120.000				07/15/08
MSD	Nitrogen in Nitrite	NO2-N	0.478233	97.202	% Recov	80.000	120.000				07/15/08
MSD	Nitrogen in Nitrate	NO3-N	0.361388	81.029	% Recov	80.000	120.000				07/15/08
MSD	Sulfate	14808-79-8	1.6437	83.862	% Recov	80.000	120.000				07/15/08
SPK-RPD	Chloride	16887-00-6	88.806		RPD			0.177	20.000		07/15/08
SPK-RPD	Fluoride	16984-48-8	102.556		RPD			3.434	20.000		07/15/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	97.202		RPD			1.583	20.000		07/15/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	81.029		RPD			1.032	20.000		07/15/08
SPK-RPD	Sulfate	14808-79-8	83.862		RPD			24.384	20.000 *		07/15/08
<b>BATCH QC</b>											
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	07/15/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	07/15/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	07/15/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	07/15/08

29 of 67

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 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	<9.9e-3	n/a	mg/L	0.000	0.020			U	07/15/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	07/15/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	07/15/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	07/15/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	07/15/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	07/15/08
LCS	Chloride	16887-00-6	195.8654	97.445	% Recov	80.000	120.000				07/15/08
LCS	Fluoride	16984-48-8	106.4553	106.883	% Recov	80.000	120.000				07/15/08
LCS	Nitrogen in Nitrite	NO2-N	99.5361	100.137	% Recov	80.000	120.000				07/15/08
LCS	Nitrogen in Nitrate	NO3-N	90.856	100.839	% Recov	80.000	120.000				07/15/08
LCS	Sulfate	14808-79-8	379.7132	95.887	% Recov	80.000	120.000				07/15/08

# WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081436  
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>ICP-AES: [Samples W08P3490-3497] High silver preparation blank result; "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. Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard.</p> <p>ICP-AES: [Samples W08P3494-3495] Bismuth PB result is &lt; 35 ppb; LCS recovery is 106%; MS and MSD recoveries are 97.2% and 94.2% recoveries, respectively. Sample W08P3508 was spiked.</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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31 of 67

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 07/13/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003485											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	950.7	95.070	% Recov	75.000	125.000				08/21/08
MS	Barium	7440-39-3	455.8	91.160	% Recov	75.000	125.000				08/21/08
MS	Beryllium	7440-41-7	501.6	100.320	% Recov	75.000	125.000				08/21/08
MS	Calcium	7440-70-2	-2030	-203.000	% Recov	75.000	125.000				08/21/08
MS	Cadmium	7440-43-9	987.8	98.780	% Recov	75.000	125.000				08/21/08
MS	Cobalt	7440-48-4	975	97.500	% Recov	75.000	125.000				08/21/08
MS	Chromium	7440-47-3	964.8	96.480	% Recov	75.000	125.000				08/21/08
MS	Copper	7440-50-8	934	93.400	% Recov	75.000	125.000				08/21/08
MS	Iron	7439-89-6	951.1	95.110	% Recov	75.000	125.000				08/21/08
MS	Potassium	7440-09-7	9338	93.380	% Recov	75.000	125.000				08/21/08
MS	Magnesium	7439-95-4	230	23.000	% Recov	75.000	125.000				08/21/08
MS	Manganese	7439-96-5	980.8	98.080	% Recov	75.000	125.000				08/21/08
MS	Sodium	7440-23-5	-650	-65.000	% Recov	75.000	125.000				08/21/08
MS	Nickel	7440-02-0	965.8	96.580	% Recov	75.000	125.000				08/21/08
MS	Antimony	7440-36-0	998.9	99.890	% Recov	75.000	125.000				08/21/08
MS	Strontium	7440-24-6	470.8	94.160	% Recov	75.000	125.000				08/21/08
MS	Vanadium	7440-62-2	959.4	95.940	% Recov	75.000	125.000				08/21/08
MS	Zinc	7440-66-6	952	95.200	% Recov	75.000	125.000				08/21/08
MSD	Silver	7440-22-4	955	95.500	% Recov	75.000	125.000				08/21/08
MSD	Barium	7440-39-3	466.4	93.280	% Recov	75.000	125.000				08/21/08
MSD	Beryllium	7440-41-7	515.2	103.040	% Recov	75.000	125.000				08/21/08
MSD	Calcium	7440-70-2	1270	127.000	% Recov	75.000	125.000				08/21/08
MSD	Cadmium	7440-43-9	1006	100.600	% Recov	75.000	125.000				08/21/08
MSD	Cobalt	7440-48-4	1013	101.300	% Recov	75.000	125.000				08/21/08
MSD	Chromium	7440-47-3	988.8	98.880	% Recov	75.000	125.000				08/21/08
MSD	Copper	7440-50-8	937.2	93.720	% Recov	75.000	125.000				08/21/08

