RECEIVED AUGUST 21, 2008

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Memorandum

M4W41-SLF-08-868

To: H. Hampt E6-35 Date: August 21, 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 WSCF20081287

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 WSCF20081287:

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

SLF/grf

Attachments 4

M4W41-SLF-08-868

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081287
Data Deliverable Date: 11-aug-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
S08-006	B1VM28	W08P003117	WATER
	B1VM29	W08P003118	WATER
	B1VM34	W08P003119	WATER
	B1VM35	W08P003120	WATER
W08-005	B1VHJ7	W08P003114	WATER
W08-006	B1VP16	W08P003115	WATER
	B1VP17	W08P003116	WATER
	B1VR43	W08P003125	WATER
	B1VR44	W08P003126	WATER
W08-06	B1VR39	W08P003121	WATER
	B1VR40	W08P003122	WATER
	B1VR41	W08P003123	WATER
	B1VR42	W08P003124	WATER

M4W41-SLF-08-868

ATTACHMENT 2

NARRATIVE

Consisting of 5 pages
Including cover page

Introduction

Thirteen (13) groundwater samples were received at the WSCF Laboratory on June 26, 2008. Samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

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

Analytical Methodology for Requested Analyses

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

Inorganic Comments

Anions – Hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 33 through 35 for QC details. Analytical Note(s):

- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VK11 (SDG# 20081273) and B1VNP4 (SDG# 20081288).
- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.

All QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 36 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1V577 (SDG# 20081261, SAF# F08-103).

All QC controls are within the established limits.

ICP-AES Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 37 through 43 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1V884 (SDG# 20081252) and B1VM29 of this SDG.
    - Batch QC - B1V884 –
        - Calcium, Magnesium and Sodium sample results exceeded spiking levels by a factor of 4. Spike recoveries are no valid. Check standard was analyzed to ensure linearity, because the sample results were greater than the calibration standard.
    - Batch QC – B1VM29 –
        - Calcium, Magnesium and Sodium sample results exceeded spiking levels by a factor of 4. Spike recoveries are no valid. Check standard was analyzed to ensure linearity, because the sample results were greater than the calibration standard.
        - Silver contamination detected in the Blank was evaluated and affected sample results were C flagged.
        - Silver – Matrix Spike recovery was less than established laboratory limits. Affected sample results were N flagged.

All other QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 44 through 45 for QC details. Analytical Note(s):

- Aluminum contamination detected in the Blank was evaluated and affected sample results were C flagged.

All other QC controls are within the established limits.

Total Alkalinity – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 46 for QC details. Analytical Note(s):

- Duplicates were analyzed on samples B1VRK0 (SDG# 20081240) and B1VK09 (SDG# 20081252).

All QC controls are within the established limits.

Total Organic Carbon – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Method Spike were analyzed with this delivery group per the GRP Letter of Instruction. See page 47 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VR10 (SDG# 20081260) and B1VNP9 (SDG# 20081288).

All QC controls are within the established limits.

Organic Comments

Semi-VOA – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 55 through 58 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 59 through 61 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VHJ6 (SDG# 20081260).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 67 through 73 for QC details. Analytical Note(s):

- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1VLD6 (SDG# 20081275).

- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1VLJ6 (SDG# 20081245). Matrix Spike recovery is less than established laboratory limits due to high sample activity. No flags issued.

All other QC controls are within the established limits.

I certify that this data package is in compliance with the 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-08-868

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 66 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical: M. Stauffer 8/21/08

Client Services: P.D. Mix 8/20/2008

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

w13qlog v4.2 20-aug-2008 13:23:42

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081287

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36909	2	37330	41679	BLANK		Anions by Ion Chromatography
36909	14	37330	41679	BLANK		Anions by Ion Chromatography
36909	25	37330	41679	BLANK		Anions by Ion Chromatography
36909	3	37330	41679	LCS		Anions by Ion Chromatography
36909	15	37330	41679	LCS		Anions by Ion Chromatography
36909	11	37330	41679	DUP	W08P003107	Anions by Ion Chromatography
36909	12	37330	41679	MS	W08P003107	Anions by Ion Chromatography
36909	13	37330	41679	MSD	W08P003107	Anions by Ion Chromatography
36909	13	37330	41679	SPK-RPD	W08P003107	Anions by Ion Chromatography
36909	16	37330	41679	SAMPLE	W08P003118	Anions by Ion Chromatography
36909	17	37330	41679	SAMPLE	W08P003120	Anions by Ion Chromatography
36909	18	37330	41679	SAMPLE	W08P003126	Anions by Ion Chromatography
36909	22	37330	41679	DUP	W08P003143	Anions by Ion Chromatography
36909	23	37330	41679	MS	W08P003143	Anions by Ion Chromatography
36909	24	37330	41679	MSD	W08P003143	Anions by Ion Chromatography
36909	24	37330	41679	SPK-RPD	W08P003143	Anions by Ion Chromatography
36924	1	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	13	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	24	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	36	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	46	37345	41702	LCS		Total Alkalinity as mg/L CaCO3
36924	3	37345	41702	DUP	W08P002897	Total Alkalinity as mg/L CaCO3
36924	26	37345	41702	DUP	W08P003018	Total Alkalinity as mg/L CaCO3
36924	38	37345	41702	SAMPLE	W08P003118	Total Alkalinity as mg/L CaCO3
36924	39	37345	41702	SAMPLE	W08P003120	Total Alkalinity as mg/L CaCO3
36924	40	37345	41702	SAMPLE	W08P003126	Total Alkalinity as mg/L CaCO3
36933	1	37349	41733	BLANK		Cyanide by Midi/Spectrophotom
36933	2	37349	41733	LCS		Cyanide by Midi/Spectrophotom
36933	5	37349	41733	MS	W08GR01833	Cyanide by Midi/Spectrophotom
36933	6	37349	41733	MSD	W08GR01833	Cyanide by Midi/Spectrophotom
36933	6	37349	41733	SPK-RPD	W08GR01833	Cyanide by Midi/Spectrophotom
36933	14	37349	41733	SAMPLE	W08P003118	Cyanide by Midi/Spectrophotom
36933	15	37349	41733	SAMPLE	W08P003120	Cyanide by Midi/Spectrophotom
37088	1	37514	41869	BLANK		ICP-200.8 MS All possible meta
37088	2	37514	41869	LCS		ICP-200.8 MS All possible meta
37088	21	37514	41869	SAMPLE	W08P003117	ICP-200.8 MS All possible meta
37088	4	37514	41869	MS	W08P003118	ICP-200.8 MS All possible meta
37088	5	37514	41869	MSD	W08P003118	ICP-200.8 MS All possible meta
37088	3	37514	41869	SAMPLE	W08P003118	ICP-200.8 MS All possible meta
37088	5	37514	41869	SPK-RPD	W08P003118	ICP-200.8 MS All possible meta
37088	22	37514	41869	SAMPLE	W08P003119	ICP-200.8 MS All possible meta
37088	7	37514	41869	MS	W08P003120	ICP-200.8 MS All possible meta
37088	8	37514	41869	MSD	W08P003120	ICP-200.8 MS All possible meta
37088	6	37514	41869	SAMPLE	W08P003120	ICP-200.8 MS All possible meta
37088	8	37514	41869	SPK-RPD	W08P003120	ICP-200.8 MS All possible meta
37088	23	37514	41869	SAMPLE	W08P003125	ICP-200.8 MS All possible meta
37088	24	37514	41869	SAMPLE	W08P003126	ICP-200.8 MS All possible meta
37279	1	37709	42028	BLANK		Total Organic Carbon

37279	2	37709	42028	METHSPIKE		Total Organic Carbon
37279	3	37709	42028	SPK-RSD		Total Organic Carbon
37279	4	37709	42028	MS	W08P003056	Total Organic Carbon
37279	5	37709	42028	MSD	W08P003056	Total Organic Carbon
37279	5	37709	42028	SPK-RPD	W08P003056	Total Organic Carbon
37279	9	37709	42028	SAMPLE	W08P003121	Total Organic Carbon
37279	10	37709	42028	SAMPLE	W08P003122	Total Organic Carbon
37279	11	37709	42028	SAMPLE	W08P003123	Total Organic Carbon
37279	12	37709	42028	SAMPLE	W08P003124	Total Organic Carbon
37279	17	37709	42028	MS	W08P003135	Total Organic Carbon
37279	18	37709	42028	MSD	W08P003135	Total Organic Carbon
37279	18	37709	42028	SPK-RPD	W08P003135	Total Organic Carbon
37349	1	37618	42272	BLANK		ICP Metals Analysis, Grd H20 P
37349	2	37618	42272	LCS		ICP Metals Analysis, Grd H20 P
37349	4	37618	42272	MS	W08P003032	ICP Metals Analysis, Grd H20 P
37349	5	37618	42272	MSD	W08P003032	ICP Metals Analysis, Grd H20 P
37349	5	37618	42272	SPK-RPD	W08P003032	ICP Metals Analysis, Grd H20 P
37349	24	37618	42272	SAMPLE	W08P003117	ICP Metals Analysis, Grd H20 P
37350	1	37619	42405	BLANK		ICP Metals Analysis, Grd H20 P
37350	2	37619	42405	LCS		ICP Metals Analysis, Grd H20 P
37350	4	37619	42405	MS	W08P003118	ICP Metals Analysis, Grd H20 P
37350	5	37619	42405	MSD	W08P003118	ICP Metals Analysis, Grd H20 P
37350	3	37619	42405	SAMPLE	W08P003118	ICP Metals Analysis, Grd H20 P
37350	5	37619	42405	SPK-RPD	W08P003118	ICP Metals Analysis, Grd H20 P
37350	6	37619	42405	SAMPLE	W08P003119	ICP Metals Analysis, Grd H20 P
37350	7	37619	42405	SAMPLE	W08P003120	ICP Metals Analysis, Grd H20 P
37350	8	37619	42405	SAMPLE	W08P003125	ICP Metals Analysis, Grd H20 P
37350	9	37619	42405	SAMPLE	W08P003126	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 20-aug-2008 13:23:42

