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RECEIVED AUGUST 5, 2008

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FLUOR

Memorandum

M4W41-SLF-08-776

To: H. Hampt E6-35 Date: August 4, 2008

From: S. L. Fitzgerald, Manager by William F. Bard
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 WSCF20081163

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 WSCF20081163:

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

SLF/cmj

Attachments 4

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ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081163
Data Deliverable Date: 23-jul-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I08-038	B1V6C1	W08P002764	WATER
	B1V6C6	W08P002758	WATER
	B1V6C7	W08P002759	WATER
	B1V6D0	W08P002761	WATER
	B1V6D1	W08P002762	WATER
	B1VFB8	W08P002760	WATER
	B1VFC4	W08P002763	WATER
W08-004	B1V387	W08P002765	WATER
W08-005	B1V967	W08P002756	WATER
	B1V968	W08P002757	WATER
W08-006	B1VPC1	W08P002750	WATER
	B1VPC2	W08P002751	WATER
	B1VPC4	W08P002752	WATER
	B1VPC5	W08P002753	WATER
	B1VRK2	W08P002754	WATER
	B1VRK3	W08P002755	WATER

M4W41-SLF-08-776

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

Sixteen (16) groundwater samples were received at the WSCF Laboratory on June 9, 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 14-16 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 35-37 for QC details. Analytical Note(s):

- Duplicates, Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1VRJ1 and B1VRJ2 (SDG# 20081159).
- Sample results were D flagged if dilution(s) were not required.
- Sample results that were less than the lowest calibration standard, however greater than the method detection limit were B flagged.

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 38-41 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate for Bismuth were analyzed on sample# B1T558 (SDG# 20081414). For the rest of the metals, the Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1V7W1 (SDG# 20081142) and B1VR65 of this SDG.

- Batch QC – B1T558 – due to technical difficulties in LABCORE, the Batch QC for Bismuth is offered below
    - Laboratory Control Sample Recovery = 108%
    - Matrix Spike and Matrix Spike Recoveries = 106%

- Batch QC – B1V7W1
    - Calcium, Magnesium and Sodium – Check standard was analyzed to ensure linearity because sample results were greater than the calibration standard.

- Batch QC – B1VR65
    - Calcium, Magnesium and Sodium sample results exceeded the spiking levels by a factor of four. Spike recoveries are not valid. Check standard was analyzed to ensure um linearity because sample results were greater than the calibration standard.

All other QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See page 42 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1V654 and B1V662 (SDG# 20081134).

All QC controls are within the established limits.

Total Alkalinity – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 43 for QC details.

All QC controls are within the established limits.

Organic Comments

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample, were analyzed with this delivery group per the GRP Letter of Instruction. See pages 54-56 for QC details. Analytical Note(s):

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

- Carbon Tetrachloride (B1V387) – Sample result was E flagged (estimate).

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 67-71 for QC details. Analytical Note(s):

- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1V693 (SDG# 20081142).
- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1VKT6 (SDG# 20081159).

All QC controls are within the established limits.

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

for Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-776

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 64 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical: William J. Baird 8/4/08

Client Services: P.D. Mix 8/4/2008

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

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Report#: WSCF20081163
Report Date: 1-aug-2008
Report WGPP/ver. 5.2
GPAP

w13qlog v4.2 01-aug-2008 06:34:28

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081163

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36655	2	37068	41399	BLANK		Anions by Ion Chromatography
36655	13	37068	41399	BLANK		Anions by Ion Chromatography
36655	23	37068	41399	BLANK		Anions by Ion Chromatography
36655	3	37068	41399	LCS		Anions by Ion Chromatography
36655	14	37068	41399	LCS		Anions by Ion Chromatography
36655	5	37068	41399	DUP	W08P002746	Anions by Ion Chromatography
36655	6	37068	41399	MS	W08P002746	Anions by Ion Chromatography
36655	7	37068	41399	MSD	W08P002746	Anions by Ion Chromatography
36655	7	37068	41399	SPK-RPD	W08P002746	Anions by Ion Chromatography
36655	16	37068	41399	DUP	W08P002747	Anions by Ion Chromatography
36655	17	37068	41399	MS	W08P002747	Anions by Ion Chromatography
36655	18	37068	41399	MSD	W08P002747	Anions by Ion Chromatography
36655	18	37068	41399	SPK-RPD	W08P002747	Anions by Ion Chromatography
36655	10	37068	41399	SAMPLE	W08P002751	Anions by Ion Chromatography
36655	11	37068	41399	SAMPLE	W08P002753	Anions by Ion Chromatography
36655	12	37068	41399	SAMPLE	W08P002755	Anions by Ion Chromatography
36655	19	37068	41399	SAMPLE	W08P002759	Anions by Ion Chromatography
36655	21	37068	41399	SAMPLE	W08P002762	Anions by Ion Chromatography
36655	22	37068	41399	SAMPLE	W08P002764	Anions by Ion Chromatography
36699	1	37116	41441	LCS		Total Alkalinity as mg/L CaCO3
36699	13	37116	41441	LCS		Total Alkalinity as mg/L CaCO3
36699	24	37116	41441	LCS		Total Alkalinity as mg/L CaCO3
36699	11	37116	41441	SAMPLE	W08P002751	Total Alkalinity as mg/L CaCO3
36699	12	37116	41441	SAMPLE	W08P002753	Total Alkalinity as mg/L CaCO3
36699	3	37116	41441	DUP	W08P002755	Total Alkalinity as mg/L CaCO3
36699	2	37116	41441	SAMPLE	W08P002755	Total Alkalinity as mg/L CaCO3
36699	14	37116	41441	SAMPLE	W08P002756	Total Alkalinity as mg/L CaCO3
36699	15	37116	41441	SAMPLE	W08P002757	Total Alkalinity as mg/L CaCO3
36820	1	37242	41582	BLANK		ICP-200.8 MS All possible meta
36820	2	37242	41582	LCS		ICP-200.8 MS All possible meta
36820	4	37242	41582	MS	W08P002695	ICP-200.8 MS All possible meta
36820	5	37242	41582	MSD	W08P002695	ICP-200.8 MS All possible meta
36820	5	37242	41582	SPK-RPD	W08P002695	ICP-200.8 MS All possible meta
36820	7	37242	41582	MS	W08P002697	ICP-200.8 MS All possible meta
36820	8	37242	41582	MSD	W08P002697	ICP-200.8 MS All possible meta
36820	8	37242	41582	SPK-RPD	W08P002697	ICP-200.8 MS All possible meta
36820	32	37242	41582	SAMPLE	W08P002759	ICP-200.8 MS All possible meta
36820	33	37242	41582	SAMPLE	W08P002762	ICP-200.8 MS All possible meta
36820	34	37242	41582	SAMPLE	W08P002764	ICP-200.8 MS All possible meta
37132	1	37555	41934	BLANK		ICP Metals Analysis, Grd H20 P
37132	2	37555	41934	LCS		ICP Metals Analysis, Grd H20 P
37132	4	37555	41934	MS	W08P002737	ICP Metals Analysis, Grd H20 P
37132	5	37555	41934	MSD	W08P002737	ICP Metals Analysis, Grd H20 P
37132	5	37555	41934	SPK-RPD	W08P002737	ICP Metals Analysis, Grd H20 P
37132	14	37555	41934	SAMPLE	W08P002750	ICP Metals Analysis, Grd H20 P
37132	15	37555	41934	SAMPLE	W08P002751	ICP Metals Analysis, Grd H20 P
37132	16	37555	41934	SAMPLE	W08P002752	ICP Metals Analysis, Grd H20 P
37132	17	37555	41934	SAMPLE	W08P002753	ICP Metals Analysis, Grd H20 P
37132	18	37555	41934	SAMPLE	W08P002754	ICP Metals Analysis, Grd H20 P

