

RECEIVED SEPTEMBER 29, 2008

0080374

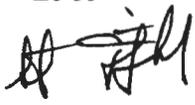
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WSCF Analytical Lab
P.O. Box 1000
Richland, WA 99352
Telephone 373-7495
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FLUOR

Memorandum

M4W41-SLF-08-1090

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 WSCF20081816

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 WSCF20081816:

- 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-08-1090

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081816
Data Deliverable Date: 24-sep-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I08-053	B1WDR0	W08P004189	WATER
	B1WDR1	W08P004190	WATER
	B1WDX9	W08P004186	WATER
	B1WDY2	W08P004187	WATER
	B1WF00	W08P004188	WATER
I08-054	B1WF56	W08P004194	WATER
	B1WF57	W08P004195	WATER
	B1WF74	W08P004184	WATER
	B1WF75	W08P004185	WATER
S08-008	B1WMT7	W08P004183	WATER
W08-008	B1WJL4	W08P004192	WATER
	B1WJL5	W08P004193	WATER
	B1WJR1	W08P004191	WATER

M4W41-SLF-08-1090

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

Thirteen (13) groundwater samples were received at the WSCF Laboratory on August 25, 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) #08-157, 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 16 through 18, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – Hold time requirement for this analysis was 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 32 through 35 for QC details.
Analytical Note(s):

- Miss Hold Time – A copy of Issue Resolution Form (IRF) #08-157, documenting missed IC hold time, is included as Attachment 3.
- Sample results were D flagged if dilution(s) were required.
- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1WK26 (SDG# 20081811) and B1WDX9 of this SDG.
- Batch QC performed on Sample# B1WK26 – Matrix Spike recovery for Sulfate was less than established laboratory limits. Affected sample results in this batch were N flagged.
- Nitrate-N concentration for sample# B1WJR1 exceeded the calibration range. Sample result was E flagged.

All other C 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 36 through 39 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1WDH0 (SDG# 20081797).
- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit, were B flagged.
- Calcium, Magnesium and Sodium sample 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.

All other QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 40 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1WDN1 (SDG# 20081849) and B1WDN7 (SDG# 20081887).

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 41 for QC details.

All QC controls are within the established limits.

Organic Comments

Alcohol/Glycols – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 57 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 58 through 61 for QC details. Analytical Note(s):

- Sample results that were less than the lowest calibration standard, however greater than the method detection limit, were J flagged.
- Acetone and Methylene Chloride contamination detected in the Blank was evaluated and affected sample results were B flagged.
- Carbon Tetrachloride concentration for sample# B1WF57 exceeded the calibration range. Sample result was E flagged.
- 1,1-Dichloroethene – Matrix Spike recovery slightly exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

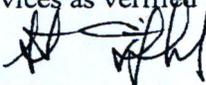
Radiochemistry Comments

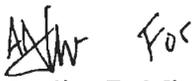
Rad Chem – There are no hold times associated with WSCF’s radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 73 through 74 for QC details. Analytical Note(s):

- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1X1B5 (SDG# 20081907). Matrix Spike recovery was less than established laboratory limits due to high sample activity. No flags issued.
- Tritium – Duplicates and Matrix Spikes were analyzed on samples B1WF00 of this SDG and B1WY11 (SDG# 20081913).

All other QC controls are within the established limits.

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


Scot L. Fitzgerald
WSCF Analytical Laboratory Manager


Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-1090

ATTACHMENT 3

ISSUE RESOLUTION FORM

Consisting of 2 pages
Including cover page

ISSUE RESOLUTION FORM

FH TRACKING NUMBER: 08-157

Date : 8-27-2008 SAF No. 108-054, 108-053, W08-008

SDG: WSCF20081816 LOGIN No.: TEST: ANIONS (@IC-30)

Sample No.(s) B1WF74, B1WF75, B1WDX9, B1WDY2, B1WF00, B1WDR0, B1WDR1, B1WJR1, B1WJL5

W08P004184 - 4191, W08P004193

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

ISSUE

The 48-hour regulatory hold time authorization was missed on groundwater samples identified above for the Nitrite-N and Nitrate-N analyses.

Samples were collected in the field on August 22, 2008 and submitted to the WSCF Laboratory on August 25, 2008 for analysis after the regulatory hold time had been exceeded. Samples were analyzed on August 25, 2008.

- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on the following
 - B1WDX9 (of this SDG) – All QC controls are within established laboratory limits.
 - B1WK26 (SDG# 20081811) – Matrix Spike recovery for Sulfate was less slightly than established laboratory limits. Affected sample results were N flagged. All other QC controls were within established limits.

PROPOSED RESOLUTION

Accept Nitrite-N and Nitrate-N analytical results (accept as-is) and document missed holding time in the case narrative.

GRP COMMENTS

Accept proposed resolution.

Heidi Hampt 9/3/08
Signature and Date

M4W41-SLF-08-1090

ATTACHMENT 4

ANALYTICAL RESULTS

Consisting of 66 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical:

S. Fitzgerald 9/29/08

Client Services:

D.D. Misp 9/28/2008

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

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Report#: WSCF20081816
Report Date: 28-sep-2008
Report WGPP/ver. 5.2
GPAP

Page 1

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081816

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37752	2	38186	42549	BLANK		Anions by Ion Chromatography
37752	16	38186	42549	BLANK		Anions by Ion Chromatography
37752	32	38186	42549	BLANK		Anions by Ion Chromatography
37752	3	38186	42549	LCS		Anions by Ion Chromatography
37752	17	38186	42549	LCS		Anions by Ion Chromatography
37752	5	38186	42549	DUP	W08P004157	Anions by Ion Chromatography
37752	6	38186	42549	MS	W08P004157	Anions by Ion Chromatography
37752	7	38186	42549	MSD	W08P004157	Anions by Ion Chromatography
37752	7	38186	42549	SPK-RPD	W08P004157	Anions by Ion Chromatography
37752	19	38186	42549	DUP	W08P004174	Anions by Ion Chromatography
37752	21	38186	42549	MS	W08P004174	Anions by Ion Chromatography
37752	22	38186	42549	MSD	W08P004174	Anions by Ion Chromatography
37752	22	38186	42549	SPK-RPD	W08P004174	Anions by Ion Chromatography
37752	27	38186	42549	SAMPLE	W08P004184	Anions by Ion Chromatography
37752	28	38186	42549	SAMPLE	W08P004185	Anions by Ion Chromatography
37752	29	38186	42549	SAMPLE	W08P004187	Anions by Ion Chromatography
37752	30	38186	42549	SAMPLE	W08P004188	Anions by Ion Chromatography
37752	31	38186	42549	SAMPLE	W08P004189	Anions by Ion Chromatography
37753	2	38184	42552	BLANK		Anions by Ion Chromatography
37753	11	38184	42552	BLANK		Anions by Ion Chromatography
37753	3	38184	42552	LCS		Anions by Ion Chromatography
37753	5	38184	42552	DUP	W08P004186	Anions by Ion Chromatography
37753	6	38184	42552	MS	W08P004186	Anions by Ion Chromatography
37753	7	38184	42552	MSD	W08P004186	Anions by Ion Chromatography
37753	4	38184	42552	SAMPLE	W08P004186	Anions by Ion Chromatography
37753	7	38184	42552	SPK-RPD	W08P004186	Anions by Ion Chromatography
37753	8	38184	42552	SAMPLE	W08P004190	Anions by Ion Chromatography
37753	9	38184	42552	SAMPLE	W08P004191	Anions by Ion Chromatography
37753	10	38184	42552	SAMPLE	W08P004193	Anions by Ion Chromatography
37901	1	38329	42748	LCS		Total Alkalinity as mg/L CaCO3
37901	13	38329	42748	LCS		Total Alkalinity as mg/L CaCO3
37901	24	38329	42748	LCS		Total Alkalinity as mg/L CaCO3
37901	36	38329	42748	LCS		Total Alkalinity as mg/L CaCO3
37901	44	38329	42748	LCS		Total Alkalinity as mg/L CaCO3
37901	26	38329	42748	DUP	W08GR03517	Total Alkalinity as mg/L CaCO3
37901	3	38329	42748	DUP	W08P004191	Total Alkalinity as mg/L CaCO3
37901	2	38329	42748	SAMPLE	W08P004191	Total Alkalinity as mg/L CaCO3
37901	4	38329	42748	SAMPLE	W08P004193	Total Alkalinity as mg/L CaCO3
37842	1	38272	42795	BLANK		ICP Metals Analysis, Grd H2O P
37842	2	38272	42795	LCS		ICP Metals Analysis, Grd H2O P
37842	4	38272	42795	MS	W08P004128	ICP Metals Analysis, Grd H2O P
37842	5	38272	42795	MSD	W08P004128	ICP Metals Analysis, Grd H2O P
37842	5	38272	42795	SPK-RPD	W08P004128	ICP Metals Analysis, Grd H2O P
37842	17	38272	42795	SAMPLE	W08P004192	ICP Metals Analysis, Grd H2O P
37842	18	38272	42795	SAMPLE	W08P004193	ICP Metals Analysis, Grd H2O P
37842	19	38272	42795	SAMPLE	W08P004194	ICP Metals Analysis, Grd H2O P
37842	20	38272	42795	SAMPLE	W08P004195	ICP Metals Analysis, Grd H2O P
38030	1	38452	42858	BLANK		ICP-200.8 MS All possible meta