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081287

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			41834	BLANK		SW-846 8270C Semi-Vols
			41834	LCS		SW-846 8270C Semi-Vols
			41834	SAMPLE	W08P003118	SW-846 8270C Semi-Vols
			41834	SURR	W08P003118	SW-846 8270C Semi-Vols
			41834	MS	W08P003120	SW-846 8270C Semi-Vols
			41834	MSD	W08P003120	SW-846 8270C Semi-Vols
			41834	SAMPLE	W08P003120	SW-846 8270C Semi-Vols
			41834	SPK-RPD	W08P003120	SW-846 8270C Semi-Vols
			41834	SURR	W08P003120	SW-846 8270C Semi-Vols
			42204	BLANK		VOA Ground Water Protection
			42204	LCS		VOA Ground Water Protection
			42204	MS	W08P003038	VOA Ground Water Protection
			42204	MSD	W08P003038	VOA Ground Water Protection
			42204	SPK-RPD	W08P003038	VOA Ground Water Protection
			42204	SAMPLE	W08P003114	VOA Ground Water Protection
			42204	SURR	W08P003114	VOA Ground Water Protection
			42204	SAMPLE	W08P003118	VOA Ground Water Protection
			42204	SURR	W08P003118	VOA Ground Water Protection
			42204	SAMPLE	W08P003120	VOA Ground Water Protection
			42204	SURR	W08P003120	VOA Ground Water Protection

w13qlog v4.2 20-aug-2008 13:23:42

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081287

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36966	1	37389	41771	BLANK		Tritium by Liq Sct column prep
36966	4	37389	41771	LCS		Tritium by Liq Sct column prep
36966	3	37389	41771	DUP	W08P003087	Tritium by Liq Sct column prep
36966	2	37389	41771	MS	W08P003087	Tritium by Liq Sct column prep
36966	9	37389	41771	SAMPLE	W08P003118	Tritium by Liq Sct column prep
36966	10	37389	41771	SAMPLE	W08P003120	Tritium by Liq Sct column prep
37136	1	37563	41965	BLANK		Gross Alpha/Gross Beta (AB32)
37136	2	37563	41965	LCS		Gross Alpha/Gross Beta (AB32)
37136	3	37563	41965	DUP	W08P003118	Gross Alpha/Gross Beta (AB32)
37136	4	37563	41965	SAMPLE	W08P003118	Gross Alpha/Gross Beta (AB32)
37136	5	37563	41965	SAMPLE	W08P003120	Gross Alpha/Gross Beta (AB32)
37136	6	37563	41965	SAMPLE	W08P003126	Gross Alpha/Gross Beta (AB32)
37157	1	37583	42001	BLANK		Gross Alpha on Alpha Plateau
37157	2	37583	42001	LCS		Gross Alpha on Alpha Plateau
37157	3	37583	42001	DUP	W08P003118	Gross Alpha on Alpha Plateau
37157	4	37583	42001	SAMPLE	W08P003118	Gross Alpha on Alpha Plateau
37157	5	37583	42001	SAMPLE	W08P003120	Gross Alpha on Alpha Plateau
37157	6	37583	42001	SAMPLE	W08P003126	Gross Alpha on Alpha Plateau
37098	1	37524	42024	BLANK		Strontium 89/90
37098	2	37524	42024	LCS		Strontium 89/90
37098	3	37524	42024	DUP	W08P003118	Strontium 89/90
37098	4	37524	42024	SAMPLE	W08P003118	Strontium 89/90
37098	5	37524	42024	SURR	W08P003118	Strontium 89/90
37098	6	37524	42024	SAMPLE	W08P003120	Strontium 89/90
37098	7	37524	42024	SURR	W08P003120	Strontium 89/90
36914	1	37335	42102	BLANK		TC99 by Liquid Scin.
36914	2	37335	42102	LCS		TC99 by Liquid Scin.
36914	4	37335	42102	DUP	W08P002940	TC99 by Liquid Scin.
36914	3	37335	42102	MS	W08P002940	TC99 by Liquid Scin.
36914	15	37335	42102	SAMPLE	W08P003115	TC99 by Liquid Scin.
36914	16	37335	42102	SAMPLE	W08P003116	TC99 by Liquid Scin.
36914	17	37335	42102	SAMPLE	W08P003126	TC99 by Liquid Scin.
37434	1	37865	42218	BLANK		Plutonium Isotopics by AEA
37434	2	37865	42218	LCS		Plutonium Isotopics by AEA
37434	3	37865	42218	DUP	W08P003118	Plutonium Isotopics by AEA
37434	4	37865	42218	SAMPLE	W08P003118	Plutonium Isotopics by AEA
37434	5	37865	42218	SURR	W08P003118	Plutonium Isotopics by AEA
37434	6	37865	42218	SAMPLE	W08P003120	Plutonium Isotopics by AEA
37434	7	37865	42218	SURR	W08P003120	Plutonium Isotopics by AEA
37435	1	37866	42219	BLANK		Americium by AEA
37435	2	37866	42219	LCS		Americium by AEA
37435	3	37866	42219	DUP	W08P003118	Americium by AEA
37435	4	37866	42219	SAMPLE	W08P003118	Americium by AEA
37435	5	37866	42219	SURR	W08P003118	Americium by AEA
37435	6	37866	42219	SAMPLE	W08P003120	Americium by AEA
37435	7	37866	42219	SURR	W08P003120	Americium by AEA

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-344-406	LA-344-406: TOTAL ORGANIC CARBON (TOC) BASED ON SW-846	
	EPA SW-846 9060	TOTAL ORGANIC CARBON
	HEIS 9060_TOC	Total Organic Carbon
LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE	
	HEIS 6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmision Spectrometry
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY	
	EPA-600/R-94-111 200.8	DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS
	HEIS 200.8_METALS_ICPMS	Inductively Coupled Plasma - Mass Spectrometry
	HEIS RADISOTOPES_ICPMS	Radioisotopes by ICP/MS
LA-531-411	LA-531-411: ALKALINITY (TITRIMETRIC)	
	HEIS 2320B	Alkalinity
	Standard Methods 2320B	Alkalinity
LA-533-410	LA-533-410: ANION ANALYSIS BY ION CHROMATOGRAPHY	
	EPA-600/R-94-111 300.0	DETERMINATION OF INORGANIC ANIONS BY ION CHROMATOGRAPHY
	HEIS 300.0_ANIONS_IC	Determination of Inorganic Anions by Ion Chromatography
LA-695-402	LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC	
	EPA-600/4-79-020 335.2	Cyanide, Total
	HEIS 335.2_CYANIDE	Cyanide, Total

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

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)
LA-523-456	LA-523-456: SEMIVOLATILE SAMPLE ANALYSIS BY SW-846, METHOD 8270C	
	EPA SW-846 8000B	DETERMINATIVE CHROMATOGRAPHIC SEPARATIONS
	EPA SW-846 8270C	SEMIVOLATILE ORGANIC COMPOUNDS BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)
	HEIS 8270_SVOA_GCMS	Semivolatile Orgamoc Compounds By Gas Chromatography/Mass Spectrometry (GC/MS)

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

WSCF
METHOD REFERENCES REPORT

Department: Radiochemistry

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

LA-508-415 LA-508-415: OPERATION OF THE PROTEAN 2-INCH ALPHA/BETA COUNTING SYSTEM FOR GROSS

HEIS	**ALPHA_GPC**	GROSS ALPHA GPC
HEIS	**BETA_GPC**	GROSS BETA GPC
HEIS	**SRTOT_SEP_PRECIP_GPC**	Strontium 89/90

LA-508-421 LA-508-421: OPERATION OF THE TRI-CARB MODEL 2500TR LIQUID SCINTILLATION ANALYZER

HEIS	**ALPHA_LSC**	A/B Liquid Scintilillation
HEIS	**BETA_LSC**	A/B Liquid Scintilallation
HEIS	**TC99_3MDSK_LSC**	TC99 by Liquid Scintillation
HEIS	**TRITIUM_EIE_LSC**	Tritium Liquid Scintillation

LA-508-471 LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP

HEIS	**PUISO_IE_PRECIP_AEA**	Plutonium by Alpha Energy Analysis
HEIS	**RAISO_AEA**	Radium-226

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.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003117
Client ID: B1VM28 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/29/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		2.36e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411		20.3	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		9.63e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		2.37e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		57.2	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411		13.4	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		8.31e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		431	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412	C	25.4	ug/L			1.00	5.00		07/14/08
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Mercury	7439-97-6	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		07/14/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003117
Client ID: B1VM28 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Arsenic	7440-38-2	LA-505-412		4.35	ug/L			1.00	0.400		07/14/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003118
Client ID: B1VM29 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	BD	0.147	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	25.0	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	BD	0.162	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	10.8	mg/L			10.00	0.36		06/26/08
Sulfate	14808-79-8	LA-533-410	D	171	mg/L			10.00	0.77		06/26/08
Cyanide											
Cyanide	57-12-5	LA-695-402		7.10	ug/L			1.00	4.0		06/30/08
ICP Metals Analysis, Grd H20 P Prep											**07/30/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		51.2	ug/L			1.00	25		08/13/08
Magnesium	7439-95-4	LA-505-411		2.26e+04	ug/L			1.00	50		08/13/08
Manganese	7439-96-5	LA-505-411		21.2	ug/L			1.00	4.0		08/13/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/13/08
Potassium	7440-09-7	LA-505-411		9.07e+03	ug/L			1.00	1.7e+02		08/13/08
Silver	7440-22-4	LA-505-411	NU	< 5.00	ug/L			1.00	5.0		08/13/08
Sodium	7440-23-5	LA-505-411		2.17e+04	ug/L			1.00	51		08/13/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/13/08
Barium	7440-39-3	LA-505-411		55.1	ug/L			1.00	4.0		08/13/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/13/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/13/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/13/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/13/08
Vanadium	7440-62-2	LA-505-411		15.6	ug/L			1.00	12		08/13/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/13/08

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

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

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
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- Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003118
Client ID: B1VM29 PNNL-GPP WSCF
Matrix: WATER
Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411		8.78e+04	ug/L			1.00	73		08/13/08
Strontium	7440-24-6	LA-505-411		508	ug/L			1.00	4.0		08/13/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/13/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412	C	21.0	ug/L			1.00	5.00		07/14/08
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Mercury	7439-97-6	LA-505-412		0.0600	ug/L			1.00	0.0500		07/14/08
Uranium	7440-61-1	LA-505-412		3.54	ug/L			1.00	0.0500		07/14/08
Arsenic	7440-38-2	LA-505-412		4.58	ug/L			1.00	0.400		07/14/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		85.0	mg/L			1.00	1.0		07/02/08

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

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

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003119
Client ID: B1VM34 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/30/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		57.1	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411	U	< 170	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	CN	6.40	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		55.1	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		252	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412	C	28.9	ug/L			1.00	5.00		07/14/08
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Mercury	7439-97-6	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		07/14/08

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

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C - The Analyte was found in the Associated Blank.(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003119
Client ID: B1VM34 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Arsenic	7440-38-2	LA-505-412	U	< 0.400	ug/L			1.00	0.400		07/14/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003120
Client ID: B1VM35 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

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	< 0.0420	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	DU	< 0.220	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DU	< 0.0720	mg/L			2.00	0.072		06/26/08
Sulfate	14808-79-8	LA-533-410	DU	< 0.154	mg/L			2.00	0.15		06/26/08
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 4.00	ug/L			1.00	4.0		06/30/08
ICP Metals Analysis, Grd H20 P Prep											**07/30/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411	U	< 50.0	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411	U	< 170	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	NU	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411	U	< 51.0	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003120
Client ID: B1VM35 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Calcium	7440-70-2	LA-505-411	U	< 73.0	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Aluminum	7429-90-5	LA-505-412	C	9.88	ug/L			1.00	5.00		07/14/08
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Mercury	7439-97-6	LA-505-412		0.0700	ug/L			1.00	0.0500		07/14/08
Uranium	7440-61-1	LA-505-412	U	< 0.0500	ug/L			1.00	0.0500		07/14/08
Arsenic	7440-38-2	LA-505-412	U	< 0.400	ug/L			1.00	0.400		07/14/08
Thallium	7440-28-0	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411	U	< 1.00	mg/L			1.00	1.0		07/02/08

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

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

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-06
Sample # W08P003121
Client ID: B1VR39 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Total organic carbon											
Total organic carbon	TOC	LA-344-406		0.532	mg/L			1.00	0.30		07/23/08