32 of 67

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 07/13/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	991.3	99.130	% Recov	75.000	125.000				08/21/08
MSD	Potassium	7440-09-7	9048	90.480	% Recov	75.000	125.000				08/21/08
MSD	Magnesium	7439-95-4	330	33.000	% Recov	75.000	125.000				08/21/08
MSD	Manganese	7439-96-5	1015	101.500	% Recov	75.000	125.000				08/21/08
MSD	Sodium	7440-23-5	-1060	-106.000	% Recov	75.000	125.000				08/21/08
MSD	Nickel	7440-02-0	998.8	99.880	% Recov	75.000	125.000				08/21/08
MSD	Antimony	7440-36-0	1071	107.100	% Recov	75.000	125.000				08/21/08
MSD	Strontium	7440-24-6	490.7	98.140	% Recov	75.000	125.000				08/21/08
MSD	Vanadium	7440-62-2	984	98.400	% Recov	75.000	125.000				08/21/08
MSD	Zinc	7440-66-6	975.7	97.570	% Recov	75.000	125.000				08/21/08
SPK-RPD	Silver	7440-22-4	95.500		RPD			0.451	20.000		08/21/08
SPK-RPD	Barium	7440-39-3	93.280		RPD			2.299	20.000		08/21/08
SPK-RPD	Beryllium	7440-41-7	103.040		RPD			2.675	20.000		08/21/08
SPK-RPD	Calcium	7440-70-2	127.000		RPD			-868.421	20.000		08/21/08
SPK-RPD	Cadmium	7440-43-9	100.600		RPD			1.826	20.000		08/21/08
SPK-RPD	Cobalt	7440-48-4	101.300		RPD			3.823	20.000		08/21/08
SPK-RPD	Chromium	7440-47-3	98.880		RPD			2.457	20.000		08/21/08
SPK-RPD	Copper	7440-50-8	93.720		RPD			0.342	20.000		08/21/08
SPK-RPD	Iron	7439-89-6	99.130		RPD			4.139	20.000		08/21/08
SPK-RPD	Potassium	7440-09-7	90.480		RPD			3.155	20.000		08/21/08
SPK-RPD	Magnesium	7439-95-4	33.000		RPD			35.714	20.000		08/21/08
SPK-RPD	Manganese	7439-96-5	101.500		RPD			3.427	20.000		08/21/08
SPK-RPD	Sodium	7440-23-5	-106.000		RPD			-47.953	20.000		08/21/08
SPK-RPD	Nickel	7440-02-0	99.880		RPD			3.359	20.000		08/21/08
SPK-RPD	Antimony	7440-36-0	107.100		RPD			6.967	20.000		08/21/08
SPK-RPD	Strontium	7440-24-6	98.140		RPD			4.139	20.000		08/21/08
SPK-RPD	Vanadium	7440-62-2	98.400		RPD			2.532	20.000		08/21/08
SPK-RPD	Zinc	7440-66-6	97.570		RPD			2.459	20.000		08/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: ICP Metals Analysis, Grd H2O P