37132	19	37555	41934	SAMPLE	W08P002755	ICP Metals Analysis, Grd H20 P
37132	20	37555	41934	SAMPLE	W08P002758	ICP Metals Analysis, Grd H20 P
37132	21	37555	41934	SAMPLE	W08P002759	ICP Metals Analysis, Grd H20 P
37132	22	37555	41934	SAMPLE	W08P002761	ICP Metals Analysis, Grd H20 P
37132	23	37555	41934	SAMPLE	W08P002762	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 01-aug-2008 06:34:28

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081163

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			41952	BLANK		VOA Ground Water Protection
			41952	LCS		VOA Ground Water Protection
			41952	SAMPLE	W08P002759	VOA Ground Water Protection
			41952	SURR	W08P002759	VOA Ground Water Protection
			41952	SAMPLE	W08P002762	VOA Ground Water Protection
			41952	SURR	W08P002762	VOA Ground Water Protection
			41952	MS	W08P002764	VOA Ground Water Protection
			41952	MSD	W08P002764	VOA Ground Water Protection
			41952	SAMPLE	W08P002764	VOA Ground Water Protection
			41952	SPK-RPD	W08P002764	VOA Ground Water Protection
			41952	SURR	W08P002764	VOA Ground Water Protection
			41952	SAMPLE	W08P002765	VOA Ground Water Protection
			41952	SURR	W08P002765	VOA Ground Water Protection

w13qlog v4.2 01-aug-2008 06:34:28

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081163

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36692	1	37109	41536	BLANK		Gamma Energy Analysis-grd H2O
36692	2	37109	41536	LCS		Gamma Energy Analysis-grd H2O
36692	3	37109	41536	DUP	W08P002756	Gamma Energy Analysis-grd H2O
36692	4	37109	41536	SAMPLE	W08P002756	Gamma Energy Analysis-grd H2O
36692	5	37109	41536	SAMPLE	W08P002757	Gamma Energy Analysis-grd H2O
36692	6	37109	41536	SAMPLE	W08P002760	Gamma Energy Analysis-grd H2O
36692	7	37109	41536	SAMPLE	W08P002763	Gamma Energy Analysis-grd H2O
36683	1	37100	41597	BLANK		TC99 by Liquid Scin.
36683	2	37100	41597	LCS		TC99 by Liquid Scin.
36683	3	37100	41597	DUP	W08P002731	TC99 by Liquid Scin.
36683	4	37100	41597	MS	W08P002731	TC99 by Liquid Scin.
36683	12	37100	41597	SAMPLE	W08P002751	TC99 by Liquid Scin.
36683	13	37100	41597	SAMPLE	W08P002753	TC99 by Liquid Scin.
36683	14	37100	41597	SAMPLE	W08P002755	TC99 by Liquid Scin.
36683	15	37100	41597	SAMPLE	W08P002759	TC99 by Liquid Scin.
36683	16	37100	41597	SAMPLE	W08P002762	TC99 by Liquid Scin.
36774	2	37192	41601	BLANK		Tritium by Liq Sct column prep
36774	3	37192	41601	LCS		Tritium by Liq Sct column prep
36774	4	37192	41601	DUP	W08P002743	Tritium by Liq Sct column prep
36774	1	37192	41601	MS	W08P002743	Tritium by Liq Sct column prep
36774	7	37192	41601	SAMPLE	W08P002756	Tritium by Liq Sct column prep
36774	8	37192	41601	SAMPLE	W08P002757	Tritium by Liq Sct column prep
36774	9	37192	41601	SAMPLE	W08P002759	Tritium by Liq Sct column prep
36774	10	37192	41601	SAMPLE	W08P002762	Tritium by Liq Sct column prep
36774	11	37192	41601	SAMPLE	W08P002764	Tritium by Liq Sct column prep
37240	1	37672	42053	BLANK		Gross Alpha/Gross Beta (AB32)
37240	2	37672	42053	LCS		Gross Alpha/Gross Beta (AB32)
37240	3	37672	42053	DUP	W08P002756	Gross Alpha/Gross Beta (AB32)
37240	4	37672	42053	SAMPLE	W08P002756	Gross Alpha/Gross Beta (AB32)
37240	5	37672	42053	SAMPLE	W08P002757	Gross Alpha/Gross Beta (AB32)
37240	6	37672	42053	SAMPLE	W08P002760	Gross Alpha/Gross Beta (AB32)
37240	7	37672	42053	SAMPLE	W08P002763	Gross Alpha/Gross Beta (AB32)
37291	1	37720	42124	BLANK		Gross Alpha on Alpha Plateau
37291	2	37720	42124	LCS		Gross Alpha on Alpha Plateau
37291	3	37720	42124	DUP	W08P002756	Gross Alpha on Alpha Plateau
37291	4	37720	42124	SAMPLE	W08P002756	Gross Alpha on Alpha Plateau
37291	5	37720	42124	SAMPLE	W08P002757	Gross Alpha on Alpha Plateau
37291	6	37720	42124	SAMPLE	W08P002760	Gross Alpha on Alpha Plateau
37291	7	37720	42124	SAMPLE	W08P002763	Gross Alpha on Alpha Plateau

WSCF
METHOD REFERENCES REPORT

Department: Inorganic

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

LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE	
	HEIS 6010_METALS_ICP	Inductively Coupled Plasma-Atomic 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

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)

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_GB	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-508-481 LA-508-481: GAMMA ENERGY ANALYSIS USING PROCOUNT SOFTWARE

HEIS GAMMA_GS	Gamma Emmision Spectrometry

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P002750
Client ID: B1VPC1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		8.28e+03	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		3.35e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		2.67e+04	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		51.2	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		22.9	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		2.82e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		135	ug/L			1.00	4.0		07/18/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 # W08P002751
Client ID: B1VPC2 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.311	mg/L			2.00	0.042		06/10/08
Chloride	16887-00-6	LA-533-410	D	6.49	mg/L			2.00	0.22		06/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	11.4	mg/L			2.00	0.072		06/10/08
Sulfate	14808-79-8	LA-533-410	D	22.5	mg/L			2.00	0.15		06/10/08
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		229	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		9.00e+03	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411		28.8	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411		21.8	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		3.61e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		2.84e+04	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		59.8	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411		14.4	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		24.2	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		2.98e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		144	ug/L			1.00	4.0		07/18/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 # W08P002751
Client ID: B1VPC2 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

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		07/18/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		88.0	mg/L			1.00	1.0		06/12/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 # W08P002752
Client ID: B1VPC4 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		36.9	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		1.07e+04	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		3.76e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		3.04e+04	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		40.3	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		25.9	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		3.32e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		146	ug/L			1.00	4.0		07/18/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 # W08P002753
Client ID: B1VPC5 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.312	mg/L			2.00	0.042		06/10/08
Chloride	16887-00-6	LA-533-410	D	13.1	mg/L			2.00	0.22		06/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	17.6	mg/L			10.00	0.36		06/10/08
Sulfate	14808-79-8	LA-533-410	D	24.9	mg/L			2.00	0.15		06/10/08
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		131	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		1.09e+04	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411		5.20	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411		13.5	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		3.81e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		3.02e+04	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		41.0	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		26.2	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411		21.5	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		3.39e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		148	ug/L			1.00	4.0		07/18/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P002753
Client ID: B1VPC5 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

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		07/18/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		89.0	mg/L			1.00	1.0		06/12/08