38030	2	38452	42858	BLANK		ICP-200.8	MS	All	possible	meta
38030	3	38452	42858	LCS		ICP-200.8	MS	All	possible	meta
38030	4	38452	42858	LCS		ICP-200.8	MS	All	possible	meta
38030	15	38452	42858	SAMPLE	W08P004186	ICP-200.8	MS	All	possible	meta
38030	16	38452	42858	SAMPLE	W08P004187	ICP-200.8	MS	All	possible	meta
38030	17	38452	42858	SAMPLE	W08P004188	ICP-200.8	MS	All	possible	meta
38030	18	38452	42858	SAMPLE	W08P004189	ICP-200.8	MS	All	possible	meta
38030	19	38452	42858	SAMPLE	W08P004190	ICP-200.8	MS	All	possible	meta
38030	20	38452	42858	SAMPLE	W08P004194	ICP-200.8	MS	All	possible	meta
38030	21	38452	42858	SAMPLE	W08P004195	ICP-200.8	MS	All	possible	meta
38030	6	38452	42858	MS	W08P004214	ICP-200.8	MS	All	possible	meta
38030	7	38452	42858	MSD	W08P004214	ICP-200.8	MS	All	possible	meta
38030	7	38452	42858	SPK-RPD	W08P004214	ICP-200.8	MS	All	possible	meta
38030	9	38452	42858	MS	W08P004270	ICP-200.8	MS	All	possible	meta
38030	10	38452	42858	MSD	W08P004270	ICP-200.8	MS	All	possible	meta
38030	10	38452	42858	SPK-RPD	W08P004270	ICP-200.8	MS	All	possible	meta

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081816

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			42933	BLANK		VOA Ground Water Protection
			42933	LCS		VOA Ground Water Protection
			42933	MS	W08P004183	VOA Ground Water Protection
			42933	MSD	W08P004183	VOA Ground Water Protection
			42933	SAMPLE	W08P004183	VOA Ground Water Protection
			42933	SPK-RPD	W08P004183	VOA Ground Water Protection
			42933	SURR	W08P004183	VOA Ground Water Protection
			42933	SAMPLE	W08P004186	VOA Ground Water Protection
			42933	SURR	W08P004186	VOA Ground Water Protection
			42933	SAMPLE	W08P004187	VOA Ground Water Protection
			42933	SURR	W08P004187	VOA Ground Water Protection
			42933	SAMPLE	W08P004188	VOA Ground Water Protection
			42933	SURR	W08P004188	VOA Ground Water Protection
			42933	SAMPLE	W08P004189	VOA Ground Water Protection
			42933	SURR	W08P004189	VOA Ground Water Protection
			42933	SAMPLE	W08P004190	VOA Ground Water Protection
			42933	SURR	W08P004190	VOA Ground Water Protection
			42933	SAMPLE	W08P004195	VOA Ground Water Protection
			42933	SURR	W08P004195	VOA Ground Water Protection
38101	1	38522	42938	BLANK		Alcohols, Glycols - 8015
38101	2	38522	42938	LCS		Alcohols, Glycols - 8015
38101	4	38522	42938	DUP	W08P004186	Alcohols, Glycols - 8015
38101	5	38522	42938	MS	W08P004186	Alcohols, Glycols - 8015
38101	6	38522	42938	MSD	W08P004186	Alcohols, Glycols - 8015
38101	3	38522	42938	SAMPLE	W08P004186	Alcohols, Glycols - 8015
38101	6	38522	42938	SPK-RPD	W08P004186	Alcohols, Glycols - 8015
38101	7	38522	42938	SAMPLE	W08P004187	Alcohols, Glycols - 8015
38101	8	38522	42938	SAMPLE	W08P004188	Alcohols, Glycols - 8015

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081816

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
38113	1	38534	42951	BLANK		Tritium by Liq Sct column prep
38113	4	38534	42951	LCS		Tritium by Liq Sct column prep
38113	3	38534	42951	DUP	W08P004188	Tritium by Liq Sct column prep
38113	2	38534	42951	MS	W08P004188	Tritium by Liq Sct column prep
38113	5	38534	42951	SAMPLE	W08P004188	Tritium by Liq Sct column prep
38113	6	38534	42951	SAMPLE	W08P004191	Tritium by Liq Sct column prep
38113	7	38534	42951	SAMPLE	W08P004193	Tritium by Liq Sct column prep
38054	1	38474	43005	BLANK		Tritium by Liq Sct column prep
38054	2	38474	43005	LCS		Tritium by Liq Sct column prep
38054	15	38474	43005	SAMPLE	W08P004186	Tritium by Liq Sct column prep
38054	16	38474	43005	SAMPLE	W08P004187	Tritium by Liq Sct column prep
38054	4	38474	43005	DUP	W08P004332	Tritium by Liq Sct column prep
38054	3	38474	43005	MS	W08P004332	Tritium by Liq Sct column prep
38051	1	38471	43023	BLANK		TC99 by Liquid Scin.
38051	2	38471	43023	LCS		TC99 by Liquid Scin.
38051	11	38471	43023	SAMPLE	W08P004184	TC99 by Liquid Scin.
38051	12	38471	43023	SAMPLE	W08P004185	TC99 by Liquid Scin.
38051	13	38471	43023	SAMPLE	W08P004186	TC99 by Liquid Scin.
38051	14	38471	43023	SAMPLE	W08P004187	TC99 by Liquid Scin.
38051	15	38471	43023	SAMPLE	W08P004188	TC99 by Liquid Scin.
38051	16	38471	43023	SAMPLE	W08P004189	TC99 by Liquid Scin.
38051	17	38471	43023	SAMPLE	W08P004190	TC99 by Liquid Scin.
38051	18	38471	43023	SAMPLE	W08P004193	TC99 by Liquid Scin.
38051	19	38471	43023	SAMPLE	W08P004195	TC99 by Liquid Scin.
38051	4	38471	43023	DUP	W08P004318	TC99 by Liquid Scin.
38051	3	38471	43023	MS	W08P004318	TC99 by Liquid Scin.