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
DF=Dilution Factor
- Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-06
Sample # W08P003122
Client ID: B1VR40 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Total organic carbon											
Total organic carbon	TOC	LA-344-406		0.529	mg/L			1.00	0.30		07/23/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-06
Sample # W08P003123
Client ID: B1VR41 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Total organic carbon											
Total organic carbon	TOC	LA-344-406		0.517	mg/L			1.00	0.30		07/23/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-06
Sample # W08P003124
Client ID: B1VR42 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Total organic carbon											
Total organic carbon	TOC	LA-344-406		0.495	mg/L			1.00	0.30		07/23/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P003125
Client ID: B1VR43 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/30/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		1.75e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		7.89e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	NU	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		1.75e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		45.0	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411		16.8	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		6.66e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		319	ug/L			1.00	4.0		08/06/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P003126
Client ID: B1VR44 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	BD	0.162	mg/L			2.00	0.042		06/26/08
Chloride	16887-00-6	LA-533-410	D	19.3	mg/L			2.00	0.22		06/26/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/26/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	5.60	mg/L			2.00	0.072		06/26/08
Sulfate	14808-79-8	LA-533-410	D	121	mg/L			10.00	0.77		06/26/08
ICP Metals Analysis, Grd H20 P Prep											**07/30/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		08/06/08
Magnesium	7439-95-4	LA-505-411		1.74e+04	ug/L			1.00	50		08/06/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Nickel	7440-02-0	LA-505-411		4.50	ug/L			1.00	4.0		08/06/08
Potassium	7440-09-7	LA-505-411		7.92e+03	ug/L			1.00	1.7e+02		08/06/08
Silver	7440-22-4	LA-505-411	NU	< 5.00	ug/L			1.00	5.0		08/06/08
Sodium	7440-23-5	LA-505-411		1.75e+04	ug/L			1.00	51		08/06/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		08/06/08
Barium	7440-39-3	LA-505-411		45.6	ug/L			1.00	4.0		08/06/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		08/06/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		08/06/08
Vanadium	7440-62-2	LA-505-411		15.7	ug/L			1.00	12		08/06/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		08/06/08
Calcium	7440-70-2	LA-505-411		6.60e+04	ug/L			1.00	73		08/06/08
Strontium	7440-24-6	LA-505-411		320	ug/L			1.00	4.0		08/06/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
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U - Analyzed for but not detected above limiting criteria.(org)

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P003126
Client ID: B1VR44 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Inorganic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		08/06/08
ICP-200.8 MS All possible meta Prep											**07/10/08**
ICP-200.8 MS All possible meta											
Lead	7439-92-1	LA-505-412	U	< 0.100	ug/L			1.00	0.100		07/14/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		92.0	mg/L			1.00	1.0		07/02/08

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

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

C - The Analyte was found in the Associated Blank.(inorg)
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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/25/08
Receive Date:06/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003107											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	0.9928		RPD			12.933	20.000		06/26/08
DUP	Fluoride	16984-48-8	<4.2e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrite	NO2-N	<1.98e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrate	NO3-N	0.2959		RPD			2.083	20.000		06/26/08
DUP	Sulfate	14808-79-8	6.7987		RPD			0.203	20.000		06/26/08
MS	Chloride	16887-00-6	0.96595	97.080	% Recov	80.000	120.000				06/26/08
MS	Fluoride	16984-48-8	0.47175	95.690	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrite	NO2-N	0.4712	95.772	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrate	NO3-N	0.44505	99.787	% Recov	80.000	120.000				06/26/08
MS	Sulfate	14808-79-8	1.89355	96.610	% Recov	80.000	120.000				06/26/08
MSD	Chloride	16887-00-6	0.95805	96.286	% Recov	80.000	120.000				06/26/08
MSD	Fluoride	16984-48-8	0.47415	96.176	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrite	NO2-N	0.4683	95.183	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrate	NO3-N	0.4414	98.969	% Recov	80.000	120.000				06/26/08
MSD	Sulfate	14808-79-8	1.8517	94.474	% Recov	80.000	120.000				06/26/08
SPK-RPD	Chloride	16887-00-6	96.286		RPD			0.821	20.000		06/26/08
SPK-RPD	Fluoride	16984-48-8	96.176		RPD			0.507	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	95.183		RPD			0.617	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	98.969		RPD			0.823	20.000		06/26/08
SPK-RPD	Sulfate	14808-79-8	94.474		RPD			2.236	20.000		06/26/08
Lab ID: W08P003143											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	<0.22		RPD			n/a	20.000	U	06/26/08
DUP	Fluoride	16984-48-8	<4.2e-2		RPD			n/a	20.000	U	06/26/08
DUP	Nitrogen in Nitrite	NO2-N	<1.98e-2		RPD			n/a	20.000	U	06/26/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/26/08
Receive Date:06/26/08

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	<7.2e-2		RPD			n/a	20.000	U	06/26/08
DUP	Sulfate	14808-79-8	<0.154		RPD			n/a	20.000	U	06/26/08
MS	Chloride	16887-00-6	0.9089	91.347	% Recov	80.000	120.000				06/26/08
MS	Fluoride	16984-48-8	0.43655	88.550	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrite	NO2-N	0.47395	96.331	% Recov	80.000	120.000				06/26/08
MS	Nitrogen in Nitrate	NO3-N	0.44105	98.890	% Recov	80.000	120.000				06/26/08
MS	Sulfate	14808-79-8	1.80485	92.084	% Recov	80.000	120.000				06/26/08
MSD	Chloride	16887-00-6	0.9023	90.683	% Recov	80.000	120.000				06/26/08
MSD	Fluoride	16984-48-8	0.4323	87.688	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrite	NO2-N	0.46465	94.441	% Recov	80.000	120.000				06/26/08
MSD	Nitrogen in Nitrate	NO3-N	0.4337	97.242	% Recov	80.000	120.000				06/26/08
MSD	Sulfate	14808-79-8	1.82275	92.997	% Recov	80.000	120.000				06/26/08
SPK-RPD	Chloride	16887-00-6	90.683		RPD			0.730	20.000		06/26/08
SPK-RPD	Fluoride	16984-48-8	87.688		RPD			0.978	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	94.441		RPD			1.981	20.000		06/26/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	97.242		RPD			1.681	20.000		06/26/08
SPK-RPD	Sulfate	14808-79-8	92.997		RPD			0.987	20.000		06/26/08
BATCH QC											
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/26/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/26/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/26/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/26/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081287
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	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/26/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/26/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/26/08
LCS	Chloride	16887-00-6	189.6618	94.359	% Recov	80.000	120.000				06/26/08
LCS	Chloride	16887-00-6	195.5387	97.283	% Recov	80.000	120.000				06/26/08
LCS	Fluoride	16984-48-8	102.6829	103.095	% Recov	80.000	120.000				06/26/08
LCS	Fluoride	16984-48-8	98.8757	99.273	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrite	NO2-N	94.9374	95.510	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrite	NO2-N	99.6812	100.283	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrate	NO3-N	90.2636	100.182	% Recov	80.000	120.000				06/26/08
LCS	Nitrogen in Nitrate	NO3-N	91.9024	102.000	% Recov	80.000	120.000				06/26/08
LCS	Sulfate	14808-79-8	374.5702	94.588	% Recov	80.000	120.000				06/26/08
LCS	Sulfate	14808-79-8	382.1547	96.504	% Recov	80.000	120.000				06/26/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: Cyanide by Midi/Spectrophotom

Sample Date: 06/24/08
Receive Date:06/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01833											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	40.1	100.250	% Recov	75.000	125.000				06/30/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	41.2	103.000	% Recov	75.000	125.000				06/30/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	103.000		RPD			2.706	20.000		06/30/08
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	06/30/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	50	100.000	% Recov	85.000	115.000				06/30/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/23/08
Receive Date:06/23/08