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

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J - Analyte < lowest calibration but > = MDL.(org)
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P002754
Client ID: B1VRK2 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		8.60e+03	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		3.74e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		2.46e+04	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		40.1	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		22.3	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		07/18/08
Calcium	7440 70-2	LA-505-411		2.71e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		120	ug/L			1.00	4.0		07/18/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08

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

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J - Analyte < lowest calibration but > = MDL.(org)
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P002755
Client ID: B1VRK3 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	0.375	mg/L			2.00	0.042		06/10/08
Chloride	16887-00-6	LA-533-410	D	8.27	mg/L			2.00	0.22		06/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	11.3	mg/L			2.00	0.072		06/10/08
Sulfate	14808-79-8	LA-533-410	D	18.6	mg/L			2.00	0.15		06/10/08
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		45.2	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		8.66e+03	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		3.77e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		2.49e+04	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		40.4	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411		14.1	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		23.0	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		2.74e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		120	ug/L			1.00	4.0		07/18/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 # W08P002755
Client ID: B1VRK3 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

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		07/18/08
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		88.0	mg/L			1.00	1.0		06/12/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: W08-005
Sample # W08P002756
Client ID: B1V967 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		140	mg/L			1.00	1.0		06/12/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: W08-005
Sample # W08P002757
Client ID: B1V968 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		140	mg/L			1.00	1.0		06/12/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002758
Client ID: B1V6C6 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		1.32e+04	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		4.20e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		1.61e+05	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		60.8	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411		114	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		41.0	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411		31.7	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		4.22e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		195	ug/L			1.00	4.0		07/18/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Bismuth	7440-69-9	LA-505-411	U	< 35.0	ug/L			1.00	35		07/30/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002759
Client ID: B1V6C7 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	3.96	mg/L			2.00	0.042		06/10/08
Chloride	16887-00-6	LA-533-410	D	23.6	mg/L			2.00	0.22		06/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	105	mg/L			20.00	0.72		06/10/08
Sulfate	14808-79-8	LA-533-410	D	59.8	mg/L			2.00	0.15		06/10/08
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		1.33e+04	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		4.24e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		1.54e+05	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		61.2	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411		116	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		40.8	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411		32.1	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		4.26e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		197	ug/L			1.00	4.0		07/18/08

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002759
Client ID: B1V6C7 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

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		07/18/08
Bismuth	7440-69-9	LA-505-411	U	< 35.0	ug/L			1.00	35		07/30/08
ICP-200.8 MS All possible meta Prep											**06/24/08**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		1.22	ug/L			1.00	0.0500		06/24/08

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

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D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002761
Client ID: B1V6D0 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		1.30e+04	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		4.17e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		1.54e+05	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		59.9	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411		114	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		39.4	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411		25.9	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		4.18e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		193	ug/L			1.00	4.0		07/18/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Bismuth	7440-69-9	LA-505-411	U	< 35.0	ug/L			1.00	35		07/30/08

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)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002762
Client ID: B1V6D1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	D	3.95	mg/L			2.00	0.042		06/10/08
Chloride	16887-00-6	LA-533-410	D	23.3	mg/L			2.00	0.22		06/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	106	mg/L			20.00	0.72		06/10/08
Sulfate	14808-79-8	LA-533-410	D	60.2	mg/L			2.00	0.15		06/10/08
ICP Metals Analysis, Grd H20 P Prep											**07/17/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		07/18/08
Magnesium	7439-95-4	LA-505-411		1.30e+04	ug/L			1.00	50		07/18/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Potassium	7440-09-7	LA-505-411		4.24e+03	ug/L			1.00	1.7e+02		07/18/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/18/08
Sodium	7440-23-5	LA-505-411		1.47e+05	ug/L			1.00	51		07/18/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		07/18/08
Barium	7440-39-3	LA-505-411		60.3	ug/L			1.00	4.0		07/18/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Chromium	7440-47-3	LA-505-411		113	ug/L			1.00	13		07/18/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/18/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		07/18/08
Vanadium	7440-62-2	LA-505-411		40.5	ug/L			1.00	12		07/18/08
Zinc	7440-66-6	LA-505-411		29.4	ug/L			1.00	9.0		07/18/08
Calcium	7440-70-2	LA-505-411		4.15e+04	ug/L			1.00	73		07/18/08
Strontium	7440-24-6	LA-505-411		193	ug/L			1.00	4.0		07/18/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
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: I08-038
Sample # W08P002762
Client ID: B1V6D1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

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		07/18/08
Bismuth	7440-69-9	LA-505-411	U	< 35.0	ug/L			1.00	35		07/30/08
ICP-200.8 MS All possible meta Prep											**06/24/08**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		1.22	ug/L			1.00	0.0500		06/24/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002764
Client ID: B1V6C1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Inorganic
Sampled: 06/09/08
Received: 06/09/08

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	0.170	mg/L			2.00	0.042		06/10/08
Chloride	16887-00-6	LA-533-410	D	17.7	mg/L			2.00	0.22		06/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0198	mg/L			2.00	0.020		06/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	87.7	mg/L			20.00	0.72		06/10/08
Sulfate	14808-79-8	LA-533-410	D	73.6	mg/L			2.00	0.15		06/10/08
ICP-200.8 MS All possible meta Prep											**06/24/08**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		2.40	ug/L			1.00	0.0500		06/24/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria.(org)

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081163
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002746											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	6.5323		RPD			0.086	20.000		06/10/08
DUP	Fluoride	16984-48-8	0.3831		RPD			0.261	20.000		06/10/08
DUP	Nitrogen in Nitrite	NO2-N	<1.98e-2		RPD			n/a	20.000	U	06/10/08
DUP	Nitrogen in Nitrate	NO3-N	5.3983		RPD			0.473	20.000		06/10/08
DUP	Sulfate	14808-79-8	23.9855		RPD			2.962	20.000		06/10/08
MS	Chloride	16887-00-6	1.0779	108.332	% Recov	80.000	120.000				06/10/08
MS	Fluoride	16984-48-8	0.50735	102.911	% Recov	80.000	120.000				06/10/08
MS	Nitrogen in Nitrite	NO2-N	0.46745	95.010	% Recov	80.000	120.000				06/10/08
MS	Nitrogen in Nitrate	NO3-N	0.469	105.157	% Recov	80.000	120.000				06/10/08
MS	Sulfate	14808-79-8	2.0537	104.781	% Recov	80.000	120.000				06/10/08
MSD	Chloride	16887-00-6	1.0691	107.447	% Recov	80.000	120.000				06/10/08
MSD	Fluoride	16984-48-8	0.51915	105.304	% Recov	80.000	120.000				06/10/08
MSD	Nitrogen in Nitrite	NO2-N	0.46855	95.234	% Recov	80.000	120.000				06/10/08
MSD	Nitrogen in Nitrate	NO3-N	0.4707	105.538	% Recov	80.000	120.000				06/10/08
MSD	Sulfate	14808-79-8	2.0893	106.597	% Recov	80.000	120.000				06/10/08
SPK-RPD	Chloride	16887-00-6	107.447		RPD			0.820	20.000		06/10/08
SPK-RPD	Fluoride	16984-48-8	105.304		RPD			2.299	20.000		06/10/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	95.234		RPD			0.235	20.000		06/10/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	105.538		RPD			0.362	20.000		06/10/08
SPK-RPD	Sulfate	14808-79-8	106.597		RPD			1.718	20.000		06/10/08
Lab ID: W08P002747											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	6.5876		RPD			0.222	20.000		06/10/08
DUP	Fluoride	16984-48-8	0.3857		RPD			2.334	20.000		06/10/08
DUP	Nitrogen in Nitrite	NO2-N	<1.98e-2		RPD			n/a	20.000	U	06/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081163
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/09/08
Receive Date:06/09/08