WSCF

METHOD REFERENCES REPORT

Department: Inorganic

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

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

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

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Report#: WSCF20081816
Report WGPPM/5.2

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WSCF

METHOD REFERENCES REPORT

Department: Organic

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

LA-523-455	LA-523-455: VOLATILE SAMPLE ANALYSIS BY SW-846
EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
EPA SW-846 8260B	VOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
HEIS 8260_VOA_GCMS	Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
Organics	Organics - Alcohols, Glycols
EPA SW-846 8015B	Nonhalogenated Organics Using GC/FID

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: 28-sep-2008
Report#: WSCF20081816
Report WGPPM/5.2

Page 1

WSCF

METHOD REFERENCES REPORT

Department: Radiochemistry

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

LA-508-421	LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER
HEIS ALPHA_LSC	A/B Liquid Scintillation
HEIS BETA_LSC	A/B Liquid Scintillation
HEIS TC99_3MDSK_LSC	TC99 by Liquid Scintillation
HEIS TRITIUM_EIE_LSC	Tritium Liquid Scintillation

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

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Report WGPPM/5.2

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Page 2

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-054

Sample # W08P004184

Client ID: B1WF74

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.210	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	D	35.5	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	6.43	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	DN	65.7	mg/L			2.00	0.26		08/25/08

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(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-054

Sample # W08P004185

Client ID: B1WF75 GPP-PNNL TRENT

WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 0.0464	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	DU	< 0.0938	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 0.0242	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	DNU	< 0.264	mg/L			2.00	0.26		08/25/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample # W08P004186

Client ID: B1WDX9

GPP-PNNL TRENT

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.336	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	D	6.36	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	3.77	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	D	17.9	mg/L			2.00	0.26		08/25/08
ICP-200.8 MS All possible meta Prep											09/15/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		3.23	ug/L			1.00	0.0500		09/15/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors.(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004187
Client ID: B1WDY2

Group #: WSCF20081816
Department: Inorganic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.348	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	D	3.68	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	0.655	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	DN	12.2	mg/L			2.00	0.26		08/25/08
ICP-200.8 MS All possible meta Prep											09/15/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		2.93	ug/L			1.00	0.0500		09/15/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
 GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample # W08P004188

Client ID: B1WF00

GPP-PNNL TRENT

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.391	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	D	18.0	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	7.23	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	DN	53.3	mg/L			2.00	0.26		08/25/08
ICP-200.8 MS All possible meta Prep											09/15/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		8.46	ug/L			1.00	0.0500		09/15/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample # W08P004189

Client ID: B1WDR0

GPP-PNNL TRENT

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.246	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	D	8.33	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0258	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	2.78	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	DN	21.4	mg/L			2.00	0.28		08/25/08
ICP-200.8 MS All possible meta Prep											09/15/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		0.958	ug/L			1.00	0.0500		09/15/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample # W08P004190

Client ID: B1WDR1

GPP-PNNL TRENT

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 0.0464	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	DU	< 0.0938	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 0.0242	mg/L			2.00	0.024		08/25/08
Sulfate	14808-79-8	LA-533-410	DU	< 0.264	mg/L			2.00	0.26		08/25/08
ICP-200.8 MS All possible meta Prep											09/15/08
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		09/15/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004191

Client ID: B1WJR1

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	2.44	mg/L			2.00	0.046		08/25/08
Chloride	16887-00-6	LA-533-410	D	21.4	mg/L			2.00	0.094		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DE	135	mg/L			20.00	0.24		08/25/08
Sulfate	14808-79-8	LA-533-410	D	53.0	mg/L			2.00	0.26		08/25/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		170	mg/L			1.00	1.0		09/03/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors.(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-008
Sample # W08P004192
Client ID: B1WJL4

Group #: WSCF20081816
Department: Inorganic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL 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		09/10/08
Magnesium	7439-95-4	LA-505-411		8.28e + 04	ug/L			1.00	50		09/10/08
Manganese	7439-96-5	LA-505-411		22.2	ug/L			1.00	4.0		09/10/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Potassium	7440-09-7	LA-505-411		1.12e + 04	ug/L			1.00	1.7e + 02		09/10/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/10/08
Sodium	7440-23-5	LA-505-411		7.76e + 04	ug/L			1.00	51		09/10/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/10/08
Barium	7440-39-3	LA-505-411		282	ug/L			1.00	4.0		09/10/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Chromium	7440-47-3	LA-505-411		121	ug/L			1.00	13		09/10/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/10/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/10/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/10/08
Calcium	7440-70-2	LA-505-411	D	2.67e + 05	ug/L			10.00	7.3e + 02		09/15/08
Strontium	7440-24-6	LA-505-411		1.63e + 03	ug/L			1.00	4.0		09/10/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08

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(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: W08-008

Sample # W08P004193

Client ID: B1WJL5

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Inorganic

Sampled: 08/22/08

Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	1.37	mg/L			3.00	0.070		08/25/08
Chloride	16887-00-6	LA-533-410	D	29.4	mg/L			3.00	0.14		08/25/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0384	mg/L			3.00	0.038		08/25/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	285	mg/L			51.00	0.62		08/25/08
Sulfate	14808-79-8	LA-533-410	D	47.6	mg/L			3.00	0.40		08/25/08
ICP Metals Analysis, Grd H20 P Prep											08/31/08
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		1.11e+03	ug/L			1.00	25		09/10/08
Magnesium	7439-95-4	LA-505-411		8.33e+04	ug/L			1.00	50		09/10/08
Manganese	7439-96-5	LA-505-411		58.0	ug/L			1.00	4.0		09/10/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Potassium	7440-09-7	LA-505-411		1.12e+04	ug/L			1.00	1.7e+02		09/10/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/10/08
Sodium	7440-23-5	LA-505-411		7.67e+04	ug/L			1.00	51		09/10/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/10/08
Barium	7440-39-3	LA-505-411		285	ug/L			1.00	4.0		09/10/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Chromium	7440-47-3	LA-505-411		127	ug/L			1.00	13		09/10/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Copper	7440-50-8	LA-505-411	B	8.20	ug/L			1.00	6.0		09/10/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/10/08
Zinc	7440-66-6	LA-505-411	B	18.5	ug/L			1.00	9.0		09/10/08
Calcium	7440-70-2	LA-505-411	D	2.66e+05	ug/L			10.00	7.3e+02		09/15/08
Strontium	7440-24-8	LA-505-411		1.62e+03	ug/L			1.00	4.0		09/10/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-008
Sample # W08P004193
Client ID: B1WJL5

Group #: WSCF20081816
Department: Inorganic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT
WSCF

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		09/10/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		130	mg/L			1.00	1.0		09/03/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-054
Sample # W08P004194
Client ID: B1WF56

Group #: WSCF20081816
Department: Inorganic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL 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		09/10/08
Magnesium	7439-95-4	LA-505-411		2.98e + 04	ug/L			1.00	50		09/10/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Potassium	7440-09-7	LA-505-411		7.63e + 03	ug/L			1.00	1.7e + 02		09/10/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/10/08
Sodium	7440-23-5	LA-505-411		1.54e + 05	ug/L			1.00	51		09/10/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/10/08
Barium	7440-39-3	LA-505-411		112	ug/L			1.00	4.0		09/10/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Chromium	7440-47-3	LA-505-411		169	ug/L			1.00	13		09/10/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/10/08
Vanadium	7440-62-2	LA-505-411	B	15.4	ug/L			1.00	12		09/10/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/10/08
Calcium	7440-70-2	LA-505-411		8.69e + 04	ug/L			1.00	73		09/10/08
Strontium	7440-24-6	LA-505-411		513	ug/L			1.00	4.0		09/10/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Arsenic	7440-38-2	LA-505-412		1.17	ug/L			1.00	0.400		09/15/08

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(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but >= the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2
GPAP

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-054
Sample # W08P004195
Client ID: B1WF57

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Inorganic
Sampled: 08/22/08
Received: 08/25/08

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	42.8	ug/L			1.00	25		09/10/08
Magnesium	7439-95-4	LA-505-411		2.99e + 04	ug/L			1.00	50		09/10/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Potassium	7440-09-7	LA-505-411		7.72e + 03	ug/L			1.00	1.7e + 02		09/10/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/10/08
Sodium	7440-23-5	LA-505-411		1.55e + 05	ug/L			1.00	51		09/10/08
Antimony	7440-36-0	LA-505-411	U	< 58.0	ug/L			1.00	56		09/10/08
Barium	7440-39-3	LA-505-411		113	ug/L			1.00	4.0		09/10/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Chromium	7440-47-3	LA-505-411		174	ug/L			1.00	13		09/10/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/10/08
Vanadium	7440-62-2	LA-505-411	B	17.1	ug/L			1.00	12		09/10/08
Zinc	7440-68-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/10/08
Calcium	7440-70-2	LA-505-411		8.63e + 04	ug/L			1.00	73		09/10/08
Strontium	7440-24-6	LA-505-411		514	ug/L			1.00	4.0		09/10/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/10/08
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		3.24	ug/L			1.00	0.0500		09/15/08
Arsenic	7440-38-2	LA-505-412		1.17	ug/L			1.00	0.400		09/15/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger error(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
 GPAP