Lab ID: W08P003032
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Silver	7440-22-4	1008	100.800	% Recov	75.000	125.000				08/06/08
MS	Barium	7440-39-3	511.1	102.220	% Recov	75.000	125.000				08/06/08
MS	Beryllium	7440-41-7	526	105.200	% Recov	75.000	125.000				08/06/08
MS	Calcium	7440-70-2	8100	810.000	% Recov	75.000	125.000			•	08/06/08
MS	Cadmium	7440-43-9	1012	101.200	% Recov	75.000	125.000				08/06/08
MS	Cobalt	7440-48-4	990.5	99.050	% Recov	75.000	125.000				08/06/08
MS	Chromium	7440-47-3	976.5	97.650	% Recov	75.000	125.000				08/06/08
MS	Copper	7440-50-8	995.7	99.570	% Recov	75.000	125.000				08/06/08
MS	Iron	7439-89-6	1007.3	100.730	% Recov	75.000	125.000				08/06/08
MS	Potassium	7440-09-7	10789	107.890	% Recov	75.000	125.000				08/06/08
MS	Magnesium	7439-95-4	2040	204.000	% Recov	75.000	125.000			•	08/06/08
MS	Manganese	7439-96-5	1007	100.700	% Recov	75.000	125.000				08/06/08
MS	Sodium	7440-23-5	2000	200.000	% Recov	75.000	125.000			•	08/06/08
MS	Nickel	7440-02-0	982.4	98.240	% Recov	75.000	125.000				08/06/08
MS	Antimony	7440-36-0	1014	101.400	% Recov	75.000	125.000				08/06/08
MS	Strontium	7440-24-6	539.3	107.860	% Recov	75.000	125.000				08/06/08
MS	Vanadium	7440-62-2	991.4	99.140	% Recov	75.000	125.000				08/06/08
MS	Zinc	7440-66-6	1009	100.900	% Recov	75.000	125.000				08/06/08
MSD	Silver	7440-22-4	1012	101.200	% Recov	75.000	125.000				08/06/08
MSD	Barium	7440-39-3	510.4	102.080	% Recov	75.000	125.000				08/06/08
MSD	Beryllium	7440-41-7	526.1	105.220	% Recov	75.000	125.000				08/06/08
MSD	Calcium	7440-70-2	4500	450.000	% Recov	75.000	125.000			•	08/06/08
MSD	Cadmium	7440-43-9	1014	101.400	% Recov	75.000	125.000				08/06/08
MSD	Cobalt	7440-48-4	992.9	99.290	% Recov	75.000	125.000				08/06/08
MSD	Chromium	7440-47-3	986.9	98.690	% Recov	75.000	125.000				08/06/08
MSD	Copper	7440-50-8	1004	100.400	% Recov	75.000	125.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/23/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1006.3	100.630	% Recov	75.000	125.000				08/06/08
MSD	Potassium	7440-09-7	10619	106.190	% Recov	75.000	125.000				08/06/08
MSD	Magnesium	7439-95-4	1450	145.000	% Recov	75.000	125.000			•	08/06/08
MSD	Manganese	7439-96-5	1010	101.000	% Recov	75.000	125.000				08/06/08
MSD	Sodium	7440-23-5	1430	143.000	% Recov	75.000	125.000			•	08/06/08
MSD	Nickel	7440-02-0	983.8	98.380	% Recov	75.000	125.000				08/06/08
MSD	Antimony	7440-36-0	1027	102.700	% Recov	75.000	125.000				08/06/08
MSD	Strontium	7440-24-6	530.9	106.180	% Recov	75.000	125.000				08/06/08
MSD	Vanadium	7440-62-2	999	99.900	% Recov	75.000	125.000				08/06/08
MSD	Zinc	7440-66-6	1010	101.000	% Recov	75.000	125.000				08/06/08
SPK-RPD	Silver	7440-22-4	101.200		RPD			0.396	20.000		08/06/08
SPK-RPD	Barium	7440-39-3	102.080		RPD			0.137	20.000		08/06/08
SPK-RPD	Beryllium	7440-41-7	105.220		RPD			0.019	20.000		08/06/08
SPK-RPD	Calcium	7440-70-2	450.000		RPD			57.143	20.000	•	08/06/08
SPK-RPD	Cadmium	7440-43-9	101.400		RPD			0.197	20.000		08/06/08
SPK-RPD	Cobalt	7440-48-4	99.290		RPD			0.242	20.000		08/06/08
SPK-RPD	Chromium	7440-47-3	98.690		RPD			1.059	20.000		08/06/08
SPK-RPD	Copper	7440-50-8	100.400		RPD			0.830	20.000		08/06/08
SPK-RPD	Iron	7439-89-6	100.630		RPD			0.099	20.000		08/06/08
SPK-RPD	Potassium	7440-09-7	106.190		RPD			1.588	20.000		08/06/08
SPK-RPD	Magnesium	7439-95-4	145.000		RPD			33.811	20.000	•	08/06/08
SPK-RPD	Manganese	7439-96-5	101.000		RPD			0.297	20.000		08/06/08
SPK-RPD	Sodium	7440-23-5	143.000		RPD			33.236	20.000	•	08/06/08
SPK-RPD	Nickel	7440-02-0	98.380		RPD			0.142	20.000		08/06/08
SPK-RPD	Antimony	7440-36-0	102.700		RPD			1.274	20.000		08/06/08
SPK-RPD	Strontium	7440-24-6	106.180		RPD			1.570	20.000		08/06/08
SPK-RPD	Vanadium	7440-62-2	99.900		RPD			0.764	20.000		08/06/08
SPK-RPD	Zinc	7440-66-6	101.000		RPD			0.099	20.000		08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BATCH QC											
BLANK	Silver	7440-22-4	<5	n/a	ug/L					U	08/06/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	08/06/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	08/06/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	08/06/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	08/06/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	08/06/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	08/06/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	08/06/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	08/06/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	08/06/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	08/06/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	08/06/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	08/06/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	08/06/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	08/06/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	08/06/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	08/06/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	08/06/08
LCS	Silver	7440-22-4	996.4	99.640	% Recov	80.000	120.000				08/06/08
LCS	Barium	7440-39-3	487.2	97.440	% Recov	80.000	120.000				08/06/08
LCS	Beryllium	7440-41-7	528	105.600	% Recov	80.000	120.000				08/06/08
LCS	Calcium	7440-70-2	1074	107.400	% Recov	80.000	120.000				08/06/08
LCS	Cadmium	7440-43-9	1023	102.300	% Recov	80.000	120.000				08/06/08
LCS	Cobalt	7440-48-4	1028	102.800	% Recov	80.000	120.000				08/06/08
LCS	Chromium	7440-47-3	990.5	99.050	% Recov	80.000	120.000				08/06/08
LCS	Copper	7440-50-8	1009	100.900	% Recov	80.000	120.000				08/06/08
LCS	Iron	7439-89-6	987.8	98.780	% Recov	80.000	120.000				08/06/08
LCS	Potassium	7440-09-7	10370	103.700	% Recov	80.000	120.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Magnesium	7439-95-4	982.5	98.250	% Recov	80.000	120.000				08/06/08
LCS	Manganese	7439-96-5	1007	100.700	% Recov	80.000	120.000				08/06/08
LCS	Sodium	7440-23-5	1013	101.300	% Recov	80.000	120.000				08/06/08
LCS	Nickel	7440-02-0	1025	102.500	% Recov	80.000	120.000				08/06/08
LCS	Antimony	7440-36-0	1046	104.600	% Recov	80.000	120.000				08/06/08
LCS	Strontium	7440-24-6	501.3	100.260	% Recov	80.000	120.000				08/06/08
LCS	Vanadium	7440-62-2	984	98.400	% Recov	80.000	120.000				08/06/08
LCS	Zinc	7440-66-6	1016	101.600	% Recov	80.000	120.000				08/06/08
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	83.8	8.380	% Recov	75.000	125.000			•	08/06/08
MS	Barium	7440-39-3	489.6	97.920	% Recov	75.000	125.000				08/06/08
MS	Beryllium	7440-41-7	515.2	103.040	% Recov	75.000	125.000				08/06/08
MS	Calcium	7440-70-2	-3960	-396.000	% Recov	75.000	125.000			•	08/06/08
MS	Cadmium	7440-43-9	1009	100.900	% Recov	75.000	125.000				08/06/08
MS	Cobalt	7440-48-4	1006	100.600	% Recov	75.000	125.000				08/06/08
MS	Chromium	7440-47-3	984.9	98.490	% Recov	75.000	125.000				08/06/08
MS	Copper	7440-50-8	984.2	98.420	% Recov	75.000	125.000				08/06/08
MS	Iron	7439-89-6	961.8	96.180	% Recov	75.000	125.000				08/06/08
MS	Potassium	7440-09-7	11199	111.990	% Recov	75.000	125.000				08/06/08
MS	Magnesium	7439-95-4	1210	121.000	% Recov	75.000	125.000				08/06/08
MS	Manganese	7439-96-5	997.8	99.780	% Recov	75.000	125.000				08/06/08
MS	Sodium	7440-23-5	2930	293.000	% Recov	75.000	125.000			•	08/06/08
MS	Nickel	7440-02-0	979.6	97.960	% Recov	75.000	125.000				08/06/08
MS	Antimony	7440-36-0	1028	102.800	% Recov	75.000	125.000				08/06/08
MS	Strontium	7440-24-6	417	83.400	% Recov	75.000	125.000				08/06/08
MS	Vanadium	7440-62-2	965.1	96.510	% Recov	75.000	125.000				08/06/08
MS	Zinc	7440-66-6	997.7	99.770	% Recov	75.000	125.000				08/06/08
MSD	Silver	7440-22-4	843	84.300	% Recov	75.000	125.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Barium	7440-39-3	470.8	94.160	% Recov	75.000	125.000				08/06/08
MSD	Beryllium	7440-41-7	502.7	100.540	% Recov	75.000	125.000				08/06/08
MSD	Calcium	7440-70-2	-5590	-559.000	% Recov	75.000	125.000			•	08/06/08
MSD	Cadmium	7440-43-9	972.8	97.280	% Recov	75.000	125.000				08/06/08
MSD	Cobalt	7440-48-4	974.6	97.460	% Recov	75.000	125.000				08/06/08
MSD	Chromium	7440-47-3	945.8	94.580	% Recov	75.000	125.000				08/06/08
MSD	Copper	7440-50-8	943.3	94.330	% Recov	75.000	125.000				08/06/08
MSD	Iron	7439-89-6	924.1	92.410	% Recov	75.000	125.000				08/06/08
MSD	Potassium	7440-09-7	10239	102.390	% Recov	75.000	125.000				08/06/08
MSD	Magnesium	7439-95-4	370	37.000	% Recov	75.000	125.000			•	08/06/08
MSD	Manganese	7439-96-5	964.5	96.450	% Recov	75.000	125.000				08/06/08
MSD	Sodium	7440-23-5	1710	171.000	% Recov	75.000	125.000			•	08/06/08
MSD	Nickel	7440-02-0	946.2	94.620	% Recov	75.000	125.000				08/06/08
MSD	Antimony	7440-36-0	998.7	99.870	% Recov	75.000	125.000				08/06/08
MSD	Strontium	7440-24-6	390.6	78.120	% Recov	75.000	125.000				08/06/08
MSD	Vanadium	7440-62-2	936.8	93.680	% Recov	75.000	125.000				08/06/08
MSD	Zinc	7440-66-6	957.9	95.790	% Recov	75.000	125.000				08/06/08
SPK-RPD	Silver	7440-22-4	84.300		RPD			163.833	20.000 •		08/06/08
SPK-RPD	Barium	7440-39-3	94.160		RPD			3.915	20.000		08/06/08
SPK-RPD	Beryllium	7440-41-7	100.540		RPD			2.456	20.000		08/06/08
SPK-RPD	Calcium	7440-70-2	-559.000		RPD			-34.136	20.000 •		08/06/08
SPK-RPD	Cadmium	7440-43-9	97.280		RPD			3.653	20.000		08/06/08
SPK-RPD	Cobalt	7440-48-4	97.460		RPD			3.171	20.000		08/06/08
SPK-RPD	Chromium	7440-47-3	94.580		RPD			4.050	20.000		08/06/08
SPK-RPD	Copper	7440-50-8	94.330		RPD			4.244	20.000		08/06/08
SPK-RPD	Iron	7439-89-6	92.410		RPD			3.998	20.000		08/06/08
SPK-RPD	Potassium	7440-09-7	102.390		RPD			8.956	20.000		08/06/08
SPK-RPD	Magnesium	7439-95-4	37.000		RPD			106.329	20.000 •		08/06/08
SPK-RPD	Manganese	7439-96-5	96.450		RPD			3.394	20.000		08/06/08
SPK-RPD	Sodium	7440-23-5	171.000		RPD			52.586	20.000 •		08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Nickel	7440-02-0	94.620		RPD			3.469	20.000		08/06/08
SPK-RPD	Antimony	7440-36-0	99.870		RPD			2.891	20.000		08/06/08
SPK-RPD	Strontium	7440-24-6	78.120		RPD			6.538	20.000		08/06/08
SPK-RPD	Vanadium	7440-62-2	93.680		RPD			2.976	20.000		08/06/08
SPK-RPD	Zinc	7440-66-6	95.790		RPD			4.070	20.000		08/06/08
BATCH QC											
BLANK	Silver	7440-22-4	10.6	10.600	ug/L						08/06/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	08/06/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	08/06/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	08/06/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	08/06/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	08/06/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	08/06/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	08/06/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	08/06/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	08/06/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	08/06/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	08/06/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	08/06/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	08/06/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	08/06/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	08/06/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	08/06/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	08/06/08
LCS	Silver	7440-22-4	1009	100.900	% Recov	80.000	120.000				08/06/08
LCS	Barium	7440-39-3	482.9	96.580	% Recov	80.000	120.000				08/06/08
LCS	Beryllium	7440-41-7	529.2	105.840	% Recov	80.000	120.000				08/06/08
LCS	Calcium	7440-70-2	1077	107.700	% Recov	80.000	120.000				08/06/08
LCS	Cadmium	7440-43-9	1019	101.900	% Recov	80.000	120.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Cobalt	7440-48-4	1046	104.600	% Recov	80.000	120.000				08/06/08
LCS	Chromium	7440-47-3	998.5	99.850	% Recov	80.000	120.000				08/06/08
LCS	Copper	7440-50-8	1008	100.800	% Recov	80.000	120.000				08/06/08
LCS	Iron	7439-89-6	982.9	98.290	% Recov	80.000	120.000				08/06/08
LCS	Potassium	7440-09-7	10510	105.100	% Recov	80.000	120.000				08/06/08
LCS	Magnesium	7439-95-4	966.7	96.670	% Recov	80.000	120.000				08/06/08
LCS	Manganese	7439-96-5	1004	100.400	% Recov	80.000	120.000				08/06/08
LCS	Sodium	7440-23-5	1023	102.300	% Recov	80.000	120.000				08/06/08
LCS	Nickel	7440-02-0	1028	102.800	% Recov	80.000	120.000				08/06/08
LCS	Antimony	7440-36-0	1020	102.000	% Recov	80.000	120.000				08/06/08
LCS	Strontium	7440-24-6	501.9	100.380	% Recov	80.000	120.000				08/06/08
LCS	Vanadium	7440-62-2	981	98.100	% Recov	80.000	120.000				08/06/08
LCS	Zinc	7440-66-6	1001	100.100	% Recov	80.000	120.000				08/06/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Aluminum	7429-90-5	416.79	104.198	% Recov	70.000	130.000				07/14/08
MS	Arsenic	7440-38-2	41.14	102.850	% Recov	70.000	130.000				07/14/08
MS	Mercury	7439-97-6	2.31	115.500	% Recov	70.000	130.000				07/14/08
MS	Lead	7439-92-1	42.65	106.625	% Recov	70.000	130.000				07/14/08
MS	Thallium	7440-28-0	43.8	109.500	% Recov	70.000	130.000				07/14/08
MS	Uranium	7440-61-1	45.532	113.830	% Recov	70.000	130.000				07/14/08
MSD	Aluminum	7429-90-5	411.49	102.873	% Recov	70.000	130.000				07/14/08
MSD	Arsenic	7440-38-2	41.32	103.300	% Recov	70.000	130.000				07/14/08
MSD	Mercury	7439-97-6	2.32	116.000	% Recov	70.000	130.000				07/14/08
MSD	Lead	7439-92-1	43.12	107.800	% Recov	70.000	130.000				07/14/08
MSD	Thallium	7440-28-0	44.49	111.225	% Recov	70.000	130.000				07/14/08
MSD	Uranium	7440-61-1	46.022	115.055	% Recov	70.000	130.000				07/14/08
SPK-RPD	Aluminum	7429-90-5	102.873		RPD			1.280	20.000		07/14/08
SPK-RPD	Arsenic	7440-38-2	103.300		RPD			0.437	20.000		07/14/08
SPK-RPD	Mercury	7439-97-6	116.000		RPD			0.432	20.000		07/14/08
SPK-RPD	Lead	7439-92-1	107.800		RPD			1.096	20.000		07/14/08
SPK-RPD	Thallium	7440-28-0	111.225		RPD			1.563	20.000		07/14/08
SPK-RPD	Uranium	7440-61-1	115.055		RPD			1.070	20.000		07/14/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Aluminum	7429-90-5	436.82	109.205	% Recov	70.000	130.000				07/14/08
MS	Arsenic	7440-38-2	40.38	100.950	% Recov	70.000	130.000				07/14/08
MS	Mercury	7439-97-6	2.26	113.000	% Recov	70.000	130.000				07/14/08
MS	Lead	7439-92-1	42.12	105.300	% Recov	70.000	130.000				07/14/08
MS	Thallium	7440-28-0	42.98	107.450	% Recov	70.000	130.000				07/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	Uranium	7440-61-1	43.02	107.550	% Recov	70.000	130.000				07/14/08
MSD	Aluminum	7429-90-5	446.42	111.605	% Recov	70.000	130.000				07/14/08
MSD	Arsenic	7440-38-2	40.46	101.150	% Recov	70.000	130.000				07/14/08
MSD	Mercury	7439-97-6	2.33	116.500	% Recov	70.000	130.000				07/14/08
MSD	Lead	7439-92-1	42.41	106.025	% Recov	70.000	130.000				07/14/08
MSD	Thallium	7440-28-0	43.08	107.700	% Recov	70.000	130.000				07/14/08
MSD	Uranium	7440-61-1	43.34	108.350	% Recov	70.000	130.000				07/14/08
SPK-RPD	Aluminum	7429-90-5	111.605		RPD			2.174	20.000		07/14/08
SPK-RPD	Arsenic	7440-38-2	101.150		RPD			0.198	20.000		07/14/08
SPK-RPD	Mercury	7439-97-6	116.500		RPD			3.050	20.000		07/14/08
SPK-RPD	Lead	7439-92-1	106.025		RPD			0.686	20.000		07/14/08
SPK-RPD	Thallium	7440-28-0	107.700		RPD			0.232	20.000		07/14/08
SPK-RPD	Uranium	7440-61-1	108.350		RPD			0.741	20.000		07/14/08
BATCH QC											
BLANK	Aluminum	7429-90-5	13.97	13.970	ug/L	-999.000	999.000				07/14/08
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	07/14/08
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	07/14/08
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	07/14/08
BLANK	Thallium	7440-28-0	<0.1	n/a	ug/L					U	07/14/08
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	07/14/08
LCS	Aluminum	7429-90-5	437.1	109.275	% Recov	85.000	115.000				07/14/08
LCS	Arsenic	7440-38-2	40.73	101.825	% Recov	85.000	115.000				07/14/08
LCS	Mercury	7439-97-6	2.28	114.000	% Recov	85.000	115.000				07/14/08
LCS	Lead	7439-92-1	41.93	104.825	% Recov	85.000	115.000				07/14/08
LCS	Thallium	7440-28-0	42.37	105.925	% Recov	85.000	115.000				07/14/08
LCS	Uranium	7440-61-1	42.53	106.325	% Recov	85.000	115.000				07/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 06/20/08
Receive Date:06/20/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002897											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	96.11		RPD			0.605	20.000		07/02/08
Lab ID: W08P003018											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	96.46		RPD			0.073	20.000		07/02/08
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	114.6	99.652	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.0	100.000	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.3	100.261	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	117.5	102.174	%Recove	80.000	120.000				07/02/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	120.9	105.130	%Recove	80.000	120.000				07/02/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081287
Matrix: WATER
Test: Total Organic Carbon