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	5.4275		RPD			0.608	20.000		06/10/08
DUP	Sulfate	14808-79-8	23.3945		RPD			0.702	20.000		06/10/08
MS	Chloride	16887-00-6	1.1216	112.724	% Recov	80.000	120.000				06/10/08
MS	Fluoride	16984-48-8	0.52205	105.892	% Recov	80.000	120.000				06/10/08
MS	Nitrogen in Nitrite	NO2-N	0.4675	95.020	% Recov	80.000	120.000				06/10/08
MS	Nitrogen in Nitrate	NO3-N	0.44855	100.572	% Recov	80.000	120.000				06/10/08
MS	Sulfate	14808-79-8	1.97885	100.962	% Recov	80.000	120.000				06/10/08
MSD	Chloride	16887-00-6	1.0801	108.553	% Recov	80.000	120.000				06/10/08
MSD	Fluoride	16984-48-8	0.5108	103.611	% Recov	80.000	120.000				06/10/08
MSD	Nitrogen in Nitrite	NO2-N	0.46815	95.152	% Recov	80.000	120.000				06/10/08
MSD	Nitrogen in Nitrate	NO3-N	0.4465	100.112	% Recov	80.000	120.000				06/10/08
MSD	Sulfate	14808-79-8	1.92055	97.987	% Recov	80.000	120.000				06/10/08
SPK-RPD	Chloride	16887-00-6	108.553		RPD			3.770	20.000		06/10/08
SPK-RPD	Fluoride	16984-48-8	103.611		RPD			2.178	20.000		06/10/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	95.152		RPD			0.139	20.000		06/10/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	100.112		RPD			0.458	20.000		06/10/08
SPK-RPD	Sulfate	14808-79-8	97.987		RPD			2.991	20.000		06/10/08

BATCH QC

BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/10/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/10/08
BLANK	Chloride	16887-00-6	<0.11	n/a	mg/L	0.000	0.030			U	06/10/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/10/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/10/08
BLANK	Fluoride	16984-48-8	<2.1e-2	n/a	mg/L	0.000	0.030			U	06/10/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/10/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/10/08
BLANK	Nitrogen in Nitrite	NO2-N	<9.9e-3	n/a	mg/L	0.000	0.020			U	06/10/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/10/08
BLANK	Nitrogen in Nitrate	NO3-N	<3.6e-2	n/a	mg/L	0.000	0.040			U	06/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081163
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	06/10/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/10/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/10/08
BLANK	Sulfate	14808-79-8	<7.7e-2	n/a	mg/L	0.000	0.200			U	06/10/08
LCS	Chloride	16887-00-6	204.8332	101.907	% Recov	80.000	120.000				06/10/08
LCS	Chloride	16887-00-6	204.4544	101.719	% Recov	80.000	120.000				06/10/08
LCS	Fluoride	16984-48-8	106.3501	106.777	% Recov	80.000	120.000				06/10/08
LCS	Fluoride	16984-48-8	106.4391	106.867	% Recov	80.000	120.000				06/10/08
LCS	Nitrogen in Nitrite	NO2-N	102.9128	103.534	% Recov	80.000	120.000				06/10/08
LCS	Nitrogen in Nitrite	NO2-N	103.0129	103.635	% Recov	80.000	120.000				06/10/08
LCS	Nitrogen in Nitrate	NO3-N	95.755	106.276	% Recov	80.000	120.000				06/10/08
LCS	Nitrogen in Nitrate	NO3-N	95.8937	106.430	% Recov	80.000	120.000				06/10/08
LCS	Sulfate	14808-79-8	391.7292	98.922	% Recov	80.000	120.000				06/10/08
LCS	Sulfate	14808-79-8	393.3004	99.318	% Recov	80.000	120.000				06/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081163
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