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 08/24/08
 Receive Date: 08/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004157											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	8.7908		RPD			0.296	20.000		08/25/08
DUP	Fluoride	16984-48-8	0.3446		RPD			3.725	20.000		08/25/08
DUP	Nitrogen in Nitrite	NO2-N	< 2.56e-2		RPD			n/a	20.000	U	08/25/08
DUP	Nitrogen in Nitrate	NO3-N	3.3763		RPD			0.487	20.000		08/25/08
DUP	Sulfate	14808-79-8	24.8278		RPD			0.676	20.000		08/25/08
MS	Chloride	16887-00-6	1.0653	107.065	% Recov	80.000	120.000				08/25/08
MS	Fluoride	16984-48-8	0.5355	108.621	% Recov	80.000	120.000				08/25/08
MS	Nitrogen in Nitrite	NO2-N	0.4297	87.337	% Recov	80.000	120.000				08/25/08
MS	Nitrogen in Nitrate	NO3-N	0.44575	99.944	% Recov	80.000	120.000				08/25/08
MS	Sulfate	14808-79-8	2.0405	104.107	% Recov	80.000	120.000				08/25/08
MSD	Chloride	16887-00-6	0.98915	99.412	% Recov	80.000	120.000				08/25/08
MSD	Fluoride	16984-48-8	0.50545	102.525	% Recov	80.000	120.000				08/25/08
MSD	Nitrogen in Nitrite	NO2-N	0.42925	87.246	% Recov	80.000	120.000				08/25/08
MSD	Nitrogen in Nitrate	NO3-N	0.4233	94.910	% Recov	80.000	120.000				08/25/08
MSD	Sulfate	14808-79-8	1.82325	93.023	% Recov	80.000	120.000				08/25/08
SPK-RPD	Chloride	16887-00-6	99.412		RPD			7.413	20.000		08/25/08
SPK-RPD	Fluoride	16984-48-8	102.525		RPD			5.774	20.000		08/25/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	87.246		RPD			0.104	20.000		08/25/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	94.910		RPD			5.167	20.000		08/25/08
SPK-RPD	Sulfate	14808-79-8	93.023		RPD			11.245	20.000		08/25/08
Lab ID: W08P004174											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	7.555		RPD			0.677	20.000		08/25/08
DUP	Fluoride	16984-48-8	0.2282		RPD			2.167	20.000		08/25/08
DUP	Nitrogen in Nitrite	NO2-N	< 2.56e-2		RPD			n/a	20.000	U	08/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 08/24/08
 Receive Date: 08/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Nitrogen in Nitrate	NO3-N	4.3791		RPD			0.520	20.000		08/25/08
DUP	Sulfate	14808-79-8	39.9814		RPD			0.223	20.000		08/25/08
MS	Chloride	16887-00-6	1.0096	101.467	% Recov	80.000	120.000				08/25/08
MS	Fluoride	16984-48-8	0.57225	116.075	% Recov	80.000	120.000				08/25/08
MS	Nitrogen in Nitrite	NO2-N	0.4284	87.073	% Recov	80.000	120.000				08/25/08
MS	Nitrogen in Nitrate	NO3-N	0.38545	86.424	% Recov	80.000	120.000				08/25/08
MS	Sulfate	14808-79-8	1.5356	78.347	% Recov	80.000	120.000				08/25/08
MSD	Chloride	16887-00-6	1.04735	105.261	% Recov	80.000	120.000				08/25/08
MSD	Fluoride	16984-48-8	0.53385	108.286	% Recov	80.000	120.000				08/25/08
MSD	Nitrogen in Nitrite	NO2-N	0.43315	88.039	% Recov	80.000	120.000				08/25/08
MSD	Nitrogen in Nitrate	NO3-N	0.39845	89.339	% Recov	80.000	120.000				08/25/08
MSD	Sulfate	14808-79-8	1.66495	84.946	% Recov	80.000	120.000				08/25/08
SPK-RPD	Chloride	16887-00-6	105.261		RPD			3.671	20.000		08/25/08
SPK-RPD	Fluoride	16984-48-8	108.286		RPD			6.943	20.000		08/25/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	88.039		RPD			1.103	20.000		08/25/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	89.339		RPD			3.317	20.000		08/25/08
SPK-RPD	Sulfate	14808-79-8	84.946		RPD			8.082	20.000		08/25/08

BATCH QC

BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/25/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/25/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/25/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 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 Nitrate	NO3-N	< 1.21e-2	n/a	mg/L	0.000	0.040			U	08/25/08
BLANK	Sulfate	14808-79-8	< 0.132	n/a	mg/L	0.000	0.200			U	08/25/08
BLANK	Sulfate	14808-79-8	< 0.132	n/a	mg/L	0.000	0.200			U	08/25/08
BLANK	Sulfate	14808-79-8	< 0.132	n/a	mg/L	0.000	0.200			U	08/25/08
LCS	Chloride	16887-00-6	197.2734	98.146	% Recov	80.000	120.000				08/25/08
LCS	Chloride	16887-00-6	198.6488	98.830	% Recov	80.000	120.000				08/25/08
LCS	Fluoride	16984-48-8	98.1331	98.527	% Recov	80.000	120.000				08/25/08
LCS	Fluoride	16984-48-8	99.1591	99.557	% Recov	80.000	120.000				08/25/08
LCS	Nitrogen in Nitrite	NO2-N	95.5678	96.145	% Recov	80.000	120.000				08/25/08
LCS	Nitrogen in Nitrite	NO2-N	96.1505	96.731	% Recov	80.000	120.000				08/25/08
LCS	Nitrogen in Nitrate	NO3-N	91.0843	101.092	% Recov	80.000	120.000				08/25/08
LCS	Nitrogen in Nitrate	NO3-N	92.0033	102.112	% Recov	80.000	120.000				08/25/08
LCS	Sulfate	14808-79-8	386.614	97.630	% Recov	80.000	120.000				08/25/08
LCS	Sulfate	14808-79-8	388.7024	98.157	% Recov	80.000	120.000				08/25/08