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>BATCH QC</b>											
BLANK	Silver	7440-22-4	17.3	17.300	ug/L						08/21/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	08/21/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	08/21/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	08/21/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	08/21/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	08/21/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	08/21/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	08/21/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	08/21/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	08/21/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	08/21/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	08/21/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	08/21/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	08/21/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	08/21/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	08/21/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	08/21/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	08/21/08
LCS	Silver	7440-22-4	962.8	96.280	% Recov	80.000	120.000				08/21/08
LCS	Barium	7440-39-3	460.2	92.040	% Recov	80.000	120.000				08/21/08
LCS	Beryllium	7440-41-7	514.9	102.980	% Recov	80.000	120.000				08/21/08
LCS	Calcium	7440-70-2	963.7	96.370	% Recov	80.000	120.000				08/21/08
LCS	Cadmium	7440-43-9	1010	101.000	% Recov	80.000	120.000				08/21/08
LCS	Cobalt	7440-48-4	1014	101.400	% Recov	80.000	120.000				08/21/08
LCS	Chromium	7440-47-3	980	98.000	% Recov	80.000	120.000				08/21/08
LCS	Copper	7440-50-8	954.6	95.460	% Recov	80.000	120.000				08/21/08
LCS	Iron	7439-89-6	970.1	97.010	% Recov	80.000	120.000				08/21/08
LCS	Potassium	7440-09-7	9926	99.260	% Recov	80.000	120.000				08/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 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	909.6	90.960	% Recov	80.000	120.000				08/21/08
LCS	Manganese	7439-96-5	1006	100.600	% Recov	80.000	120.000				08/21/08
LCS	Sodium	7440-23-5	935.5	93.550	% Recov	80.000	120.000				08/21/08
LCS	Nickel	7440-02-0	1015	101.500	% Recov	80.000	120.000				08/21/08
LCS	Antimony	7440-36-0	1056	105.600	% Recov	80.000	120.000				08/21/08
LCS	Strontium	7440-24-6	479.3	95.860	% Recov	80.000	120.000				08/21/08
LCS	Vanadium	7440-62-2	978.2	97.820	% Recov	80.000	120.000				08/21/08
LCS	Zinc	7440-66-6	975.7	97.570	% Recov	80.000	120.000				08/21/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: ICP-200.8 MS All possible meta

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003344</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Arsenic	7440-38-2	34.13	85.325	% Recov	70.000	130.000				08/05/08
MS	Uranium	7440-61-1	34.82	87.050	% Recov	70.000	130.000				08/05/08
MSD	Arsenic	7440-38-2	35.34	88.350	% Recov	70.000	130.000				08/05/08
MSD	Uranium	7440-61-1	35.92	89.800	% Recov	70.000	130.000				08/05/08
SPK-RPD	Arsenic	7440-38-2	88.350		RPD			3.484	20.000		08/05/08
SPK-RPD	Uranium	7440-61-1	89.800		RPD			3.110	20.000		08/05/08
<b>Lab ID: W08P003520</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Arsenic	7440-38-2	34.89	87.225	% Recov	70.000	130.000				08/05/08
MSD	Arsenic	7440-38-2	34.04	85.100	% Recov	70.000	130.000				08/05/08
SPK-RPD	Arsenic	7440-38-2	85.100		RPD			2.466	20.000		08/05/08
<b>Lab ID: W08P003521</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	Arsenic	7440-38-2	34.32	85.800	% Recov	70.000	130.000				08/05/08
MS	Uranium	7440-61-1	30.1	75.250	% Recov	70.000	130.000				08/05/08
MSD	Arsenic	7440-38-2	34.58	86.450	% Recov	70.000	130.000				08/05/08
MSD	Uranium	7440-61-1	32.8	82.000	% Recov	70.000	130.000				08/05/08
SPK-RPD	Arsenic	7440-38-2	86.450		RPD			0.755	20.000		08/05/08
SPK-RPD	Uranium	7440-61-1	82.000		RPD			8.585	20.000		08/05/08
<b>BATCH QC</b>											
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	08/05/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	08/05/08
LCS	Arsenic	7440-38-2	37.3	93.250	% Recov	85.000	115.000				08/05/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
Matrix: WATER  
Test: ICP-200.8 MS All possible meta

Sample Date:  
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Uranium	7440-61-1	37.87	94.675	% Recov	85.000	115.000				08/05/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Total Alkalinity as mg/L CaCO3

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003351</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	125.3		RPD			0.000	20.000		07/16/08
<b>Lab ID: W08P003485</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	141.8		RPD			0.071	20.000		07/16/08
<b>BATCH QC</b>											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.3	100.261	%Recover	80.000	120.000				07/16/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.9	100.783	%Recover	80.000	120.000				07/16/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	30.32	101.745	%Recover	80.000	120.000				07/16/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	32.39	108.691	%Recover	80.000	120.000				07/16/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	32.66	109.597	%Recover	80.000	120.000				07/16/08



# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003493  
**Client ID:** B1V6D8

**Group #:** WSCF20081436  
**Department:** Organic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

**TRENT**

**Matrix: WATER**

**WSCF**

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		07/24/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

20 of 67  
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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003497  
**Client ID:** B1V6D4

**Group #:** WSCF20081436  
**Department:** Organic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

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		07/24/08
Trichloroethene	79-01-6	LA-523-455		6.30	ug/L			1.00	1.0		07/24/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Carbon tetrachloride	56-23-5	LA-523-455		1.40e + 03	ug/L			1.00	25		07/25/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Chloroform	67-66-3	LA-523-455		14.0	ug/L			1.00	1.0		07/24/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e + 02		07/24/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/24/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

43 OF 67

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# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003497  
**Client ID:** B1V6D4

**Group #:** WSCF20081436  
**Department:** Organic  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

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		07/24/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/24/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

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

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

44 OF 67

Report WGPP/ver. 5.2

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# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date: 07/13/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003469</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
MS	1,1-Dichloroethene	75-35-4	28.340	113.000	% Recov	63.000	117.000				07/24/08
MS	Benzene	71-43-2	26.340	105.000	% Recov	75.000	129.000				07/24/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	50.230	100.000	% Recov	75.000	125.000				07/24/08
MS	Chlorobenzene	108-90-7	26.530	106.000	% Recov	79.000	119.000				07/24/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	57.030	114.000	% Recov	75.000	125.000				07/24/08
MS	Toluene-d8(Surr)	2037-26-5	49.500	99.000	% Recov	75.000	125.000				07/24/08
MS	Toluene	108-88-3	26.740	107.000	% Recov	76.000	120.000				07/24/08
MS	Trichloroethene	79-01-6	22.260	89.000	% Recov	73.000	123.000				07/24/08
MSD	1,1-Dichloroethene	75-35-4	28.220	113.000	% Recov	63.000	117.000				07/24/08
MSD	Benzene	71-43-2	26.540	106.000	% Recov	75.000	129.000				07/24/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	50.400	101.000	% Recov	75.000	125.000				07/24/08
MSD	Chlorobenzene	108-90-7	26.880	108.000	% Recov	79.000	119.000				07/24/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.900	112.000	% Recov	75.000	125.000				07/24/08
MSD	Toluene-d8(Surr)	2037-26-5	50.020	100.000	% Recov	75.000	125.000				07/24/08
MSD	Toluene	108-88-3	27.440	110.000	% Recov	76.000	120.000				07/24/08
MSD	Trichloroethene	79-01-6	23.130	92.500	% Recov	73.000	123.000				07/24/08
SPK-RPD	1,1-Dichloroethene	75-35-4	113.000		RPD			0.000	20.000		07/24/08
SPK-RPD	Benzene	71-43-2	106.000		RPD			0.948	20.000		07/24/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	101.000		RPD			0.995	20.000		07/24/08
SPK-RPD	Chlorobenzene	108-90-7	108.000		RPD			1.869	20.000		07/24/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	112.000		RPD			1.770	20.000		07/24/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	100.000		RPD			1.005	20.000		07/24/08
SPK-RPD	Toluene	108-88-3	110.000		RPD			2.765	20.000		07/24/08
SPK-RPD	Trichloroethene	79-01-6	92.500		RPD			3.857	20.000		07/24/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date: 07/14/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003493</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.820	102.000	% Recov	75.000	125.000				07/24/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.480	117.000	% Recov	75.000	125.000				07/24/08
SURR	Toluene-d8(Surr)	2037-26-5	49.780	99.800	% Recov	75.000	125.000				07/24/08
<b>Lab ID: W08P003495</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.190	100.000	% Recov	75.000	125.000				07/24/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	57.960	116.000	% Recov	75.000	125.000				07/24/08
SURR	Toluene-d8(Surr)	2037-26-5	50.340	101.000	% Recov	75.000	125.000				07/24/08
<b>Lab ID: W08P003497</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	51.280	103.000	% Recov	75.000	125.000				07/24/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.080	116.000	% Recov	75.000	125.000				07/24/08
SURR	Toluene-d8(Surr)	2037-26-5	50.580	101.000	% Recov	75.000	125.000				07/24/08
<b>BATCH QC</b>											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1,1-Dichloroethane	75-35-4	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	07/24/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	07/24/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: VOA Ground Water Protection