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

Lab ID: W08P002737
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	1001	100.100	% Recov	75.000	125.000				07/18/08
MS	Barium	7440-39-3	507.6	101.520	% Recov	75.000	125.000				07/18/08
MS	Beryllium	7440-41-7	556	111.200	% Recov	75.000	125.000				07/18/08
MS	Calcium	7440-70-2	1042	104.200	% Recov	75.000	125.000				07/18/08
MS	Cadmium	7440-43-9	1031	103.100	% Recov	75.000	125.000				07/18/08
MS	Cobalt	7440-48-4	1008	100.800	% Recov	75.000	125.000				07/18/08
MS	Chromium	7440-47-3	1019	101.900	% Recov	75.000	125.000				07/18/08
MS	Copper	7440-50-8	999.1	99.910	% Recov	75.000	125.000				07/18/08
MS	Iron	7439-89-6	1005	100.500	% Recov	75.000	125.000				07/18/08
MS	Potassium	7440-09-7	9527	95.270	% Recov	75.000	125.000				07/18/08
MS	Magnesium	7439-95-4	1025	102.500	% Recov	75.000	125.000				07/18/08
MS	Manganese	7439-96-5	1030	103.000	% Recov	75.000	125.000				07/18/08
MS	Sodium	7440-23-5	1080	108.000	% Recov	75.000	125.000				07/18/08
MS	Nickel	7440-02-0	1031	103.100	% Recov	75.000	125.000				07/18/08
MS	Antimony	7440-36-0	1047	104.700	% Recov	75.000	125.000				07/18/08
MS	Strontium	7440-24-6	528.3	105.660	% Recov	75.000	125.000				07/18/08
MS	Vanadium	7440-62-2	1014	101.400	% Recov	75.000	125.000				07/18/08
MS	Zinc	7440-66-6	1101	110.100	% Recov	75.000	125.000				07/18/08
MSD	Silver	7440-22-4	971.8	97.180	% Recov	75.000	125.000				07/18/08
MSD	Barium	7440-39-3	497.2	99.440	% Recov	75.000	125.000				07/18/08
MSD	Beryllium	7440-41-7	540.7	108.140	% Recov	75.000	125.000				07/18/08
MSD	Calcium	7440-70-2	990.9	99.090	% Recov	75.000	125.000				07/18/08
MSD	Cadmium	7440-43-9	990.6	99.060	% Recov	75.000	125.000				07/18/08
MSD	Cobalt	7440-48-4	966.8	96.680	% Recov	75.000	125.000				07/18/08
MSD	Chromium	7440-47-3	985.3	98.530	% Recov	75.000	125.000				07/18/08
MSD	Copper	7440-50-8	984.6	98.460	% Recov	75.000	125.000				07/18/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081163
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1004	100.400	% Recov	75.000	125.000				07/18/08
MSD	Potassium	7440-09-7	9559	95.590	% Recov	75.000	125.000				07/18/08
MSD	Magnesium	7439-95-4	999.6	99.960	% Recov	75.000	125.000				07/18/08
MSD	Manganese	7439-96-5	996.2	99.620	% Recov	75.000	125.000				07/18/08
MSD	Sodium	7440-23-5	1034	103.400	% Recov	75.000	125.000				07/18/08
MSD	Nickel	7440-02-0	992.5	99.250	% Recov	75.000	125.000				07/18/08
MSD	Antimony	7440-36-0	1039	103.900	% Recov	75.000	125.000				07/18/08
MSD	Strontium	7440-24-6	517	103.400	% Recov	75.000	125.000				07/18/08
MSD	Vanadium	7440-62-2	984	98.400	% Recov	75.000	125.000				07/18/08
MSD	Zinc	7440-66-6	1058	105.800	% Recov	75.000	125.000				07/18/08
SPK-RPD	Silver	7440-22-4	97.180		RPD			2.960	20.000		07/18/08
SPK-RPD	Barium	7440-39-3	99.440		RPD			2.070	20.000		07/18/08
SPK-RPD	Beryllium	7440-41-7	108.140		RPD			2.790	20.000		07/18/08
SPK-RPD	Calcium	7440-70-2	99.090		RPD			5.027	20.000		07/18/08
SPK-RPD	Cadmium	7440-43-9	99.060		RPD			3.997	20.000		07/18/08
SPK-RPD	Cobalt	7440-48-4	96.680		RPD			4.173	20.000		07/18/08
SPK-RPD	Chromium	7440-47-3	98.530		RPD			3.363	20.000		07/18/08
SPK-RPD	Copper	7440-50-8	98.460		RPD			1.462	20.000		07/18/08
SPK-RPD	Iron	7439-89-6	100.400		RPD			0.100	20.000		07/18/08
SPK-RPD	Potassium	7440-09-7	95.590		RPD			0.335	20.000		07/18/08
SPK-RPD	Magnesium	7439-95-4	99.960		RPD			2.509	20.000		07/18/08
SPK-RPD	Manganese	7439-96-5	99.620		RPD			3.336	20.000		07/18/08
SPK-RPD	Sodium	7440-23-5	103.400		RPD			4.352	20.000		07/18/08
SPK-RPD	Nickel	7440-02-0	99.250		RPD			3.805	20.000		07/18/08
SPK-RPD	Antimony	7440-36-0	103.900		RPD			0.767	20.000		07/18/08
SPK-RPD	Strontium	7440-24-6	103.400		RPD			2.162	20.000		07/18/08
SPK-RPD	Vanadium	7440-62-2	98.400		RPD			3.003	20.000		07/18/08
SPK-RPD	Zinc	7440-66-6	105.800		RPD			3.983	20.000		07/18/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081163
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	07/18/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	07/18/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	07/18/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	07/18/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	07/18/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	07/18/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	07/18/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	07/18/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	07/18/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	07/18/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	07/18/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	07/18/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	07/18/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	07/18/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	07/18/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	07/18/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	07/18/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	07/18/08
LCS	Silver	7440-22-4	1010	101.000	% Recov	80.000	120.000				07/18/08
LCS	Barium	7440-39-3	519	103.800	% Recov	80.000	120.000				07/18/08
LCS	Beryllium	7440-41-7	568.7	113.740	% Recov	80.000	120.000				07/18/08
LCS	Calcium	7440-70-2	1058	105.800	% Recov	80.000	120.000				07/18/08
LCS	Cadmium	7440-43-9	1043	104.300	% Recov	80.000	120.000				07/18/08
LCS	Cobalt	7440-48-4	1025	102.500	% Recov	80.000	120.000				07/18/08
LCS	Chromium	7440-47-3	1038	103.800	% Recov	80.000	120.000				07/18/08
LCS	Copper	7440-50-8	1027	102.700	% Recov	80.000	120.000				07/18/08
LCS	Iron	7439-89-6	1023	102.300	% Recov	80.000	120.000				07/18/08
LCS	Potassium	7440-09-7	10050	100.500	% Recov	80.000	120.000				07/18/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081163
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	1051	105.100	% Recov	80.000	120.000				07/18/08
LCS	Manganese	7439-96-5	1046	104.600	% Recov	80.000	120.000				07/18/08
LCS	Sodium	7440-23-5	1110	111.000	% Recov	80.000	120.000				07/18/08
LCS	Nickel	7440-02-0	1044	104.400	% Recov	80.000	120.000				07/18/08
LCS	Antimony	7440-36-0	1043	104.300	% Recov	80.000	120.000				07/18/08
LCS	Strontium	7440-24-6	541.4	108.280	% Recov	80.000	120.000				07/18/08
LCS	Vanadium	7440-62-2	1031	103.100	% Recov	80.000	120.000				07/18/08
LCS	Zinc	7440-66-6	1119	111.900	% Recov	80.000	120.000				07/18/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081163
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/04/08
Receive Date:06/04/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002695											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	38.48	96.200	% Recov	70.000	130.000				06/24/08
MSD	Uranium	7440-61-1	38.56	96.400	% Recov	70.000	130.000				06/24/08
SPK-RPD	Uranium	7440-61-1	96.400		RPD			0.208	20.000		06/25/08
Lab ID: W08P002697											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	44.87	112.175	% Recov	70.000	130.000				06/24/08
MSD	Uranium	7440-61-1	40.54	101.350	% Recov	70.000	130.000				06/24/08
SPK-RPD	Uranium	7440-61-1	101.350		RPD			10.139	20.000		06/25/08
BATCH QC											
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	06/24/08
LCS	Uranium	7440-61-1	39.18	97.950	% Recov	85.000	115.000				06/24/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081163
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002755											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	93.5		RPD			5.721	20.000		06/12/08
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	114.4	99.478	%Recove	80.000	120.000				06/12/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.2	100.174	%Recove	80.000	120.000				06/12/08
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	115.4	100.348	%Recove	80.000	120.000				06/12/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081163
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: No zirconium present in the LCS. Check and high standards are used to ensure calcium, sodium, and magnesium linearity because sample results are greater than the calibration standard. Bismuth LCS = 108% recovery. MS and MSD = 106% recoveries. The spike QC was done on sample W08P3429.

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

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-038
Sample # W08P002759
Client ID: B1V6C7 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
Trichloroethene	79-01-6	LA-523-455		5.70	ug/L			1.00	1.0		06/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon tetrachloride	56-23-5	LA-523-455		1.80e+03	ug/L			1.00	25		06/20/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chloroform	67-66-3	LA-523-455		12.0	ug/L			1.00	1.0		06/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
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: I08-038
Sample # W08P002759
Client ID: B1V6C7 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
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: I08-038
Sample # W08P002762
Client ID: B1V6D1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
Trichloroethene	79-01-6	LA-523-455		5.30	ug/L			1.00	1.0		06/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon tetrachloride	56-23-5	LA-523-455		1.80e+03	ug/L			1.00	25		06/20/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chloroform	67-66-3	LA-523-455		12.0	ug/L			1.00	1.0		06/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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)

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J - Analyte < lowest calibration but >= MDL.(org)
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-038
Sample # W08P002762
Client ID: B1V6D1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002764
Client ID: B1V6C1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
Trichloroethene	79-01-6	LA-523-455		8.40	ug/L			1.00	1.0		06/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon tetrachloride	56-23-5	LA-523-455		1.40e+03	ug/L			1.00	10		06/23/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chloroform	67-66-3	LA-523-455		8.10	ug/L			1.00	1.0		06/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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: I08-038
Sample # W08P002764
Client ID: B1V6C1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

MDL=Minimum Detection Limit
RQ=Result Qualifier
TP Err=Total Propagated Error
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-004
Sample # W08P002765
Client ID: B1V387 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
Trichloroethene	79-01-6	LA-523-455	J	1.80	ug/L			1.00	1.0		06/20/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon tetrachloride	56-23-5	LA-523-455	E	310	ug/L			1.00	1.0		06/20/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Chloroform	67-66-3	LA-523-455		7.50	ug/L			1.00	1.0		06/20/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/20/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/20/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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: W08-004
Sample # W08P002765
Client ID: B1V387 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Organic
Sampled: 06/09/08
Received: 06/09/08

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		06/20/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/20/08

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

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J - Analyte < lowest calibration but > = MDL.(org)
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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081163
Department: Radiochemistry