Lab ID: W08P004186
BATCH QC ASSOCIATED WITH SAMPLE

DUP	Chloride	16887-00-6	6.3241		RPD			0.588	20.000		08/25/08
DUP	Fluoride	16984-48-8	0.286		RPD			15.929	20.000		08/25/08
DUP	Nitrogen in Nitrite	NO2-N	< 2.56e-2		RPD			n/a	20.000	U	08/25/08
DUP	Nitrogen in Nitrate	NO3-N	3.7386		RPD			0.919	20.000		08/25/08
DUP	Sulfate	14808-79-8	17.9341		RPD			0.037	20.000		08/25/08
MS	Chloride	16887-00-6	0.82105	82.518	% Recov	80.000	120.000				08/25/08
MS	Fluoride	16984-48-8	0.55195	111.957	% Recov	80.000	120.000				08/25/08
MS	Nitrogen in Nitrite	NO2-N	0.43445	88.303	% Recov	80.000	120.000				08/25/08
MS	Nitrogen in Nitrate	NO3-N	0.39545	88.666	% Recov	80.000	120.000				08/25/08
MS	Sulfate	14808-79-8	1.77085	90.349	% Recov	80.000	120.000				08/25/08
MSD	Chloride	16887-00-6	0.96465	96.950	% Recov	80.000	120.000				08/25/08
MSD	Fluoride	16984-48-8	0.5595	113.489	% Recov	80.000	120.000				08/25/08
MSD	Nitrogen in Nitrite	NO2-N	0.4288	87.154	% Recov	80.000	120.000				08/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 08/22/08
 Receive Date: 08/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Nitrogen in Nitrate	NO3-N	0.4135	92.713	% Recov	80.000	120.000				08/25/08
MSD	Sulfate	14808-79-8	1.7934	91.500	% Recov	80.000	120.000				08/25/08
SPK-RPD	Chloride	16887-00-6	96.950		RPD			16.083	20.000		08/26/08
SPK-RPD	Fluoride	16984-48-8	113.489		RPD			1.359	20.000		08/26/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	87.154		RPD			1.310	20.000		08/26/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	92.713		RPD			4.462	20.000		08/26/08
SPK-RPD	Sulfate	14808-79-8	91.500		RPD			1.266	20.000		08/26/08
BATCH QC											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	08/26/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/25/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	08/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/25/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	08/26/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/25/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	08/26/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/25/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	08/26/08
LCS	Chloride	16887-00-6	199.374	99.191	% Recov	80.000	120.000				08/25/08
LCS	Fluoride	16984-48-8	98.3317	98.727	% Recov	80.000	120.000				08/25/08
LCS	Nitrogen in Nitrite	NO2-N	96.7444	97.328	% Recov	80.000	120.000				08/25/08
LCS	Nitrogen in Nitrate	NO3-N	91.5456	101.604	% Recov	80.000	120.000				08/25/08
LCS	Sulfate	14808-79-8	392.4298	99.098	% Recov	80.000	120.000				08/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 08/20/08
 Receive Date: 08/20/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004128											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	983.3	98.330	% Recov	75.000	125.000				09/09/08
MS	Barium	7440-39-3	485.2	97.040	% Recov	75.000	125.000				09/09/08
MS	Beryllium	7440-41-7	507.5	101.500	% Recov	75.000	125.000				09/09/08
MS	Calcium	7440-70-2	9600	960.000	% Recov	75.000	125.000				09/09/08
MS	Cadmium	7440-43-9	992.3	99.230	% Recov	75.000	125.000				09/09/08
MS	Cobalt	7440-48-4	945.9	94.590	% Recov	75.000	125.000				09/09/08
MS	Chromium	7440-47-3	969.1	96.910	% Recov	75.000	125.000				09/09/08
MS	Copper	7440-50-8	983	98.300	% Recov	75.000	125.000				09/09/08
MS	Iron	7439-89-6	994.8	99.480	% Recov	75.000	125.000				09/09/08
MS	Potassium	7440-09-7	9865	98.650	% Recov	75.000	125.000				09/09/08
MS	Magnesium	7439-95-4	1410	141.000	% Recov	75.000	125.000				09/09/08
MS	Manganese	7439-96-5	1049	104.900	% Recov	75.000	125.000				09/09/08
MS	Sodium	7440-23-5	920	92.000	% Recov	75.000	125.000				09/09/08
MS	Nickel	7440-02-0	935.5	93.550	% Recov	75.000	125.000				09/09/08
MS	Antimony	7440-36-0	977.6	97.760	% Recov	75.000	125.000				09/09/08
MS	Strontium	7440-24-6	537	107.400	% Recov	75.000	125.000				09/09/08
MS	Vanadium	7440-62-2	982	98.200	% Recov	75.000	125.000				09/09/08
MS	Zinc	7440-66-6	1016	101.600	% Recov	75.000	125.000				09/09/08
MSD	Silver	7440-22-4	990.3	99.030	% Recov	75.000	125.000				09/10/08
MSD	Barium	7440-39-3	492.7	98.540	% Recov	75.000	125.000				09/10/08
MSD	Beryllium	7440-41-7	505.9	101.180	% Recov	75.000	125.000				09/10/08
MSD	Calcium	7440-70-2	5900	590.000	% Recov	75.000	125.000				09/10/08
MSD	Cadmium	7440-43-9	990	99.000	% Recov	75.000	125.000				09/10/08
MSD	Cobalt	7440-48-4	946.4	94.640	% Recov	75.000	125.000				09/10/08
MSD	Chromium	7440-47-3	967.9	96.790	% Recov	75.000	125.000				09/10/08
MSD	Copper	7440-50-8	995.6	99.560	% Recov	75.000	125.000				09/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 08/20/08
 Receive Date: 08/20/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1004.8	100.480	% Recov	75.000	125.000				09/10/08
MSD	Potassium	7440-09-7	10335	103.350	% Recov	75.000	125.000				09/10/08
MSD	Magnesium	7439-95-4	920	92.000	% Recov	75.000	125.000				09/10/08
MSD	Manganese	7439-96-5	1016	101.600	% Recov	75.000	125.000				09/10/08
MSD	Sodium	7440-23-5	1110	111.000	% Recov	75.000	125.000				09/10/08
MSD	Nickel	7440-02-0	934	93.400	% Recov	75.000	125.000				09/10/08
MSD	Antimony	7440-36-0	984.7	98.470	% Recov	75.000	125.000				09/10/08
MSD	Strontium	7440-24-6	528	105.600	% Recov	75.000	125.000				09/10/08
MSD	Vanadium	7440-62-2	967.6	96.760	% Recov	75.000	125.000				09/10/08
MSD	Zinc	7440-66-6	1009	100.900	% Recov	75.000	125.000				09/10/08
SPK-RPD	Silver	7440-22-4	99.030		RPD			0.709	20.000		09/10/08
SPK-RPD	Barium	7440-39-3	98.540		RPD			1.534	20.000		09/10/08
SPK-RPD	Beryllium	7440-41-7	101.180		RPD			0.318	20.000		09/10/08
SPK-RPD	Calcium	7440-70-2	590.000		RPD			47.742	20.000		09/10/08
SPK-RPD	Cadmium	7440-43-9	99.000		RPD			0.232	20.000		09/10/08
SPK-RPD	Cobalt	7440-48-4	94.640		RPD			0.053	20.000		09/10/08
SPK-RPD	Chromium	7440-47-3	96.790		RPD			0.124	20.000		09/10/08
SPK-RPD	Copper	7440-50-8	99.560		RPD			1.274	20.000		09/10/08
SPK-RPD	Iron	7439-89-6	100.480		RPD			1.000	20.000		09/10/08
SPK-RPD	Potassium	7440-09-7	103.350		RPD			4.653	20.000		09/10/08
SPK-RPD	Magnesium	7439-95-4	92.000		RPD			42.060	20.000		09/10/08
SPK-RPD	Manganese	7439-96-5	101.600		RPD			3.196	20.000		09/10/08
SPK-RPD	Sodium	7440-23-5	111.000		RPD			18.719	20.000		09/10/08
SPK-RPD	Nickel	7440-02-0	93.400		RPD			0.160	20.000		09/10/08
SPK-RPD	Antimony	7440-36-0	98.470		RPD			0.724	20.000		09/10/08
SPK-RPD	Strontium	7440-24-6	105.600		RPD			1.690	20.000		09/10/08
SPK-RPD	Vanadium	7440-62-2	96.760		RPD			1.477	20.000		09/10/08
SPK-RPD	Zinc	7440-66-6	100.900		RPD			0.691	20.000		09/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081816
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BATCH QC											
BLANK	Silver	7440-22-4	<5	n/a	ug/L					U	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	<51	n/a	ug/L					U	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	998.4	99.840	% Recov	80.000	120.000				09/09/08
LCS	Barium	7440-39-3	464.1	92.820	% Recov	80.000	120.000				09/09/08
LCS	Beryllium	7440-41-7	526.2	105.240	% Recov	80.000	120.000				09/09/08
LCS	Calcium	7440-70-2	1073	107.300	% Recov	80.000	120.000				09/09/08
LCS	Cadmium	7440-43-9	1031	103.100	% Recov	80.000	120.000				09/09/08
LCS	Cobalt	7440-48-4	1002	100.200	% Recov	80.000	120.000				09/09/08
LCS	Chromium	7440-47-3	973.5	97.350	% Recov	80.000	120.000				09/09/08
LCS	Copper	7440-50-8	1006	100.600	% Recov	80.000	120.000				09/09/08
LCS	Iron	7439-89-6	978.6	97.860	% Recov	80.000	120.000				09/09/08
LCS	Potassium	7440-09-7	11260	112.600	% Recov	80.000	120.000				09/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 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	1023	102.300	% Recov	80.000	120.000				09/09/08
LCS	Manganese	7439-96-5	1004	100.400	% Recov	80.000	120.000				09/09/08
LCS	Sodium	7440-23-5	1064	106.400	% Recov	80.000	120.000				09/09/08
LCS	Nickel	7440-02-0	1015	101.500	% Recov	80.000	120.000				09/09/08
LCS	Antimony	7440-36-0	1037	103.700	% Recov	80.000	120.000				09/09/08
LCS	Strontium	7440-24-6	499.6	99.920	% Recov	80.000	120.000				09/09/08
LCS	Vanadium	7440-62-2	988	98.800	% Recov	80.000	120.000				09/09/08
LCS	Zinc	7440-66-6	1043	104.300	% Recov	80.000	120.000				09/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: ICP-200.8 MS All possible meta