Sample Date:  
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	51.440	103.000	% Recov	75.000	125.000				07/24/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	07/24/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	07/24/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	57.540	115.000	% Recov	75.000	125.000				07/24/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	07/24/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	07/24/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	07/24/08
BLANK	Toluene-d8(Surr)	2037-26-5	49.520	99.000	% Recov	75.000	125.000				07/24/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	07/24/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	07/24/08
LCS	1,1-Dichloroethene	75-35-4	28.810	115.000	% Recov	75.000	125.000				07/24/08
LCS	Benzene	71-43-2	27.800	111.000	% Recov	75.000	125.000				07/24/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	50.320	101.000	% Recov	75.000	125.000				07/24/08
LCS	Chlorobenzene	108-90-7	27.840	111.000	% Recov	75.000	125.000				07/24/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.760	112.000	% Recov	75.000	125.000				07/24/08
LCS	Toluene-d8(Surr)	2037-26-5	50.520	101.000	% Recov	75.000	125.000				07/24/08
LCS	Toluene	108-88-3	28.000	112.000	% Recov	75.000	125.000				07/24/08
LCS	Trichloroethene	79-01-6	23.300	93.200	% Recov	75.000	125.000				07/24/08

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-005  
**Sample #** W08P003489  
**Client ID:** B1V971

**Group #:** WSCF20081436  
**Department:** Radiochemistry  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gamma Energy Analysis-grd H2O</b>											
Antimony-125	14234-35-6	LA-508-481	U	-13.6	pCi/L	+ -14.8	pCi/L	1.00	20		07/28/08
Cobalt-60	10198-40-0	LA-508-481	U	-1.99	pCi/L	+ -4.03	pCi/L	1.00	6.9		07/28/08
Cesium-134	13967-70-9	LA-508-481	U	-1.46	pCi/L	+ -4.32	pCi/L	1.00	7.4		07/28/08
Cesium-137	10045-97-3	LA-508-481	U	-0.572	pCi/L	+ -4.00	pCi/L	1.00	7.0		07/28/08
Europium-152	14683-23-9	LA-508-481	U	1.24	pCi/L	+ -12.4	pCi/L	1.00	21		07/28/08
Europium-154	15585-10-1	LA-508-481	U	-4.78	pCi/L	+ -10.8	pCi/L	1.00	19		07/28/08
Europium-155	14391-16-3	LA-508-481	U	-0.982	pCi/L	+ -9.82	pCi/L	1.00	23		07/28/08
Potassium-40	13966-00-2	LA-508-481	U	-22.9	pCi/L	+ -66.9	pCi/L	1.00	1.2e+02		07/28/08
Ruthenium-106	13967-48-1	LA-508-481	U	5.12	pCi/L	+ -38.2	pCi/L	1.00	68		07/28/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-21.0	pCi/L	+ -21.0	pCi/L	1.00	61		07/28/08
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.660	pCi/L	+ -2.64	pCi/L	1.00	5.0		08/01/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		330	pCi/L	+ -36.3	pCi/L	1.00	7.0		07/29/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

7/28/08

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** W08-005  
**Sample #** W08P003491  
**Client ID:** B1V958

**Group #:** WSCF20081436  
**Department:** Radiochemistry  
**Sampled:** 07/14/08  
**Received:** 07/14/08

TRENT

Matrix: WATER

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.440	pCi/L	+ -3.41	pCi/L	1.00	6.5		08/01/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		290	pCi/L	+ -31.9	pCi/L	1.00	9.1		07/29/08
<b>TC99 by Liquid Scin.</b>											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		880	pCi/L	+ -176	pCi/L	1.00	5.9		07/18/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		1.60e+04	pCi/L	+ -3.20e+03	pCi/L	1.00	2.2e+02		07/19/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