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W08P002756	B1V967	PNNL-GPP	Gamma Energy Analysis-grd H2O	BI-214				1.1e+02	pCi/L
W08P002756	B1V967	PNNL-GPP	Gamma Energy Analysis-grd H2O	BI-214 Count Error				41	%
W08P002756	B1V967	PNNL-GPP	Gamma Energy Analysis-grd H2O	PB-212				51	pCi/L
W08P002756	B1V967	PNNL-GPP	Gamma Energy Analysis-grd H2O	PB-212 Count Error				40	%
W08P002756	B1V967	PNNL-GPP	Gamma Energy Analysis-grd H2O	RA-226				60	pCi/L
W08P002756	B1V967	PNNL-GPP	Gamma Energy Analysis-grd H2O	RA-226 Count Error				40	%

RQ=Result Qualifier

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081163
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002759											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	54.340	109.000	% Recov	75.000	125.000				06/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.330	117.000	% Recov	75.000	125.000				06/20/08
SURR	Toluene-d8(Surr)	2037-26-5	52.630	105.000	% Recov	75.000	125.000				06/20/08
Lab ID: W08P002762											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	54.680	109.000	% Recov	75.000	125.000				06/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	56.410	113.000	% Recov	75.000	125.000				06/20/08
SURR	Toluene-d8(Surr)	2037-26-5	51.760	104.000	% Recov	75.000	125.000				06/20/08
Lab ID: W08P002764											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,1-Dichloroethene	75-35-4	26.160	105.000	% Recov	63.000	117.000				06/20/08
MS	Benzene	71-43-2	25.890	104.000	% Recov	75.000	129.000				06/20/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	55.260	111.000	% Recov	75.000	125.000				06/20/08
MS	Chlorobenzene	108-90-7	26.700	107.000	% Recov	79.000	119.000				06/20/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	57.190	114.000	% Recov	75.000	125.000				06/20/08
MS	Toluene-d8(Surr)	2037-26-5	51.960	104.000	% Recov	75.000	125.000				06/20/08
MS	Toluene	108-88-3	25.980	104.000	% Recov	76.000	120.000				06/20/08
MS	Trichloroethene	79-01-6	27.073	108.000	% Recov	73.000	123.000				06/20/08
MSD	1,1-Dichloroethene	75-35-4	26.170	105.000	% Recov	63.000	117.000				06/20/08
MSD	Benzene	71-43-2	25.900	104.000	% Recov	75.000	129.000				06/20/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	55.390	111.000	% Recov	75.000	125.000				06/20/08
MSD	Chlorobenzene	108-90-7	27.450	110.000	% Recov	79.000	119.000				06/20/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	57.220	114.000	% Recov	75.000	125.000				06/20/08
MSD	Toluene-d8(Surr)	2037-26-5	51.710	103.000	% Recov	75.000	125.000				06/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081163
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Toluene	108-88-3	26.270	105.000	% Recov	76.000	120.000				06/20/08
MSD	Trichloroethene	79-01-6	26.903	108.000	% Recov	73.000	123.000				06/20/08
SPK-RPD	1,1-Dichloroethene	75-35-4	105.000		RPD			0.000	20.000		06/20/08
SPK-RPD	Benzene	71-43-2	104.000		RPD			0.000	20.000		06/20/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	111.000		RPD			0.000	20.000		06/20/08
SPK-RPD	Chlorobenzene	108-90-7	110.000		RPD			2.765	20.000		06/20/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	114.000		RPD			0.000	20.000		06/20/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	103.000		RPD			0.966	20.000		06/20/08
SPK-RPD	Toluene	108-88-3	105.000		RPD			0.957	20.000		06/20/08
SPK-RPD	Trichloroethene	79-01-6	108.000		RPD			0.000	20.000		06/20/08
SURR	4-Bromofluorobenzene(Surr)	460-00-4	54.870	110.000	% Recov	75.000	125.000				06/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.360	117.000	% Recov	75.000	125.000				06/20/08
SURR	Toluene-d8(Surr)	2037-26-5	52.240	104.000	% Recov	75.000	125.000				06/20/08

Lab ID: W08P002765
BATCH QC ASSOCIATED WITH SAMPLE

SURR	4-Bromofluorobenzene(Surr)	460-00-4	55.920	112.000	% Recov	75.000	125.000				06/20/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.700	117.000	% Recov	75.000	125.000				06/20/08
SURR	Toluene-d8(Surr)	2037-26-5	53.380	107.000	% Recov	75.000	125.000				06/20/08

BATCH QC

BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	06/20/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	06/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081163
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	Benzene	71-43-2	< 1.0	n/a	ug/L					U	06/20/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	56.130	112.000	% Recov	75.000	125.000				06/20/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	06/20/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	06/20/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.090	116.000	% Recov	75.000	125.000				06/20/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	06/20/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	06/20/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	06/20/08
BLANK	Toluene-d8(Surr)	2037-26-5	51.410	103.000	% Recov	75.000	125.000				06/20/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	06/20/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	06/20/08
LCS	1,1-Dichloroethene	75-35-4	26.270	105.000	% Recov	75.000	125.000				06/21/08
LCS	Benzene	71-43-2	26.830	107.000	% Recov	75.000	125.000				06/21/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	55.600	111.000	% Recov	75.000	125.000				06/21/08
LCS	Chlorobenzene	108-90-7	26.920	108.000	% Recov	75.000	125.000				06/21/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	58.460	117.000	% Recov	75.000	125.000				06/21/08
LCS	Toluene-d8(Surr)	2037-26-5	52.480	105.000	% Recov	75.000	125.000				06/21/08
LCS	Toluene	108-88-3	26.750	107.000	% Recov	75.000	125.000				06/21/08
LCS	Trichloroethene	79-01-6	22.390	89.600	% Recov	75.000	125.000				06/21/08

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-006
Sample # W08P002751
Client ID: B1VPC2 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

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		1.10e+03	pCi/L	+-220	pCi/L	1.00	5.7		06/16/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 # W08P002753
Client ID: B1VPC5 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

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		1.50e+03	pCi/L	+-300	pCi/L	1.00	5.7		06/16/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
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 # W08P002755
Client ID: B1VRK3 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

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		1.80e+03	pCi/L	+-360	pCi/L	1.00	5.7		06/16/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
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: W08-005
Sample # W08P002756
Client ID: B1V967 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	11.9	pCi/L	+-13.0	pCi/L	1.00	23		06/18/08
Cobalt-60	10198-40-0	LA-508-481	U	-2.40	pCi/L	+-5.37	pCi/L	1.00	8.9		06/18/08
Cesium-134	13967-70-9	LA-508-481	U	0.598	pCi/L	+-5.98	pCi/L	1.00	9.0		06/18/08
Cesium-137	10045-97-3	LA-508-481	U	0.322	pCi/L	+-3.22	pCi/L	1.00	8.9		06/18/08
Europium-152	14683-23-9	LA-508-481	U	-1.08	pCi/L	+-10.8	pCi/L	1.00	24		06/18/08
Europium-154	15585-10-1.	LA-508-481	U	4.14	pCi/L	+-14.1	pCi/L	1.00	25		06/18/08
Europium-155	14391-16-3	LA-508-481	U	-12.8	pCi/L	+-15.6	pCi/L	1.00	26		06/18/08
Potassium-40	13966-00-2	LA-508-481	U	15.6	pCi/L	+-102	pCi/L	1.00	1.4e+02		06/18/08
Ruthenium-106	13967-48-1	LA-508-481	U	31.0	pCi/L	+-46.0	pCi/L	1.00	82		06/18/08
Be-7 by GEA	13966-02-4	LA-508-481	U	7.90	pCi/L	+-43.0	pCi/L	1.00	74		06/18/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.820	pCi/L	+-2.54	pCi/L	1.00	4.5		07/28/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		4.40e+03	pCi/L	+-440	pCi/L	1.00	6.7		07/24/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		6.00e+03	pCi/L	+-1.20e+03	pCi/L	1.00	2.2e+02		06/20/08