Sample Date: 08/26/08
 Receive Date: 08/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004214											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	43.21	108.025	% Recov	70.000	130.000				09/15/08
MS	Uranium	7440-61-1	39.23	98.075	% Recov	70.000	130.000				09/15/08
MSD	Arsenic	7440-38-2	42.84	107.100	% Recov	70.000	130.000				09/15/08
MSD	Uranium	7440-61-1	39.88	99.700	% Recov	70.000	130.000				09/15/08
SPK-RPD	Arsenic	7440-38-2	107.100		RPD			0.860	20.000		09/15/08
SPK-RPD	Uranium	7440-61-1	99.700		RPD			1.643	20.000		09/15/08
Lab ID: W08P004270											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Arsenic	7440-38-2	42.79	106.975	% Recov	70.000	130.000				09/15/08
MS	Uranium	7440-61-1	44.466	111.165	% Recov	70.000	130.000				09/15/08
MSD	Arsenic	7440-38-2	42.74	106.850	% Recov	70.000	130.000				09/15/08
MSD	Uranium	7440-61-1	44.566	111.415	% Recov	70.000	130.000				09/15/08
SPK-RPD	Arsenic	7440-38-2	106.850		RPD			0.117	20.000		09/15/08
SPK-RPD	Uranium	7440-61-1	111.415		RPD			0.225	20.000		09/15/08
BATCH QC											
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	09/15/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	09/15/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	09/15/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	09/15/08
LCS	Arsenic	7440-38-2	40.2	100.500	% Recov	85.000	115.000				09/15/08
LCS	Arsenic	7440-38-2	40.11	100.275	% Recov	85.000	115.000				09/15/08
LCS	Uranium	7440-61-1	40.32	100.800	% Recov	85.000	115.000				09/15/08
LCS	Uranium	7440-61-1	40.35	100.875	% Recov	85.000	115.000				09/15/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: Total Alkalinity as mg/L CaCO3

Sample Date: 08/27/08
 Receive Date: 08/27/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR03517											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	6561		RPD			2.929	20.000		09/03/08
Lab ID: W08P004191											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	157.5		RPD			4.651	20.000		09/03/08
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	31.82	106.779	%Recover	80.000	120.000				09/03/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	31.59	106.007	%Recover	80.000	120.000				09/03/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	31.73	106.477	%Recover	80.000	120.000				09/03/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	32.40	108.725	%Recover	80.000	120.000				09/03/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	32.11	107.752	%Recover	80.000	120.000				09/03/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081816
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>IC Anion - Sample hold times missed for group 20081816. DTS</p> <p>IC Anion - Nitrate concentration in sample W08P004191 exceeds the calibration range. E flag. DTS</p> <p>ICP-AES: B-Flag for samples <5X MDL</p> <p>ICP-AES: [Samples W08P4192-4195]</p> <p>No zirconium 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 sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.</p> <p>VOA: Spike 1,1-Dichloroethene a bit high in the MS of B1WMT7, but OK in the LCS and MSD. gar</p> <p>Tc-99 matrix spike low recovery is due to the high sample activity. Imh</p>

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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Report Date: 28-sep-2008

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-008
Sample # W08P004183
Client ID: B1WMT7

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	BJ	2.00	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e + 02		08/29/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-80-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-008
Sample # W08P004183
Client ID: B1WMT7

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL 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		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004186
Client ID: B1WDX9

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Alcohols, Glycols - 8015 Prep											
Alcohols, Glycols - 8015											
Ethyl acetate	141-78-6	Organics	U	< 5.00e+03	ug/L			1.00	5.0e+03		09/04/08
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455		20.0	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455	J	1.50	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	BJ	1.40	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/29/08

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

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Report WGPP/ver. 5.2
GPAP

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample # W08P004186

Client ID: B1WDX9

GPP-PNNL TRENT

Matrix: WATER

WSCF

Group #: WSCF20081816

Department: Organic

Sampled: 08/22/08

Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample #: W08P004187

Client ID: B1WDY2

GPP-PNNL TRENT

Matrix: WATER

Group #: WSCF20081816

Department: Organic

Sampled: 08/22/08

Received: 08/25/08

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Alcohols, Glycols - 8015 Prep											
Alcohols, Glycols - 8015											
Ethyl acetate	141-78-8	Organics	U	< 5.00e+03	ug/L			1.00	5.0e+03		09/04/08
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455		33.0	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455	J	1.10	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/29/08

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: 108-053
Sample # W08P004187
Client ID: B1WDY2

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-80-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

MDL=Minimum Detection Limit
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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004188
Client ID: B1WF00

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Alcohols, Glycols - 8015 Prep											
Alcohols, Glycols - 8015											
Ethyl acetate	141-78-8	Organics	U	< 5.00e +03	ug/L			1.00	5.0e +03		09/04/08
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455	J	1.40	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455	J	1.60	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455	J	2.20	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	BJ	1.50	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e +02		08/29/08

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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004188
Client ID: B1WF00

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004189
Client ID: B1WDR0

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455	J	2.50	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455		190	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455		8.90	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	BJ	1.50	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/29/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-80-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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 Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004189
Client ID: B1WDR0

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT
WSCF

Matrix: WATER

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		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004190
Client ID: B1WDR1

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	BJ	2.90	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/29/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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.(inorg)
 D - Analyte was identified at a secondary dilution factor(inorg)
 E - Analyte is an estimate, has potentially larger errors.(inorg)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
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 J - Analyte < lowest calibration but > = MDL.(inorg)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004190
Client ID: B1WDR1

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL 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		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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)
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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-054
Sample # W08P004195
Client ID: B1WF57

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Trichloroethene	79-01-6	LA-523-455		6.40	ug/L			1.00	1.0		08/29/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon tetrachloride	56-23-5	LA-523-455	E	1.00e+03	ug/L			1.00	1.0		08/29/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Chloroform	67-66-3	LA-523-455		14.0	ug/L			1.00	1.0		08/29/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		08/29/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		08/29/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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

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Report WGPP/ver. 5.2
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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-054
Sample # W08P004195
Client ID: B1WF57

Group #: WSCF20081816
Department: Organic
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL 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		08/29/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		08/29/08

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)
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 J - Analyte < lowest calibration but > = MDL.(org)
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* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2
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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: Alcohols, Glycols - 8015