Sample Date: 06/24/08
Receive Date:06/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003056											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Total Organic Carbon	TOC	4.125	103.125	% Recov	75.000	125.000				07/23/08
MSD	Total Organic Carbon	TOC	4.148	103.700	% Recov	75.000	125.000				07/23/08
SPK-RPD	Total Organic Carbon	TOC	103.700		RPD			0.556	20.000		07/24/08
Lab ID: W08P003135											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Total Organic Carbon	TOC	4.243	106.075	% Recov	75.000	125.000				07/23/08
MSD	Total Organic Carbon	TOC	4.207	105.175	% Recov	75.000	125.000				07/23/08
SPK-RPD	Total Organic Carbon	TOC	105.175		RPD			0.852	20.000		07/24/08
BATCH QC											
BLANK	Total Organic Carbon	TOC	<0.045	n/a	mg/L	0.000	300.000			U	07/23/08
METHSPIKE	Total Organic Carbon	TOC	2.094	104.700	% Recov	80.000	120.000				07/23/08
SPK-RSD	Total Organic Carbon	TOC	1.376	1.376	% RSD	0.000	20.000				07/23/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081287
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-MS: Aluminum prep blank above MDL. "C" flag Tc-99 matrix spike recovery is low due to the high Tc99 activity in the sample. lmh ICP-AES: [Sample W08P3117] No zirconium present in the LCS standard. Magnesium, calcium, and sodium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard is used to ensure sodium, calcium, and magnesium linearity because sample results are greater than the calibration standard. ICP-AES: [Samples W08P3118-3120; 3125-3126] High silver preparation blank result; "C" flag if applicable. No zirconium present in the LCS standard. Magnesium, calcium, and sodium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard is used to ensure sodium, calcium, and magnesium linearity because sample results are greater than the calibration standard. Low silver MS recovery; "N" flag.

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample
VALTEST - Test Validation
LOGTEST - Login for Tests
TESTDATA - Test Data Entry

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-005
Sample # W08P003114
Client ID: B1VHJ7 PNNL-GPP WSCF
Matrix: WATER
Group #: WSCF20081287
Department: Organic
Sampled: 06/26/08
Received: 06/26/08

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

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-005
Sample # W08P003114
Client ID: B1VHJ7 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Organic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/02/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003118
Client ID: B1VM29 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Organic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
SW-846 8270C Semi-Vols Prep											**06/30/08**
SW-846 8270C Semi-Vols											
4-Nitrophenol	100-02-7	LA-523-456	U	< 0.950	ug/L			1.00	0.95		07/11/08
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 1.30	ug/L			1.00	1.3		07/11/08
Phenol	108-95-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 2.10	ug/L			1.00	2.1		07/11/08
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
Pyrene	129-00-0	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 0.570	ug/L			1.00	0.57		07/11/08
Acenaphthene	83-32-9	LA-523-456	U	< 2.50	ug/L			1.00	2.5		07/11/08
Pentachlorophenol	87-86-5	LA-523-456	U	< 1.40	ug/L			1.00	1.4		07/11/08
2-Chlorophenol	95-57-8	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 0.760	ug/L			1.00	0.76		07/11/08
2,4-Dichlorophenol	120-83-2	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
2-Nitrophenol	88-75-5	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
Naphthalene	91-20-3	LA-523-456	U	< 2.00	ug/L			1.00	2.0		07/11/08
2-Methylphenol (cresol, o-)	95-48-7	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
3 & 4 Methylphenol Total	65794-96-9	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
Tributyl phosphate	126-73-8	LA-523-456	U	< 0.480	ug/L			1.00	0.48		07/11/08
Benzothiazole	95-16-9	LA-523-456	U	< 0.570	ug/L			1.00	0.57		07/11/08
2-Picoline	109-06-8	LA-523-456	U	< 4.80	ug/L			1.00	4.8		07/11/08
Tris-2-chloroethyl phosphate	115-96-8	LA-523-456	U	< 0.620	ug/L			1.00	0.62		07/11/08
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08

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

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

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003118
Client ID: B1VM29 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Organic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		07/02/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/02/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/02/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08

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

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003120
Client ID: B1VM35 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Organic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
SW-846 8270C Semi-Vols Prep											**06/30/08**
SW-846 8270C Semi-Vols											
4-Nitrophenol	100-02-7	LA-523-456	U	< 1.00	ug/L			1.00	1.0		07/11/08
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	< 1.40	ug/L			1.00	1.4		07/11/08
Phenol	108-95-2	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	< 2.20	ug/L			1.00	2.2		07/11/08
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
Pyrene	129-00-0	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 0.600	ug/L			1.00	0.60		07/11/08
Acenaphthene	83-32-9	LA-523-456	U	< 2.60	ug/L			1.00	2.6		07/11/08
Pentachlorophenol	87-86-5	LA-523-456	U	< 1.50	ug/L			1.00	1.5		07/11/08
2-Chlorophenol	95-57-8	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
Bis(2-ethylhexyl) phthalate	117-81-7	LA-523-456	U	< 0.800	ug/L			1.00	0.80		07/11/08
2,4-Dichlorophenol	120-83-2	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
2-Nitrophenol	88-75-5	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
Naphthalene	91-20-3	LA-523-456	U	< 2.10	ug/L			1.00	2.1		07/11/08
2-Methylphenol (cresol, o-)	95-48-7	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
Tributyl phosphate	126-73-8	LA-523-456	U	< 0.500	ug/L			1.00	0.50		07/11/08
Benzothiazole	95-16-9	LA-523-456	U	< 0.600	ug/L			1.00	0.60		07/11/08
2-Picoline	109-06-8	LA-523-456	U	< 5.00	ug/L			1.00	5.0		07/11/08
Tris-2-chloroethyl phosphate	115-96-8	LA-523-456	U	< 0.650	ug/L			1.00	0.65		07/11/08
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003120
Client ID: B1VM35 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Organic
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		07/02/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/02/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/02/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/02/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: SW-846 8270C Semi-Vols