MDL=Minimum Detection Limit
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J - Analyte < lowest calibration but > = MDL.(org)
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-005
Sample # W08P002757
Client ID: B1V968 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	-8.72	pCi/L	+-13.3	pCi/L	1.00	22		06/20/08
Cobalt-60	10198-40-0	LA-508-481	U	-0.200	pCi/L	+-2.00	pCi/L	1.00	8.5		06/20/08
Cesium-134	13967-70-9	LA-508-481	U	5.38	pCi/L	+-5.60	pCi/L	1.00	10		06/20/08
Cesium-137	10045-97-3	LA-508-481	U	0.433	pCi/L	+-4.33	pCi/L	1.00	8.8		06/20/08
Europium-152	14683-23-9	LA-508-481	U	-6.47	pCi/L	+-16.1	pCi/L	1.00	25		06/20/08
Europium-154	15585-10-1	LA-508-481	U	2.17	pCi/L	+-12.8	pCi/L	1.00	23		06/20/08
Europium-155	14391-16-3	LA-508-481	U	16.8	pCi/L	+-14.5	pCi/L	1.00	30		06/20/08
Potassium-40	13966-00-2	LA-508-481	U	-94.0	pCi/L	+-86.9	pCi/L	1.00	1.3e+02		06/20/08
Ruthenium-106	13967-48-1	LA-508-481	U	-17.6	pCi/L	+-47.4	pCi/L	1.00	79		06/20/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-45.0	pCi/L	+-45.0	pCi/L	1.00	74		06/20/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	2.60	pCi/L	+-3.12	pCi/L	1.00	4.8		07/28/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		4.80e+03	pCi/L	+-480	pCi/L	1.00	6.8		07/24/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		5.60e+03	pCi/L	+-1.18e+03	pCi/L	1.00	2.2e+02		06/20/08

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

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J - Analyte < lowest calibration but >= MDL.(org)
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: I08-038
Sample # W08P002759
Client ID: B1V6C7 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

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		7.20e+03	pCi/L	+-1.44e+03	pCi/L	1.00	5.7		06/16/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		5.60e+03	pCi/L	+-1.18e+03	pCi/L	1.00	2.2e+02		06/20/08

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)

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J - Analyte < lowest calibration but >= MDL.(org)
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: I08-038
Sample # W08P002760
Client ID: B1VFB8 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	-12.6	pCi/L	+-28.9	pCi/L	1.00	48		06/20/08
Cobalt-60	10198-40-0	LA-508-481	U	-3.16	pCi/L	+-8.70	pCi/L	1.00	15		06/20/08
Cesium-134	13967-70-9	LA-508-481	U	1.07	pCi/L	+-10.7	pCi/L	1.00	19		06/20/08
Cesium-137	10045-97-3	LA-508-481	U	-8.63	pCi/L	+-10.2	pCi/L	1.00	17		06/20/08
Europium-152	14683-23-9	LA-508-481	U	-4.19	pCi/L	+-30.4	pCi/L	1.00	48		06/20/08
Europium-154	15585-10-1	LA-508-481	U	-37.2	pCi/L	+-37.2	pCi/L	1.00	43		06/20/08
Europium-155	14391-16-3	LA-508-481	U	-13.4	pCi/L	+-29.5	pCi/L	1.00	47		06/20/08
Potassium-40	13966-00-2	LA-508-481	U	-303	pCi/L	+-303	pCi/L	1.00	3.7e+02		06/20/08
Ruthenium-106	13967-48-1	LA-508-481	U	-21.1	pCi/L	+-95.4	pCi/L	1.00	1.6e+02		06/20/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-37.0	pCi/L	+-37.0	pCi/L	1.00	1.5e+02		06/20/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	3.30	pCi/L	+-3.04	pCi/L	1.00	4.6		07/28/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		4.50e+03	pCi/L	+-450	pCi/L	1.00	6.8		07/24/08

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)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but >= MDL.(org)
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: I08-038
Sample # W08P002762
Client ID: B1V6D1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

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		7.90e+03	pCi/L	+-1.58e+03	pCi/L	1.00	5.7		06/16/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		5.60e+03	pCi/L	+-1.18e+03	pCi/L	1.00	2.2e+02		06/20/08

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

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E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002763
Client ID: B1VFC4 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gamma Energy Analysis-grd H2O											
Antimony-125	14234-35-6	LA-508-481	U	14.9	pCi/L	+-15.4	pCi/L	1.00	28		06/20/08
Cobalt-60	10198-40-0	LA-508-481	U	2.53	pCi/L	+-5.39	pCi/L	1.00	9.7		06/20/08
Cesium-134	13967-70-9	LA-508-481	U	-1.17	pCi/L	+-5.92	pCi/L	1.00	10		06/20/08
Cesium-137	10045-97-3	LA-508-481	U	0.302	pCi/L	+-3.02	pCi/L	1.00	10		06/20/08
Europium-152	14683-23-9	LA-508-481	U	1.56	pCi/L	+-15.6	pCi/L	1.00	29		06/20/08
Europium-154	15585-10-1	LA-508-481	U	10.3	pCi/L	+-15.1	pCi/L	1.00	28		06/20/08
Europium-155	14391-16-3	LA-508-481	U	-3.82	pCi/L	+-20.2	pCi/L	1.00	33		06/20/08
Potassium-40	13966-00-2	LA-508-481	U	-92.5	pCi/L	+-94.7	pCi/L	1.00	1.5e+02		06/20/08
Ruthenium-106	13967-48-1	LA-508-481	U	12.4	pCi/L	+-54.6	pCi/L	1.00	94		06/20/08
Be-7 by GEA	13966-02-4	LA-508-481	U	-40.0	pCi/L	+-40.0	pCi/L	1.00	81		06/20/08
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	2.00	pCi/L	+-2.60	pCi/L	1.00	4.2		07/28/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		3.30e+03	pCi/L	+-330	pCi/L	1.00	6.6		07/24/08

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J - Analyte < lowest calibration but > = MDL.(org)
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: I08-038
Sample # W08P002764
Client ID: B1V6C1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081163
Department: Radiochemistry
Sampled: 06/09/08
Received: 06/09/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		2.00e+04	pCi/L	+-4.00e+03	pCi/L	1.00	2.2e+02		06/20/08

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)
E - Analyte is an estimate, has potentially larger errors.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
J - Analyte < lowest calibration but > = MDL.(org)
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 LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081163
Matrix: WATER
Test: Gamma Energy Analysis-grd H2O