**DF=Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank.(inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

79 of 67  
 Report WGPP/ver. 5.2  
 GPAP

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003493  
**Client ID:** B1V6D8

**Group #:** WSCF20081436  
**Department:** Radiochemistry  
**Sampled:** 07/14/08  
**Received:** 07/14/08

**TRENT**

**Matrix:** WATER

WSCF

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		120	pCi/L	+ -24.0	pCi/L	1.00	5.9		07/18/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		7.30e +03	pCi/L	+ -1.46e +03	pCi/L	1.00	2.2e +02		07/19/08

**MDL = Minimum Detection Limit**

**RQ = Result Qualifier**

**TP Err = Total Propagated Error**

**DF = Dilution Factor**

- Indicates results that have NOT been validated;

C - The Analyte was found in the Associated Blank. (inorg)

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

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

50 of 77  
GPAP

Report WGPP/ver. 5.2

# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003495  
**Client ID:** B1V6C3

**Group #:** WSCF20081436  
**Department:** Radiochemistry  
**Sampled:** 07/14/08  
**Received:** 07/14/08

WSCF      TRENT      Matrix:      WATER

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		7.30e+03	pCi/L	+ -1.46e+03	pCi/L	1.00	5.9		07/18/08
<b>Tritium by Liq Sct column prep</b>											
Tritium	10028-17-8	LA-508-421		1.30e+04	pCi/L	+ -2.60e+03	pCi/L	1.00	2.2e+02		07/19/08

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

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

+ - Indicates more than six qualifier symbols

D - Analyte was identified at a secondary dilution factor

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

U - Analyzed for but not detected above limiting criteria.

Report WGPP/ver. 5.2

GPAP

07/07/07



# WSCF ANALYTICAL RESULTS REPORT

**Attention:** Steve Trent E6-35  
**SAF Number:** I08-038  
**Sample #** W08P003512  
**Client ID:** B1VFC3

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

**Matrix:** WATER

**Group #:** WSCF20081436  
**Department:** Radiochemistry  
**Sampled:** 07/14/08  
**Received:** 07/14/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
<b>Gamma Energy Analysis-grd H2O</b>											
Antimony-125	14234-35-6	LA-508-481	U	7.37	pCi/L	+ -14.0	pCi/L	1.00	24		07/25/08
Cobalt-60	10198-40-0	LA-508-481	U	-1.91	pCi/L	+ -5.57	pCi/L	1.00	9.3		07/25/08
Cesium-134	13967-70-9	LA-508-481	U	2.06	pCi/L	+ -5.24	pCi/L	1.00	9.2		07/25/08
Cesium-137	10045-97-3	LA-508-481	U	-1.76	pCi/L	+ -5.21	pCi/L	1.00	8.8		07/25/08
Europium-152	14683-23-9	LA-508-481	U	9.84	pCi/L	+ -15.2	pCi/L	1.00	24		07/25/08
Europium-154	15585-10-1	LA-508-481	U	3.94	pCi/L	+ -13.7	pCi/L	1.00	24		07/25/08
Europium-155	14391-16-3	LA-508-481	U	-3.37	pCi/L	+ -15.1	pCi/L	1.00	26		07/25/08
Potassium-40	13966-00-2	LA-508-481	U	-8.90	pCi/L	+ -88.9	pCi/L	1.00	1.4e+02		07/25/08
Ruthenium-106	13967-48-1	LA-508-481	U	-4.54	pCi/L	+ -45.4	pCi/L	1.00	80		07/25/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-16.0	pCi/L	+ -16.0	pCi/L	1.00	65		07/25/08
<b>Gross Alpha on Alpha Plateau</b>											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	1.20	pCi/L	+ -2.40	pCi/L	1.00	4.1		08/04/08
<b>Gross Alpha/Gross Beta (AB32)</b>											
Gross beta	12587-47-2	LA-508-415		4.60e+03	pCi/L	+ -460	pCi/L	1.00	6.3		07/31/08

**MDL=Minimum Detection Limit**

**RQ=Result Qualifier**

**TP Err=Total Propagated Error**

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

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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.