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	2-Fluorophenol(Surr)	367-12-4	16.233	85.200	% Recov	50.000	110.000				07/11/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	20.028	105.000	% Recov	58.000	109.000				07/11/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	19.420	102.000	% Recov	60.000	118.000				07/11/08
SURR	Phenol-d5(Surr)	4165-62-2	18.239	95.800	% Recov	59.000	116.000				07/11/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	17.981	94.400	% Recov	60.000	120.000				07/11/08
SURR	Terphenyl-d14(Surr)	98904-43-9	20.513	108.000	% Recov	60.000	120.000				07/11/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,2,4-Trichlorobenzene	120-82-1	19.642	99.200	% Recov	50.000	120.000				07/14/08
MS	1,4-Dichlorobenzene	106-46-7	19.013	96.000	% Recov	41.000	113.000				07/14/08
MS	2,4-Dinitrotoluene	121-14-2	18.667	94.300	% Recov	65.000	109.000				07/14/08
MS	2-Fluorophenol(Surr)	367-12-4	13.380	67.600	% Recov	50.000	110.000				07/14/08
MS	Acenaphthene	83-32-9	19.113	96.500	% Recov	62.000	112.000				07/14/08
MS	4-Chloro-3-methylphenol	59-50-7	28.850	97.100	% Recov	59.000	115.000				07/14/08
MS	2-Chlorophenol	95-57-8	25.800	86.900	% Recov	69.000	111.000				07/14/08
MS	N-Nitrosodi-n-dipropylamine	621-64-7	19.902	101.000	% Recov	69.000	115.000				07/14/08
MS	2-Fluorobiphenyl(Surr)	321-60-8	21.182	107.000	% Recov	58.000	109.000				07/14/08
MS	Phenol	108-95-2	23.382	78.700	% Recov	59.000	115.000				07/14/08
MS	Nitrobenzene-d5(Surr)	4165-60-0	21.348	108.000	% Recov	60.000	118.000				07/14/08
MS	4-Nitrophenol	100-02-7	29.239	98.400	% Recov	32.000	130.000				07/14/08
MS	Pentachlorophenol	87-86-5	27.066	91.100	% Recov	51.000	121.000				07/14/08
MS	Phenol-d5(Surr)	4165-62-2	18.614	94.000	% Recov	59.000	116.000				07/14/08
MS	Pyrene	129-00-0	20.455	103.000	% Recov	58.000	116.000				07/14/08
MS	2,4,6-Tribromophenol(Surr)	118-79-6	20.542	104.000	% Recov	60.000	120.000				07/14/08
MS	Terphenyl-d14(Surr)	98904-43-9	22.383	113.000	% Recov	60.000	120.000				07/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: SW-846 8270C Semi-Vols

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	1,2,4-Trichlorobenzene	120-82-1	18.806	98.700	% Recov	50.000	120.000				07/14/08
MSD	1,4-Dichlorobenzene	106-46-7	18.149	95.300	% Recov	41.000	113.000				07/14/08
MSD	2,4-Dinitrotoluene	121-14-2	17.133	89.900	% Recov	65.000	109.000				07/14/08
MSD	2-Fluorophenol(Surr)	367-12-4	12.747	66.900	% Recov	50.000	110.000				07/14/08
MSD	Acenaphthene	83-32-9	18.501	97.100	% Recov	62.000	112.000				07/14/08
MSD	4-Chloro-3-methylphenol	59-50-7	27.183	95.100	% Recov	59.000	115.000				07/14/08
MSD	2-Chlorophenol	95-57-8	24.791	86.800	% Recov	69.000	111.000				07/14/08
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	18.445	96.800	% Recov	69.000	115.000				07/14/08
MSD	2-Fluorobiphenyl(Surr)	321-60-8	20.594	108.000	% Recov	58.000	109.000				07/14/08
MSD	Phenol	108-95-2	22.488	78.700	% Recov	59.000	115.000				07/14/08
MSD	Nitrobenzene-d5(Surr)	4165-60-0	21.048	111.000	% Recov	60.000	118.000				07/14/08
MSD	4-Nitrophenol	100-02-7	25.933	90.800	% Recov	32.000	130.000				07/14/08
MSD	Pentachlorophenol	87-86-5	27.182	95.100	% Recov	51.000	121.000				07/14/08
MSD	Phenol-d5(Surr)	4165-62-2	18.316	96.200	% Recov	59.000	116.000				07/14/08
MSD	Pyrene	129-00-0	20.266	106.000	% Recov	58.000	116.000				07/14/08
MSD	2,4,6-Tribromophenol(Surr)	118-79-6	20.093	105.000	% Recov	60.000	120.000				07/14/08
MSD	Terphenyl-d14(Surr)	98904-43-9	21.730	114.000	% Recov	60.000	120.000				07/14/08
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	98.700		RPD			0.505	25.000		07/10/08
SPK-RPD	1,4-Dichlorobenzene	106-46-7	95.300		RPD			0.732	25.000		07/10/08
SPK-RPD	2,4-Dinitrotoluene	121-14-2	89.900		RPD			4.777	25.000		07/10/08
SPK-RPD	2-Fluorophenol(Surr)	367-12-4	66.900		RPD			1.041	25.000		07/10/08
SPK-RPD	Acenaphthene	83-32-9	97.100		RPD			0.620	25.000		07/10/08
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	95.100		RPD			2.081	25.000		07/10/08
SPK-RPD	2-Chlorophenol	95-57-8	86.800		RPD			0.115	25.000		07/10/08
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	96.800		RPD			4.247	25.000		07/10/08
SPK-RPD	2-Fluorobiphenyl(Surr)	321-60-8	108.000		RPD			0.930	25.000		07/10/08
SPK-RPD	Phenol	108-95-2	78.700		RPD			0.000	16.000		07/10/08
SPK-RPD	Nitrobenzene-d5(Surr)	4165-60-0	111.000		RPD			2.740	25.000		07/10/08
SPK-RPD	4-Nitrophenol	100-02-7	90.800		RPD			8.034	25.000		07/10/08
SPK-RPD	Pentachlorophenol	87-86-5	95.100		RPD			4.296	25.000		07/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: SW-846 8270C Semi-Vols

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Phenol-d5(Surr)	4165-62-2	96.200		RPD			2.313	25.000		07/10/08
SPK-RPD	Pyrene	129-00-0	106.000		RPD			2.871	25.000		07/10/08
SPK-RPD	2,4,6-Tribromophenol(Surr)	118-79-6	105.000		RPD			0.957	25.000		07/10/08
SPK-RPD	Terphenyl-d14(Surr)	98904-43-9	114.000		RPD			0.881	25.000		07/10/08
SURR	2-Fluorophenol(Surr)	367-12-4	15.834	79.200	% Recov	50.000	110.000				07/11/08
SURR	2-Fluorobiphenyl(Surr)	321-60-8	18.728	93.600	% Recov	58.000	109.000				07/11/08
SURR	Nitrobenzene-d5(Surr)	4165-60-0	18.689	93.400	% Recov	60.000	118.000				07/11/08
SURR	Phenol-d5(Surr)	4165-62-2	17.895	89.500	% Recov	59.000	116.000				07/11/08
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	17.016	85.100	% Recov	60.000	120.000				07/11/08
SURR	Terphenyl-d14(Surr)	98904-43-9	20.902	105.000	% Recov	60.000	120.000				07/11/08
BATCH QC											
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 2.2	n/a	ug/L					U	07/10/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.4	n/a	ug/L					U	07/10/08
BLANK	2,4-Dichlorophenol	120-83-2	< 0.50	n/a	ug/L					U	07/10/08
BLANK	2,4-Dinitrotoluene	121-14-2	< 0.50	n/a	ug/L					U	07/10/08
BLANK	2-Fluorophenol(Surr)	367-12-4	16.346	81.700	% Recov	50.000	110.000				07/10/08
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 0.50	n/a	ug/L					U	07/10/08
BLANK	2-Nitrophenol	88-75-5	< 0.50	n/a	ug/L					U	07/10/08
BLANK	2-Picoline	109-06-8	< 5.0	n/a	ug/L					U	07/10/08
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 0.50	n/a	ug/L	0.000	5.000			U	07/10/08
BLANK	Acenaphthene	83-32-9	< 2.6	n/a	ug/L					U	07/10/08
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 0.80	n/a	ug/L					U	07/10/08
BLANK	Benzothiazole	95-16-9	< 0.60	n/a	ug/L	0.000	300.000			U	07/10/08
BLANK	4-Chloro-3-methylphenol	59-50-7	< 0.50	n/a	ug/L					U	07/10/08
BLANK	2-Chlorophenol	95-57-8	< 0.50	n/a	ug/L					U	07/10/08
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 0.60	n/a	ug/L					U	07/10/08
BLANK	2-Fluorobiphenyl(Surr)	321-60-8	18.915	94.600	% Recov	58.000	109.000				07/10/08
BLANK	Phenol	108-95-2	< 0.50	n/a	ug/L					U	07/10/08
BLANK	Naphthalene	91-20-3	< 2.1	n/a	ug/L					U	07/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: SW-846 8270C Semi-Vols