Sample Date: 08/22/08
 Receive Date: 08/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004186											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	2-Bromoethanol	540-51-2	18800		RPD			6.593	25.000		09/04/08
DUP	Ethyl acetate	141-78-6	<5000		RPD			n/a	25.000	U	09/04/08
MS	2-Bromoethanol	540-51-2	18800	106.818	% Recov	70.000	125.000				09/04/08
MS	Ethyl acetate	141-78-6	7700	85.556	% Recov	75.000	125.000				09/04/08
MSD	2-Bromoethanol	540-51-2	18700	106.250	% Recov	70.000	125.000				09/04/08
MSD	Ethyl acetate	141-78-6	6800	75.556	% Recov	75.000	125.000				09/04/08
SPK-RPD	2-Bromoethanol	540-51-2	106.250		RPD			0.533	20.000		09/04/08
SPK-RPD	Ethyl acetate	141-78-6	75.556		RPD			12.414	20.000		09/04/08
BATCH QC											
BLANK	2-Bromoethanol	540-51-2	17200	97.727	% Recov	75.000	125.000				09/04/08
BLANK	Ethyl acetate	141-78-6	<5000	n/a	ug/L	0.000	5.000			U	09/04/08
LCS	2-Bromoethanol	540-51-2	18000	102.273	% Recov	70.000	130.000				09/04/08
LCS	Ethyl acetate	141-78-6	9800	108.889	% Recov	70.000	130.000				09/04/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081816
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 08/22/08
 Receive Date: 08/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004183											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,1-Dichloroethene	75-35-4	29.430	118.000	% Recov	63.000	117.000				08/29/08
MS	Benzene	71-43-2	25.310	101.000	% Recov	75.000	129.000				08/29/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	48.530	97.100	% Recov	75.000	125.000				08/29/08
MS	Chlorobenzene	108-90-7	26.380	106.000	% Recov	79.000	119.000				08/29/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.170	112.000	% Recov	75.000	125.000				08/29/08
MS	Toluene-d8(Surr)	2037-26-5	49.510	99.000	% Recov	75.000	125.000				08/29/08
MS	Toluene	108-88-3	25.800	103.000	% Recov	76.000	120.000				08/29/08
MS	Trichloroethene	79-01-6	22.020	88.100	% Recov	73.000	123.000				08/29/08
MSD	1,1-Dichloroethene	75-35-4	27.210	109.000	% Recov	63.000	117.000				08/29/08
MSD	Benzene	71-43-2	24.840	99.400	% Recov	75.000	129.000				08/29/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	48.530	97.100	% Recov	75.000	125.000				08/29/08
MSD	Chlorobenzene	108-90-7	25.880	104.000	% Recov	79.000	119.000				08/29/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.130	112.000	% Recov	75.000	125.000				08/29/08
MSD	Toluene-d8(Surr)	2037-26-5	49.560	99.100	% Recov	75.000	125.000				08/29/08
MSD	Toluene	108-88-3	25.350	101.000	% Recov	76.000	120.000				08/29/08
MSD	Trichloroethene	79-01-6	21.280	85.100	% Recov	73.000	123.000				08/29/08
SPK-RPD	1,1-Dichloroethene	75-35-4	109.000		RPD			7.930	20.000		08/29/08
SPK-RPD	Benzene	71-43-2	99.400		RPD			1.597	20.000		08/29/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	97.100		RPD			0.000	20.000		08/29/08
SPK-RPD	Chlorobenzene	108-90-7	104.000		RPD			1.905	20.000		08/29/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	112.000		RPD			0.000	20.000		08/29/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	99.100		RPD			0.101	20.000		08/29/08
SPK-RPD	Toluene	108-88-3	101.000		RPD			1.961	20.000		08/29/08
SPK-RPD	Trichloroethene	79-01-6	85.100		RPD			3.464	20.000		08/29/08
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.480	97.000	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.640	111.000	% Recov	75.000	125.000				08/29/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081816
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 08/22/08
 Receive Date: 08/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	Toluene-d8(Surr)	2037-26-5	50.090	100.000	% Recov	75.000	125.000				08/29/08
Lab ID: W08P004186 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.530	97.100	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.980	112.000	% Recov	75.000	125.000				08/29/08
SURR	Toluene-d8(Surr)	2037-26-5	50.320	101.000	% Recov	75.000	125.000				08/29/08
Lab ID: W08P004187 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.270	96.500	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.740	113.000	% Recov	75.000	125.000				08/29/08
SURR	Toluene-d8(Surr)	2037-26-5	50.310	101.000	% Recov	75.000	125.000				08/29/08
Lab ID: W08P004188 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.460	94.900	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.760	112.000	% Recov	75.000	125.000				08/29/08
SURR	Toluene-d8(Surr)	2037-26-5	50.240	100.000	% Recov	75.000	125.000				08/29/08
Lab ID: W08P004189 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.630	97.300	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.630	113.000	% Recov	75.000	125.000				08/29/08
SURR	Toluene-d8(Surr)	2037-26-5	50.490	101.000	% Recov	75.000	125.000				08/29/08
Lab ID: W08P004190 BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.660	97.300	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.280	113.000	% Recov	75.000	125.000				08/29/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081816
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date: 08/22/08
 Receive Date: 08/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	Toluene-d8(Surr)	2037-26-5	50.380	101.000	% Recov	75.000	125.000				08/29/08
Lab ID: W08P004195											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.670	95.300	% Recov	75.000	125.000				08/29/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.380	113.000	% Recov	75.000	125.000				08/29/08
SURR	Toluene-d8(Surr)	2037-26-5	50.110	100.000	% Recov	75.000	125.000				08/29/08
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	08/29/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Acetone	67-64-1	56	56.000	ug/L						08/29/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	08/29/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	48.190	96.400	% Recov	75.000	125.000				08/29/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	08/29/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	08/29/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.030	112.000	% Recov	75.000	125.000				08/29/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	08/29/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	08/29/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081816
 Matrix: WATER
 Test: VOA Ground Water Protection

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Methylenechloride	75-09-2	1.6	1.600	ug/L						08/29/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	08/29/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	08/29/08
BLANK	Toluene-d8(Surr)	2037-26-5	49.550	99.100	% Recov	75.000	125.000				08/29/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	08/29/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	08/29/08
LCS	1,1-Dichloroethene	75-35-4	26.360	105.000	% Recov	75.000	125.000				08/29/08
LCS	Benzene	71-43-2	25.350	101.000	% Recov	75.000	125.000				08/29/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	47.640	95.300	% Recov	75.000	125.000				08/29/08
LCS	Chlorobenzene	108-90-7	26.100	104.000	% Recov	75.000	125.000				08/29/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	55.910	112.000	% Recov	75.000	125.000				08/29/08
LCS	Toluene-d8(Surr)	2037-26-5	49.800	99.600	% Recov	75.000	125.000				08/29/08
LCS	Toluene	108-88-3	25.470	102.000	% Recov	75.000	125.000				08/29/08
LCS	Trichloroethene	79-01-6	21.230	84.900	% Recov	75.000	125.000				08/29/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081816
Department: Organic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>IC Anion - Sample hold times missed for group 20081816. DTS</p> <p>IC Anion - Nitrate concentration in sample W08P004191 exceeds the calibration range. E flag. DTS</p> <p>ICP-AES: B-Flag for samples <5X MDL</p> <p>ICP-AES: [Samples W08P4192-4195]</p> <p>No zirconium 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 sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.</p> <p>VOA: Spike 1,1-Dichloroethene a bit high in the MS of B1WMT7, but OK in the LCS and MSD. gar</p> <p>Tc-99 matrix spike low recovery is due to the high sample activity. Imh</p>

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-054

Sample # W08P004184

Client ID: B1WF74

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Radiochemistry

Sampled: 08/22/08

Received: 08/25/08

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		16.0	pCi/L	+ -4.80	pCi/L	1.00	5.7		09/25/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

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

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-054

Sample # W08P004185

Client ID: B1WF75

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Radiochemistry

Sampled: 08/22/08

Received: 08/25/08

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	U	1.80	pCi/L	+ -3.24	pCi/L	1.00	5.7		09/25/08
To-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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004186
Client ID: B1WDX9

Group #: WSCF20081816
Department: Radiochemistry
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		420	pCi/L	+84.0	pCi/L	1.00	5.7		09/25/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.90e+04	pCi/L	+3.80e+03	pCi/L	1.00	2.3e+02		09/23/08

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(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004187
Client ID: B1WDY2

Group #: WSCF20081816
Department: Radiochemistry
Sampled: 08/22/08
Received: 08/25/08

GPP-PNNL TRENT **Matrix:** WATER
 WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421	U	2.80	pCi/L	+ -3.53	pCi/L	1.00	5.7		09/25/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	30.0	pCi/L	+ -99.0	pCi/L	1.00	2.3e + 02		09/23/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
 GPAP

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-053
Sample # W08P004188
Client ID: B1WF00

GPP-PNNL TRENT
 WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Radiochemistry
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		89.0	pCi/L	+ -18.7	pCi/L	1.00	5.7		09/25/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		2.30e +04	pCi/L	+ -4.60e +03	pCi/L	1.00	2.4e +02		09/19/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-053

Sample # W08P004189

Client ID: B1WDR0

GPP-PNNL TRENT

Matrix: WATER

WSCF

Group #: WSCF20081816

Department: Radiochemistry

Sampled: 08/22/08

Received: 08/25/08

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		14.0	pCi/L	+ -4.48	pCi/L	1.00	5.7		09/25/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors.(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: 108-053

Sample # W08P004190

Client ID: B1WDR1

GPP-PNNL TRENT

Matrix: WATER

WSCF

Group #: WSCF20081816

Department: Radiochemistry

Sampled: 08/22/08

Received: 08/25/08

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	U	-1.00	pCi/L	+ -3.27	pCi/L	1.00	5.7		09/25/08
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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-008
Sample # W08P004191
Client ID: B1WJR1

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Radiochemistry
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		8.90e+03	pCi/L	+ -1.78e+03	pCi/L	1.00	2.4e+02		09/19/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-008
Sample # W08P004193
Client ID: B1WJL5

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816
Department: Radiochemistry
Sampled: 08/22/08
Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		130	pCi/L	+ -26.0	pCi/L	1.00	5.7		09/25/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.50e +03	pCi/L	+ -360	pCi/L	1.00	2.4e +02		09/19/08

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.(inorg)
 E - Analyte is an estimate, has potentially larger errors.(org)
 N - Spike sample recovery is outside control limits.(inorg)

B - The analyte < the RDL but > = the IDL/MDL (inorg)
 E - Analyte is an estimate, has potentially larger errors(inorg)
 J - Analyte < lowest calibration but > = MDL.(org)
 U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35

SAF Number: I08-054

Sample # W08P004195

Client ID: B1WF57

GPP-PNNL TRENT
WSCF

Matrix: WATER

Group #: WSCF20081816

Department: Radiochemistry

Sampled: 08/22/08

Received: 08/25/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin. Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		730	pCi/L	+ -148	pCi/L	1.00	5.7		09/25/08

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.(inorg)

E - Analyte is an estimate, has potentially larger errors.(org)

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

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

E - Analyte is an estimate, has potentially larger errors(inorg)

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

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

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Report WGPP/ver. 5.2

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081816
 Matrix: WATER
 Test: TC99 by Liquid Scin.