53  
 0167  
 Report WGPP/ver. 5.2  
 GPAP

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 07/14/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003489</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Cobalt-60	10198-40-0	U-0.6116		RPD			n/a	20.000		07/28/08
DUP	Cesium-134	13967-70-9	U1.163		RPD			n/a	20.000		07/28/08
DUP	Cesium-137	10045-97-3	U-0.343		RPD			n/a	20.000		07/28/08
DUP	Europium-152	14683-23-9	U-4.62		RPD			n/a	20.000		07/28/08
DUP	Europium-154	15585-10-1	U-0.9119		RPD			n/a	20.000		07/28/08
DUP	Europium-155	14391-16-3	U-6.993		RPD			n/a	20.000		07/28/08
DUP	Potassium-40	13966-00-2	U-13.61		RPD			n/a	20.000		07/28/08
DUP	Ruthenium-106	13967-48-1	U-20.75		RPD			n/a	20.000		07/28/08
DUP	Antimony-125	14234-35-6	U-9.534		RPD			n/a	20.000		07/28/08
<b>BATCH QC</b>											
BLANK	Cobalt-60	10198-40-0	U-2.84	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Cesium-134	13967-70-9	U1.684	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Cesium-137	10045-97-3	U-1.564	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Europium-152	14683-23-9	U2.322	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Europium-154	15585-10-1	U9.666	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Europium-155	14391-16-3	U-4.951	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Potassium-40	13966-00-2	110.6	110.600	pCi/L	-10.000	1000.000				08/07/08
BLANK	Ruthenium-106	13967-48-1	U-14.3	n/a	pCi/L	-10.000	1000.000				08/07/08
BLANK	Antimony-125	14234-35-6	U-15.18	n/a	pCi/L	-10.000	1000.000				08/07/08
LCS	Cobalt-60	10198-40-0	10330	103.924	% Recov	80.000	120.000				08/04/08
LCS	Cesium-137	10045-97-3	6341	104.983	% Recov	80.000	120.000				08/04/08
<b>Lab ID: W08P003511</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Cobalt-60	10198-40-0	U1.505		RPD			n/a	20.000		07/28/08

54 of 67

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Gamma Energy Analysis-grd H2O

Sample Date: 07/14/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Cesium-134	13967-70-9	U0.3216		RPD			n/a	20.000		07/28/08
DUP	Cesium-137	10045-97-3	U-1.523		RPD			n/a	20.000		07/28/08
DUP	Europium-152	14683-23-9	U11.03		RPD			n/a	20.000		07/28/08
DUP	Europium-154	15585-10-1	U-2.885		RPD			n/a	20.000		07/28/08
DUP	Europium-155	14391-16-3	U4.662		RPD			n/a	20.000		07/28/08
DUP	Potassium-40	13966-00-2	U21.93		RPD			n/a	20.000		07/28/08
DUP	Ruthenium-106	13967-48-1	U-8.876		RPD			n/a	20.000		07/28/08
DUP	Antimony-125	14234-35-6	U-3.401		RPD			n/a	20.000		07/28/08
<b>BATCH QC</b>											
BLANK	Cobalt-60	10198-40-0	U-4.467	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Cesium-134	13967-70-9	U-1.55	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Cesium-137	10045-97-3	U1.067	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Europium-152	14683-23-9	U-6.617	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Europium-154	15585-10-1	U5.047	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Europium-155	14391-16-3	U4.432	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Potassium-40	13966-00-2	U-2.434	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Ruthenium-106	13967-48-1	U0.59	n/a	pCi/L	-10.000	1000.000				07/29/08
BLANK	Antimony-125	14234-35-6	U-8.788	n/a	pCi/L	-10.000	1000.000				07/29/08
LCS	Cobalt-60	10198-40-0	10290	103.521	% Recov	80.000	120.000				07/25/08
LCS	Cesium-137	10045-97-3	6275	103.891	% Recov	80.000	120.000				07/25/08

55 of 67

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Gross Alpha on Alpha Plateau