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Nitrobenzene-d5(Surr)	4165-60-0	19.220	96.100	% Recov	60.000	118.000				07/10/08
BLANK	4-Nitrophenol	100-02-7	< 1.0	n/a	ug/L					U	07/10/08
BLANK	Pentachlorophenol	87-86-5	< 1.5	n/a	ug/L					U	07/10/08
BLANK	Phenol-d5(Surr)	4165-62-2	18.773	93.900	% Recov	59.000	116.000				07/10/08
BLANK	Pyrene	129-00-0	< 0.50	n/a	ug/L					U	07/10/08
BLANK	Tris-2-chloroethyl phosphate	115-96-8	< 0.65	n/a	ug/L	0.000	300.000			U	07/10/08
BLANK	Tributyl phosphate	126-73-8	< 0.50	n/a	ug/L					U	07/10/08
BLANK	2,4,6-Tribromophenol(Surr)	118-79-6	17.789	88.900	% Recov	60.000	120.000				07/10/08
BLANK	Terphenyl-d14(Surr)	98904-43-9	21.094	105.000	% Recov	60.000	120.000				07/10/08
LCS	1,2,4-Trichlorobenzene	120-82-1	17.003	85.000	% Recov	46.000	107.000				07/10/08
LCS	1,4-Dichlorobenzene	106-46-7	16.512	82.600	% Recov	42.000	111.000				07/10/08
LCS	2,4-Dinitrotoluene	121-14-2	16.151	80.800	% Recov	59.000	106.000				07/10/08
LCS	2-Fluorophenol(Surr)	367-12-4	15.158	75.800	% Recov	50.000	110.000				07/10/08
LCS	Acenaphthene	83-32-9	16.856	84.300	% Recov	61.000	116.000				07/10/08
LCS	4-Chloro-3-methylphenol	59-50-7	24.335	81.100	% Recov	61.000	106.000				07/10/08
LCS	2-Chlorophenol	95-57-8	24.775	82.600	% Recov	66.000	106.000				07/10/08
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	15.765	78.800	% Recov	71.000	114.000				07/10/08
LCS	2-Fluorobiphenyl(Surr)	321-60-8	18.114	90.600	% Recov	58.000	109.000				07/10/08
LCS	Phenol	108-95-2	23.953	79.800	% Recov	67.000	105.000				07/10/08
LCS	Nitrobenzene-d5(Surr)	4165-60-0	17.877	89.400	% Recov	60.000	118.000				07/10/08
LCS	4-Nitrophenol	100-02-7	24.597	82.000	% Recov	32.000	118.000				07/10/08
LCS	Pentachlorophenol	87-86-5	23.327	77.800	% Recov	62.000	114.000				07/10/08
LCS	Phenol-d5(Surr)	4165-62-2	17.031	85.200	% Recov	59.000	116.000				07/10/08
LCS	Pyrene	129-00-0	20.288	101.000	% Recov	66.000	118.000				07/10/08
LCS	2,4,6-Tribromophenol(Surr)	118-79-6	16.695	83.500	% Recov	60.000	120.000				07/10/08
LCS	Terphenyl-d14(Surr)	98904-43-9	21.615	108.000	% Recov	60.000	120.000				07/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/24/08
Receive Date:06/24/08

Lab ID: W08P003038
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	1,1-Dichloroethene	75-35-4	27.430	110.000	% Recov	63.000	117.000				07/02/08
MS	Benzene	71-43-2	24.450	97.800	% Recov	75.000	129.000				07/02/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	50.110	100.000	% Recov	75.000	125.000				07/02/08
MS	Chlorobenzene	108-90-7	25.760	103.000	% Recov	79.000	119.000				07/02/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	53.800	108.000	% Recov	75.000	125.000				07/02/08
MS	Toluene-d8(Surr)	2037-26-5	48.170	96.300	% Recov	75.000	125.000				07/02/08
MS	Toluene	108-88-3	25.960	104.000	% Recov	76.000	120.000				07/02/08
MS	Trichloroethene	79-01-6	23.460	93.800	% Recov	73.000	123.000				07/02/08
MSD	1,1-Dichloroethene	75-35-4	28.520	114.000	% Recov	63.000	117.000				07/02/08
MSD	Benzene	71-43-2	24.630	98.500	% Recov	75.000	129.000				07/02/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	50.760	102.000	% Recov	75.000	125.000				07/02/08
MSD	Chlorobenzene	108-90-7	25.920	104.000	% Recov	79.000	119.000				07/02/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	53.360	107.000	% Recov	75.000	125.000				07/02/08
MSD	Toluene-d8(Surr)	2037-26-5	48.800	97.600	% Recov	75.000	125.000				07/02/08
MSD	Toluene	108-88-3	26.060	104.000	% Recov	76.000	120.000				07/02/08
MSD	Trichloroethene	79-01-6	22.810	91.200	% Recov	73.000	123.000				07/02/08
SPK-RPD	1,1-Dichloroethene	75-35-4	114.000		RPD			3.571	20.000		07/02/08
SPK-RPD	Benzene	71-43-2	98.500		RPD			0.713	20.000		07/02/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	102.000		RPD			1.980	20.000		07/02/08
SPK-RPD	Chlorobenzene	108-90-7	104.000		RPD			0.966	20.000		07/02/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	107.000		RPD			0.930	20.000		07/02/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	97.600		RPD			1.341	20.000		07/02/08
SPK-RPD	Toluene	108-88-3	104.000		RPD			0.000	20.000		07/02/08
SPK-RPD	Trichloroethene	79-01-6	91.200		RPD			2.811	20.000		07/02/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003114											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.610	101.000	% Recov	75.000	125.000				07/02/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	54.220	108.000	% Recov	75.000	125.000				07/02/08
SURR	Toluene-d8(Surr)	2037-26-5	49.460	98.900	% Recov	75.000	125.000				07/02/08
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.140	100.000	% Recov	75.000	125.000				07/02/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	53.810	108.000	% Recov	75.000	125.000				07/02/08
SURR	Toluene-d8(Surr)	2037-26-5	49.210	98.400	% Recov	75.000	125.000				07/02/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	50.900	102.000	% Recov	75.000	125.000				07/02/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.750	106.000	% Recov	75.000	125.000				07/02/08
SURR	Toluene-d8(Surr)	2037-26-5	49.350	98.700	% Recov	75.000	125.000				07/02/08
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	07/02/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	07/02/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081287
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	50.180	100.000	% Recov	75.000	125.000				07/02/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	07/02/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	07/02/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	54.680	109.000	% Recov	75.000	125.000				07/02/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	07/02/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	07/02/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	07/02/08
BLANK	Toluene-d8(Surr)	2037-26-5	47.890	95.800	% Recov	75.000	125.000				07/02/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	07/02/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	07/02/08
LCS	1,1-Dichloroethene	75-35-4	28.410	114.000	% Recov	75.000	125.000				07/02/08
LCS	Benzene	71-43-2	24.960	99.800	% Recov	75.000	125.000				07/02/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	49.420	98.800	% Recov	75.000	125.000				07/02/08
LCS	Chlorobenzene	108-90-7	25.770	103.000	% Recov	75.000	125.000				07/02/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	54.780	110.000	% Recov	75.000	125.000				07/02/08
LCS	Toluene-d8(Surr)	2037-26-5	48.890	97.800	% Recov	75.000	125.000				07/02/08
LCS	Toluene	108-88-3	26.120	104.000	% Recov	75.000	125.000				07/02/08
LCS	Trichloroethene	79-01-6	22.470	89.900	% Recov	75.000	125.000				07/02/08

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P003115
Client ID: B1VP16 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Radiochemistry
Sampled: 06/26/08
Received: 06/26/08

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		8.10e+03	pCi/L	+-1.62e+03	pCi/L	1.00	5.9		07/05/08

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P003116
Client ID: B1VP17 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Radiochemistry
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421	U	-0.900	pCi/L	+-3.46	pCi/L	1.00	5.9		07/05/08

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003118
Client ID: B1VM29 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Radiochemistry
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Americium by AEA											
Americium-241	14596-10-2	LA-508-471	U	0.0200	pCi/L	+-0.0982	pCi/L	1.00	0.18		08/05/08
Am-243 tracer by AEA	AM243	LA-508-471		20.0	pCi/L			1.00	0.094		08/05/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.870	pCi/L	+-1.84	pCi/L	1.00	3.3		07/21/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		5.00e+03	pCi/L	+-500	pCi/L	1.00	6.1		07/18/08
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	0.0460	pCi/L	+-0.109	pCi/L	1.00	0.19		08/05/08
Pu-239/240 by AEA	PU-239/240	LA-508-471		0.0550	pCi/L	+-0.0473	pCi/L	1.00	0.025		08/05/08
Pu-242 tracer by AEA	PU242	LA-508-471		31.0	pCi/L			1.00	0.068		08/05/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-3.10	pCi/L	+-3.10	pCi/L	1.00	0.89		07/16/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		96.3	Percent			1.00	0.0		07/16/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.20e+03	pCi/L	+-288	pCi/L	1.00	2.0e+02		07/03/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P003120
Client ID: B1VM35 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Radiochemistry
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Americium by AEA											
Americium-241	14596-10-2	LA-508-471	U	0.100	pCi/L	+-0.0970	pCi/L	1.00	0.15		08/05/08
Am-243 tracer by AEA	AM243	LA-508-471		20.0	pCi/L			1.00	0.13		08/05/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.310	pCi/L	+-0.406	pCi/L	1.00	0.67		07/21/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415	U	0.130	pCi/L	+-0.848	pCi/L	1.00	1.4		07/18/08
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0270	pCi/L	+-0.115	pCi/L	1.00	0.22		08/05/08
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	8.90e-03	pCi/L	+-0.0472	pCi/L	1.00	0.096		08/05/08
Pu-242 tracer by AEA	PU242	LA-508-471		31.0	pCi/L			1.00	0.065		08/05/08
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-2.10	pCi/L	+-2.10	pCi/L	1.00	0.90		07/16/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		94.9	Percent			1.00	0.0		07/16/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	46.0	pCi/L	+-179	pCi/L	1.00	2.0e+02		07/03/08

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P003126
Client ID: B1VR44 PNNL-GPP WSCF
Matrix: WATER

Group #: WSCF20081287
Department: Radiochemistry
Sampled: 06/26/08
Received: 06/26/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		3.00	pCi/L	+-1.83	pCi/L	1.00	2.4		07/21/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		730	pCi/L	+-73.0	pCi/L	1.00	4.2		07/18/08
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		1.10e+03	pCi/L	+-220	pCi/L	1.00	5.9		07/05/08

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

B - The analyte < the RDL but > = the IDL/MDL (inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

C - The Analyte was found in the Associated Blank.(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: Americium by AEA

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Americium-241	14596-10-2	U9.2e-3		RPD			n/a	20.000		08/05/08
DUP	Am-243 tracer by AEA	AM243	20.01	90.670	% Recov	30.000	105.000				08/05/08
SURR	Am-243 tracer by AEA	AM243	20.01	80.880	% Recov	30.000	105.000				08/05/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Am-243 tracer by AEA	AM243	20.01	84.480	% Recov	30.000	105.000				08/05/08
BATCH QC											
BLANK	Americium-241	14596-10-2	U-3.8e-2	n/a	pCi/L	-10.000	1000.000				08/05/08
BLANK	Am-243 tracer by AEA	AM243	20.01	93.180	% Recov	30.000	105.000				08/05/08
LCS	Americium-241	14596-10-2	12	101.266	% Recov	80.000	120.000				08/05/08
LCS	Am-243 tracer by AEA	AM243	11.11	93.660	% Recov	30.000	105.000				08/05/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: Gross Alpha on Alpha Plateau

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	U1.6		RPD			n/a	20.000		07/21/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U4.5E-02	n/a	pCi/L	-100.000	100.000				07/21/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	34.1	88.023	% Recov	80.000	120.000				07/21/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	5.2e+03		RPD			0.000	20.000		07/18/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U2.6E-01	n/a	pCi/L	-10.000	10.000				07/18/08
LCS	Gross beta	12587-47-2	121.0	100.000	% Recov	80.000	120.000				07/18/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: Plutonium Isotopics by AEA