Sample Date: 09/03/08
 Receive Date: 09/03/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004318											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	5.0E+03		RPD			0.000	20.000		09/25/08
MS	Tc-99 by Liquid Scin.	14133-76-7	193.5	30.394	% Recov	75.000	125.000				09/25/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U2.0	n/a	pCi/L	-10.000	10.000				09/25/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	165.4	103.894	% Recov	80.000	120.000				09/25/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081816
 Matrix: WATER
 Test: Tritium by Liq Sct column prep

Sample Date: 08/22/08
 Receive Date: 08/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004188											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	2.3E+04		RPD			0.000	20.000		09/19/08
MS	Tritium	10028-17-8	19600.0	87.300	% Recov	75.000	125.000				09/19/08
BATCH QC											
BLANK	Tritium	10028-17-8	U2.4E+01	n/a	pCi/L	-10.000	1000.000				09/19/08
LCS	Tritium	10028-17-8	2920.0	86.339	% Recov	80.000	120.000				09/19/08
Lab ID: W08P004332											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	U-3.1E+01		RPD			n/a	20.000		09/23/08
MS	Tritium	10028-17-8	19277	85.822	% Recov	75.000	125.000				09/23/08
BATCH QC											
BLANK	Tritium	10028-17-8	U-4.0	n/a	pCi/L	-10.000	1000.000				09/23/08
LCS	Tritium	10028-17-8	2940	86.892	% Recov	80.000	120.000				09/23/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081816
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		<p>IC Anion - Sample hold times missed for group 20081816. DTS IC Anion - Nitrate concentration in sample W08P004191 exceeds the calibration range. E flag. DTS</p> <p>ICP-AES: B-Flag for samples <5X MDL ICP-AES: [Samples W08P4192-4195] 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 sodium, magnesium, and calcium linearity because sample results are greater than the calibration standard.</p> <p>VOA: Spike 1,1-Dichloroethene a bit high in the MS of B1WMT7, but OK in the LCS and MSD. gar</p> <p>Tc-99 matrix spike low recovery is due to the high sample activity. lmh</p>

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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M4W41-SLF-08-1090

ATTACHMENT 5

SAMPLE RECEIPT INFORMATION

Consisting of 14 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
VIS
7/24/08

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081816

The following samples were received from you on 08/25/08. 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
W08P004183	B1WMT7	GPP-PNNL @VOA-GPP	TRENT Water	08/22/08
W08P004184	B1WF74	GPP-PNNL @IC-30	TRENT Water	08/22/08
W08P004185	B1WF75	GPP-PNNL @IC-30	TRENT Water	08/22/08
W08P004186	B1WDX9	GPP-PNNL @2008 @VOA-GPP	TRENT Water	08/22/08
W08P004187	B1WDY2	GPP-PNNL @2008 @VOA-GPP	TRENT Water	08/22/08
W08P004188	B1WF00	GPP-PNNL @2008 @VOA-GPP	TRENT Water	08/22/08
W08P004189	B1WDR0	GPP-PNNL @2008	TRENT Water	08/22/08
W08P004190	B1WDR1	GPP-PNNL @2008	TRENT Water	08/22/08
W08P004191	B1WJR1	GPP-PNNL @H3-33	TRENT Water	08/22/08
W08P004192	B1WJL4	GPP-PNNL @GPP6010	TRENT Water	08/22/08
W08P004193	B1WJL5	GPP-PNNL @GPP6010	TRENT Water	08/22/08
W08P004194	B1WF56	GPP-PNNL @2008	TRENT Water	08/22/08
W08P004195	B1WF57	GPP-PNNL @2008	TRENT Water	08/22/08

Test Acronym Description

Test Acronym	Description
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GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081816

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@8015GPP	Alcohols, Glycols - 8015
@GPP6010	ICP Metals Analysis, Grd H2O P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection
ALKALI	Total Alkalinity as mg/L CaCO3

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

108-053-132

Page 1 of 1

Collector R. Ellingsworth	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN	FAX
SAF No. 108-053	Sampling Origin Hanford Site	Purchase Order/Charge Code		
Project Title 2UPL AUGUST 2008	HNF-W-50674	Ice Chest No. 211	Temp.	
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.		
Protocol SURV	Priority: 30 Days PRIORITY		Offsite Property No.	

POSSIBLE SAMPLE HAZARDS/REMARKS * *	SPECIAL INSTRUCTIONS 200 Area Generator Knowledge Information Form applies.	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--	-----------	---

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WDX9	<i>wc 8804186</i>	W	<i>8-22-08</i>	<i>1304</i>	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool-4C
B1WDX9		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WDX9		W	↓	↓	1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1WDX9		W	↓	↓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1WDX9		W	↓	↓	3x40-mL aGs*	Alcohols, Glycols, & Ketones - 8015	Cool-4C
B1WDX9		W	↓	↓	1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
ICED							

Relinquished By R. Ellingsworth	Print <i>R. Ellingsworth</i>	Sign <i>[Signature]</i>	Date/Time AUG 25 2008	Received By D. J. Sparks	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time AUG 25 2008	Matrix * S = Soil DS = Drum Solid SE = Sediment DL = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Lint O = Oil V = Vegetation A = Air X = Other
Relinquished By D. J. Sparks	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time AUG 25 2008	Received By [Signature]	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time AUG 25 2008	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1
 I08-053-57

Collector R. Ellingsworth	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN	FAX
SAF No. I08-053	Sampling Origin Hanford Site	Purchase Order/Charge Code		
Project Title 2UPL AUGUST 2008	HNF-IV-506-14	Ice Chest No. <i>[Signature]</i>	Temp.	
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.		
Protocol SURV	Priority: 30 Days PRIORITY	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"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WDR1	W04P02470	W	8-22-08	0745	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool-4C
B1WDR1		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool-4C
B1WDR1		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1WDR1		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
ICED							

Relinquished By R. Ellingsworth	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time AUG 25 2008	Received By D. J. Sparks	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time AUG 25 2008	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge W = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By D. J. Sparks			Date/Time AUG 25 2008	Received By <i>[Signature]</i>			Date/Time AUG 25 2008	
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	

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-008-234

Page 1 of 1

Collector FLUOR HANFORD R.F. CARRIGAN	Contact/Requester Steve Trent	Telephone No. 509-373-5869	MSIN FAX
SAF No. W08-008	Sampling Origin Hanford Site	Purchase Order/Charge Code	
Project Title RCRA AUGUST 2008	HWF-N-506 17	Ice Chest No. RW1	Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.	
Protocol RCRA	Priority: 30 Days PRIORITY	Offsite Property No.	

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1WJL4 (F)	W08004192	W	8-22-08	1309	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WJL5	4193	W	↓	↓	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1WJL5		W	↓	↓	1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1WJL5		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1WJL5		W	↓	↓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1WJL5		W	↓	↓	1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
ICED							

Relinquished By FLUOR HANFORD R.F. CARRIGAN	Print <i>R. Carrigan</i>	Sign <i>R. Carrigan</i>	Date/Time 08/25 AUG 25 2008	Received By D. J. Sparks	Print <i>D. J. Sparks</i>	Sign <i>D. J. Sparks</i>	Date/Time 08/25 AUG 25 2008	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Limb SO = Solid T = Tissue SI = Sludge W = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By D. J. Sparks	<i>D. J. Sparks</i>	<i>D. J. Sparks</i>	08/25 AUG 25 2008	Received By Victoria Sims	<i>V. Sims</i>	<i>V. Sims</i>	08/25 AUG 25 2008	
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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