Sample Date: 07/10/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003421</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Gross alpha on alpha plateau	12587-46-1	U8.0E-01		RPD			n/a	20.000		08/01/08
<b>BATCH QC</b>											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U4.5E-02	n/a	pCi/L	-100.000	100.000				08/01/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	33.1	85.441	% Recov	80.000	120.000				08/01/08
<b>Lab ID: W08P003502</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Gross alpha on alpha plateau	12587-46-1	U5.3E-01		RPD			n/a	20.000		08/04/08
<b>BATCH QC</b>											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U9.0E-02	n/a	pCi/L	-100.000	100.000				08/04/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	76.8	99.135	% Recov	80.000	120.000				08/04/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 07/10/08  
 Receive Date: 07/10/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003421											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	4.2E+03		RPD			4.651	20.000		07/29/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U8.5E-01	n/a	pCi/L	-10.000	10.000				07/29/08
LCS	Gross beta	12587-47-2	106.1	106.100	% Recov	80.000	120.000				07/29/08
Lab ID: W08P003502											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	8.2E+01		RPD			19.692	20.000		07/31/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U7.7E-01	n/a	pCi/L	-10.000	10.000				07/31/08
LCS	Gross beta	12587-47-2	245	109.219	% Recov	80.000	120.000				07/31/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: TC99 by Liquid Scin.

Sample Date: 07/14/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
<b>Lab ID: W08P003491</b>											
<b>BATCH QC ASSOCIATED WITH SAMPLE</b>											
DUP	Tc-99 by Liquid Scin.	14133-76-7	952.1		RPD			7.689	20.000		07/18/08
MS	Tc-99 by Liquid Scin.	14133-76-7	796.7	105.909	% Recov	75.000	125.000				07/18/08
<b>BATCH QC</b>											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-0.1	n/a	pCi/L	-10.000	10.000				07/18/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	206.8	109.942	% Recov	80.000	120.000				07/18/08

# WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081436  
 Matrix: WATER  
 Test: Tritium by Liq Sct column prep

Sample Date: 07/13/08  
 Receive Date: 07/14/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
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Lab ID: W08P003475  
 BATCH QC ASSOCIATED WITH SAMPLE

DUP	Tritium	10028-17-8	5.5E+02		RPD			7.547	20.000		07/19/08
MS	Tritium	10028-17-8	21790	84.572	% Recov	75.000	125.000				07/19/08

BATCH QC

BLANK	Tritium	10028-17-8	U-9.4E+01	n/a	pCi/L	-10.000	1000.000				07/19/08
LCS	Tritium	10028-17-8	3230.0	94.577	% Recov	80.000	120.000				07/19/08

59 of 67

M4W41-SLF-08-926

ATTACHMENT 4

**SAMPLE RECEIPT INFORMATION**

Consisting of 8 pages  
Including cover page

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

*File*  
*Due to*  
*9/2/08*

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20081436

The following samples were received from you on 07/14/08. 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
W08P003489	B1V971	@AB-32	TRENT Water @ALPHA @GEA-GPP ALKALI	07/14/08
W08P003490	B1V957	@GPP6010	TRENT Water	07/14/08
W08P003491	B1V958	@AB-32 @TC99-30	TRENT Water @ALPHA @GPP6010 @H3-33 @IC-30 ALKALI	07/14/08
W08P003492	B1V6D7	@GPP6010	TRENT Water	07/14/08
W08P003493	B1V6D8	@GPP6010	TRENT Water @H3-33 @IC-30 @TC99-30 @VOA-GPP	07/14/08
W08P003494	B1V6C2	@GPP6010	TRENT Water	07/14/08
W08P003495	B1V6C3	@GPP6010	TRENT Water @H3-33 @IC-30 @TC99-30 @VOA-GPP	07/14/08
W08P003496	B1V6D3	@2008	TRENT Water @GPP6010	07/14/08
W08P003497	B1V6D4	@2008 @VOA-GPP	TRENT Water @GPP6010 @H3-33 @IC-30 @TC99-30	07/14/08
W08P003512	B1VFC3	GPP-PNNL @AB-32	TRENT Water @ALPHA @GEA-GPP	07/14/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@ALPHA	Gross Alpha on Alpha Plateau
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H2O P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography

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GPAP

Richland, WA 99352  
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP  
PO#: 122543  
Group#: 20081436

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Test Acronym Description

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Test Acronym	Description
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection
ALKALI	Total Alkalinity as mg/L CaCO <sub>3</sub>