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Plutonium-238	13981-16-3	U-3.8e-2		RPD			n/a	20.000		08/05/08
DUP	Pu-239/240 by AEA	PU-239/240	U-1.9e-2		RPD			n/a	20.000		08/05/08
DUP	Pu-242 tracer by AEA	PU242	31.18	86.910	% Recov	30.000	105.000				08/05/08
SURR	Pu-242 tracer by AEA	PU242	31.18	88.430	% Recov	30.000	105.000				08/05/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242 tracer by AEA	PU242	31.18	98.560	% Recov	30.000	105.000				08/05/08
BATCH QC											
BLANK	Plutonium-238	13981-16-3	U1.8e-2	n/a	pCi/L	-10.000	1000.000				08/05/08
BLANK	Pu-239/240 by AEA	PU-239/240	U1.8e-2	n/a	pCi/L	-10.000	1000.000				08/05/08
BLANK	Pu-242 tracer by AEA	PU242	31.18	88.520	% Recov	30.000	105.000				08/05/08
LCS	Pu-239/240 by AEA	PU-239/240	12.72	99.027	% Recov	80.000	120.000				08/05/08
LCS	Pu-242 tracer by AEA	PU242	17.3	92.970	% Recov	30.000	105.000				08/05/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: Strontium 89/90

Sample Date: 06/26/08
Receive Date:06/26/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003118											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	101.7	101.700	% Recov	30.000	105.000				07/16/08
DUP	Strontium-89/90	SR-RAD	U-2.2		RPD			n/a	20.000		07/16/08
SURR	Sr-85 Tracer by Beta Counting	SR85	96.3	96.300	% Recov	30.000	105.000				07/16/08
Lab ID: W08P003120											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	94.9	94.900	% Recov	30.000	105.000				07/16/08
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	95.6	95.600	% Recov	30.000	105.000				07/16/08
BLANK	Strontium-89/90	10098-97-2	U-2.7	n/a	pCi/L	-10.000	100.000				07/16/08
LCS	Sr-85 Tracer by Beta Counting	SR85	90.3	90.300	% Recov	30.000	105.000				07/16/08
LCS	Strontium-89/90	10098-97-2	136	97.983	% Recov	80.000	120.000				07/16/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 06/22/08
Receive Date:06/23/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002940											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	4.2E+03		RPD			6.897	20.000		07/05/08
MS	Tc-99 by Liquid Scin.	14133-76-7	423.4	56.284	% Recov	75.000	125.000			*	07/05/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-2.2	n/a	pCi/L	-10.000	10.000				07/05/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	202.2	107.496	% Recov	80.000	120.000				07/05/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081287
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 06/25/08
Receive Date:06/25/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003087											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	8.0E+03		RPD			3.681	20.000		07/03/08
MS	Tritium	10028-17-8	20270	78.516	% Recov	75.000	125.000				07/03/08
BATCH QC											
BLANK	Tritium	10028-17-8	U1.3E+02	n/a	pCi/L	-10.000	1000.000				07/03/08
LCS	Tritium	10028-17-8	3260	95.266	% Recov	80.000	120.000				07/03/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081287
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-MS: Aluminum prep blank above MDL. "C" flag Tc-99 matrix spike recovery is low due to the high Tc99 activity in the sample. lmh ICP-AES: [Sample W08P3117] No zirconium present in the LCS standard. Magnesium, calcium, and sodium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard is used to ensure sodium, calcium, and magnesium linearity because sample results are greater than the calibration standard. ICP-AES: [Samples W08P3118-3120; 3125-3126] High silver preparation blank result; "C" flag if applicable. No zirconium present in the LCS standard. Magnesium, calcium, and sodium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard is used to ensure sodium, calcium, and magnesium linearity because sample results are greater than the calibration standard. Low silver MS recovery; "N" flag.

Lab Areas: VALGROUP - Group Validation
LOGSAMP - Login for Sample
VALTEST - Test Validation
LOGTEST - Login for Tests
TESTDATA - Test Data Entry

M4W41-SLF-08-868

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 11 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
08/11/08

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Customer Code: PNNL-GPP
Richland, WA 99352 PO#: 122543
Attn: Steve Trent E6-35 Group#: 20081287

The following samples were received from you on 06/26/08. 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
W08P003114	B1VHJ7	PNNL-GPP @VOA-GPP	Water	06/26/
W08P003115	B1VP16	PNNL-GPP @TC99-30	Water	06/26/
W08P003116	B1VP17	PNNL-GPP @TC99-30	Water	06/26/
W08P003117	B1VM28	PNNL-GPP @2008 @GPP6010	Water	06/26/
W08P003118	B1VM29	PNNL-GPP @2008 @GPP6010 ALKALI	Water @AB-32 @AEA-30 @AEA-31 @ALPHA @H3-33 @IC-30 @SR89_90 @SVOCGPP @VC CN-02	06/26/
W08P003119	B1VM34	PNNL-GPP @2008 @GPP6010	Water	06/26/
W08P003120	B1VM35	PNNL-GPP @2008 @GPP6010 ALKALI	Water @AB-32 @AEA-30 @AEA-31 @ALPHA @H3-33 @IC-30 @SR89_90 @SVOCGPP @VC CN-02	06/26/
W08P003121	B1VR39	PNNL-GPP TOC-30	Water	06/26/
W08P003122	B1VR40	PNNL-GPP TOC-30	Water	06/26/
W08P003123	B1VR41	PNNL-GPP TOC-30	Water	06/26/
W08P003124	B1VR42	PNNL-GPP TOC-30	Water	06/26/
W08P003125	B1VR43	PNNL-GPP @2008 @GPP6010	Water	06/26/
W08P003126	B1VR44	PNNL-GPP @2008 @TC99-30	Water @AB-32 @ALPHA @GPP6010 @IC-30 ALKALI	06/26/

Test Acronym Description

Test Acronym	Description

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081287

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@AEA-30	Plutonium Isotopics by AEA
@AEA-31	Americium by AEA
@ALPHA	Gross Alpha on Alpha Plateau
@GPP6010	ICP Metals Analysis, Grd H20 P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@SVOCGPP	SW-846 8270C Semi-Vols
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection
ALKALI	Total Alkalinity as mg/L CaCO3
CN-02	Cyanide by Midi/Spectrophotom
TOC-30	Total Organic Carbon

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

08/11/08 2008287

Page 1 of 1

Collector Roy Sickle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. W08-005	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title RCRA MAY 2008	HNF-N-506-15	**Ice Chest No.** GNS-022 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol RCRA	**Priority:** 45 Days	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VHJ7	W08P003114	W	06/26/08	1037	1x20-mL P	Activity Scan	None
B1VHJ7	"	W	"	"	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Roy Sickle			JUN 26 2008 1255	CA Hudson			JUN 26 2008 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 1

Collector: Roy Sickle	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: W08-006	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: RCRA JUNE 2008	HNF-N-506-15	Ice Chest No.: GWS-022 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: RCRA	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

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
B1VP16	3115	W	06/26/08	1037	1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Roy Sickle			JUN 26 2008 1255				6.26.08 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

6-26-08

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector D. Woehle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. W08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title RCRA JUNE 2008	HNF-N-506-15	**Ice Chest No.** **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol RCRA	**Priority:** 45 Days	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VP17	3116	W	6.26.08	0800	1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2

ICE

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woehle			JUN 26 2008 1255	TA FRAZIER			JUN 26 2008 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

0808150

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector Roy Sickle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, JUNE 2008	HNF-N-506-15	**Ice Chest No.** GNS-022 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS **Hold Time**
Site-Wide Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VM28 (F)	3117	W	04/24/08	1037	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VM28 (F)		W			1x500-mL G/P	200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Lead (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1VM28 (F)		W			1x500-mL G/P	200.8_METALS_ICPMS: Mercury (1)	HNO3 to pH <2
B1VM29	3118	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VM29		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VM29		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VM29		W			1x1000-mL G/P	AMCMISO_EIE_PLT_AEA: Am-241 (1)	HNO3 to pH <2
B1VM29		W			1x1000-mL G/P	PUISO_PLATE_AEA: Pu-238 + 239/240 (2)	HNO3 to pH <2
B1VM29		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1VM29		W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1VM29		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VM29		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VM29		W			4x1000-mL aG	8270_SVOA_GCMS: List-1 (13)	Cool~4C
B1VM29		W			1x500-mL G/P	200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Lead (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2

ICED

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
Roy Sickle	Roy Sickle	JUN 26 2008 1255	CH Hinton	CH Hinton	JUN 26 2008 1255
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time
Relinquished By		Date/Time	Received By		Date/Time

Matrix *

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

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

SAF No.	Contact/Requestor	Telephone No.	MSIN	FAX
S08-006	Steve Trent	509-373-5869		

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VM29		W	06/24/08	1037	1x500-mL G/P	200.8_METALS_ICPMS: Mercury (1)	HNO3 to pH <2
B1VM29	↓	W	↓	↓	1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool~4C
B1VM29	↓	W	↓	↓	1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Roy Sickle		JUN 26 2008				JUN 26 2008 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

0285

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector D. Woshle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV JUNE 2008	HNF-N-526-15	**Ice Chest No.** GW-1 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 45 Days	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VM34 (F)	3119	W	6.26.08	0800	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VM34 (F)		W			1x500-mL G/P	200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Lead (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2
B1VM34 (F)		W			1x500-mL G/P	200.8_METALS_ICPMS: Mercury (1)	HNO3 to pH <2
B1VM35	3120	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VM35		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VM35		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VM35		W			1x1000-mL G/P	AMCMISO_EIE_PLT_AEA: Am-241 (1)	HNO3 to pH <2
B1VM35		W			1x1000-mL G/P	PUISO_PLATE_AEA: Pu-238 + 239/240 (2)	HNO3 to pH <2
B1VM35		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1VM35		W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1VM35		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VM35		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VM35		W			4x1000-mL aG	8270_SVOA_GCMS: List-1 (13)	Cool~4C
B1VM35		W			1x500-mL G/P	200.8_METALS_ICPMS: Arsenic (1); 200.8_METALS_ICPMS: Aluminum (1); 200.8_METALS_ICPMS: Lead (1); 200.8_METALS_ICPMS: Thallium (1)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woshle			JUN 26 2008 1255	TARRIZIN			JUN 26 2008 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

SAF No.	Contact/Requestor	Telephone No.	MSIN	FAX
S08-006	Steve Trent	509-373-5869		

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VM35		W	6-26-08	0800	1x500-mL G/P	200.8_METALS_ICPMS: Mercury (1)	HNO3 to pH <2
B1VM35		W			1x250-mL G/P	335.2_CYANIDE: Cyanide (1)	NaOH to pH >= 12 Cool~4C
B1VM35		W			1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2

ICE

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. Woehle		JUN 26 2008 1255		TAFAZIN		JUN 26 2008 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector Roy Sickle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. W08-006	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title RCRA, JUNE 2008	HNF-N-506-K	**Ice Chest No.** GNS-022 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol RCRA	**Priority:** 45 Days	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VR39	W08F003121	W	06/26/08	1211	1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool~4C
B1VR40	3122	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool~4C
B1VR41	3123	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool~4C
B1VR42	3124	W			1x250-mL aGs*	9060_TOC: TOC (1)	HCl or H2SO4 to pH <2 Cool~4C
B1VR43 (F)	3125	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VR43 (F)	↓	W			1x500-mL G/P	200.8_METALS_ICPMS: Lead (1)	HNO3 to pH <2
B1VR44	3126	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VR44		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VR44		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VR44		W			1x500-mL G/P	200.8_METALS_ICPMS: Lead (1)	HNO3 to pH <2
B1VR44		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VR44	↓	W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Roy Sickle			JUN 26 2008 1255	TA FINAZIN			JUN 26 2008 1255
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time
Relinquished By			Date/Time	Received By			Date/Time

Matrix *

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

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