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002756											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cobalt-60	10198-40-0	U0.3185		RPD			n/a	20.000		06/19/08
DUP	Cesium-134	13967-70-9	U-4.866		RPD			n/a	20.000		06/19/08
DUP	Cesium-137	10045-97-3	U-4.655		RPD			n/a	20.000		06/19/08
DUP	Europium-152	14683-23-9	U-3.05		RPD			n/a	20.000		06/19/08
DUP	Europium-154	15585-10-1	U2.706		RPD			n/a	20.000		06/19/08
DUP	Europium-155	14391-16-3	U1.476		RPD			n/a	20.000		06/19/08
DUP	Potassium-40	13966-00-2	U2.767		RPD			n/a	20.000		06/19/08
DUP	Ruthenium-106	13967-48-1	U14.72		RPD			n/a	20.000		06/19/08
DUP	Antimony-125	14234-35-6	U1.429		RPD			n/a	20.000		06/19/08
BATCH QC											
BLANK	Cobalt-60	10198-40-0	U1.478	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Cesium-134	13967-70-9	U3.893	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Cesium-137	10045-97-3	U-1.033	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Europium-152	14683-23-9	U-2.712	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Europium-154	15585-10-1	U-8.701	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Europium-155	14391-16-3	U-3.441	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Potassium-40	13966-00-2	361.5	361.500	pCi/L	-10.000	1000.000				06/20/08
BLANK	Ruthenium-106	13967-48-1	U-3.173	n/a	pCi/L	-10.000	1000.000				06/20/08
BLANK	Antimony-125	14234-35-6	U-4.165	n/a	pCi/L	-10.000	1000.000				06/20/08
LCS	Cobalt-60	10198-40-0	10290	103.521	% Recov	80.000	120.000				06/13/08
LCS	Cesium-137	10045-97-3	6271	103.825	% Recov	80.000	120.000				06/13/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081163
Matrix: WATER
Test: Gross Alpha on Alpha Plateau

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002756											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	U2.7		RPD			n/a	20.000		07/28/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-2.7E-01	n/a	pCi/L	-100.000	100.000				07/28/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	69.5	89.677	% Recov	80.000	120.000				07/28/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081163
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002756											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	4.4E+03		RPD			0.000	20.000		07/24/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U-1.1	n/a	pCi/L	-10.000	10.000				07/24/08
LCS	Gross beta	12587-47-2	242.0	107.882	% Recov	80.000	120.000				07/24/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081163
Matrix: WATER
Test: TC99 by Liquid Scin.

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002731											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	1.0E+03		RPD			0.000	20.000		06/16/08
MS	Tc-99 by Liquid Scin.	14133-76-7	770.0	102.360	% Recov	75.000	125.000				06/16/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U1.1	n/a	pCi/L	-10.000	10.000				06/16/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	193.7	102.977	% Recov	80.000	120.000				06/16/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081163
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 06/09/08
Receive Date:06/09/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P002743											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	2.1E+03		RPD			10.000	20.000		06/20/08
MS	Tritium	10028-17-8	21800.0	84.224	% Recov	75.000	125.000				06/20/08
BATCH QC											
BLANK	Tritium	10028-17-8	U-1.0E+02	n/a	pCi/L	-10.000	1000.000				06/20/08
LCS	Tritium	10028-17-8	3920.0	114.256	% Recov	80.000	120.000				06/20/08

M4W41-SLF-08-776

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 12 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
07/23/08
td

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081163

The following samples were received from you on 06/09/08. 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
W08P002750	B1VPC1	PNNL-GPP @GPP6010	Water	06/09/0
W08P002751	B1VPC2	PNNL-GPP @GPP6010 @IC-30 @TC99-30 ALKALI	Water	06/09/0
W08P002752	B1VPC4	PNNL-GPP @GPP6010	Water	06/09/0
W08P002753	B1VPC5	PNNL-GPP @GPP6010 @IC-30 @TC99-30 ALKALI	Water	06/09/0
W08P002754	B1VRK2	PNNL-GPP @GPP6010	Water	06/09/0
W08P002755	B1VRK3	PNNL-GPP @GPP6010 @IC-30 @TC99-30 ALKALI	Water	06/09/0
W08P002756	B1V967	PNNL-GPP @AB-32 @ALPHA @GEA-GPP @H3-33 ALKALI	Water	06/09/0
W08P002757	B1V968	PNNL-GPP @AB-32 @ALPHA @GEA-GPP @H3-33 ALKALI	Water	06/09/0
W08P002758	B1V6C6	PNNL-GPP @GPP6010	Water	06/09/0
W08P002759	B1V6C7	PNNL-GPP @2008 @GPP6010 @H3-33 @IC-30 @TC99-30 @VOA-GPP	Water	06/09/0
W08P002760	B1VFB8	PNNL-GPP @AB-32 @ALPHA @GEA-GPP	Water	06/09/0
W08P002761	B1V6D0	PNNL-GPP @GPP6010	Water	06/09/0
W08P002762	B1V6D1	PNNL-GPP @2008 @GPP6010 @H3-33 @IC-30 @TC99-30 @VOA-GPP	Water	06/09/0
W08P002763	B1VFC4	PNNL-GPP @AB-32 @ALPHA @GEA-GPP	Water	06/09/0

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081163

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08P002764	B1V6C1	PNNL-GPP @2008 @H3-33 @IC-30 @VOA-GPP	Water	06/09/0
W08P002765	B1V387	PNNL-GPP @VOA-GPP	Water	06/09/0

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@ALPHA	Gross Alpha on Alpha Plateau
@GEA-GPP	Gamma Energy Analysis-grd H2O
@GPP6010	ICP Metals Analysis, Grd H20 P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection
ALKALI	Total Alkalinity as mg/L CaCO3

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

07/23/08 20081163

W08-006-290

Collector KE Hamilton	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	4PF-N-506.15	Ice Chest No. GW-1 Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt Vehicle	Bill of Lading/Air Bill No.
Protocol 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
Site-Wide Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VPC1 (F)	W08P002750	W	6-9-08	1243	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VPC2	2751	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VPC2		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VPC2		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VPC2		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
KE Hamilton			JUN 09 2008 1400		V. Victor Bins		JUN 09 2008 1400
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	
SF = Sediment		DL = Drum Liquid	
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

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-006-294

Collector KE Hamilton	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. COW-1 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
Site-Wide Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VPC4 (F)	2752	W	6-9-08	1326	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VPC5	2753	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VPC5		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VPC5		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VPC5		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
KE Hamilton			JUN 09 2008 14:00				JUN 09 2008 14:00
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

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-006-318

Collector: Fluor Hanford D.R. BREWINGTON	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-506-12	Ice Chest No.: GRP-03-026 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
Site-Wide Generator Knowledge Information Form applies.

Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1VRK2 (F)	WO# 1002754	W	6-9-08	1341	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VRK3	2755	W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1VRK3		W			1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1VRK3		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1VRK3		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
Fluor Hanford D.R. BREWINGTON	JUN 09 2008 14:15	Victor Bins	JUN 09 2008 14:15
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 Liquid	
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

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-005-266

Collector: ~~Fluor Hanford~~ D. R. BREWINGTON	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-506-12	Ice Chest No.: GRP-026 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
B1V967	2756	W	6-9-08	1024	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1V967	↓	W	↓	↓	1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1V967		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1V967		W			1x500-mL G/P	GAMMA_GS: List-1 (10)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Fluor Hanford	Dick Brewington		JUN 09 2008 14:15	Victor Bias			JUN 09 2008 14:15
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 Liquid	
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

FLUOR HANFORD

Fluor Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-005-267

Page 1 of 1

Collector D R BREWINGTON	**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-506-12	**Ice Chest No.** 8RP-07026 **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
B1V968	2757	W	6-9-08	1024	1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1V968	↓	W	↓	↓	1x250-mL G/P	2320_ALKALINITY: Alkalinity (1)	Cool~4C
B1V968		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1V968		W			1x500-mL G/P	GAMMA_GS: List-1 (10)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	Fluor Hanford D R BREWINGTON	D.R. Brewington	6/9/08 14:15		Victor Bin		6/9/08 14:15
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 Liquid
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

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

I08-038-18

Page 1 of 1

Collector	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. I08-038 Fluor Hanford D. R. BREWINGTON	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title 2ZPL MAY 2008	HNF-N-506-12	**Ice Chest No.** GPL-026 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol CERCLA	**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 ☐
200 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1V6C6 (F)	2758	W	6-9-08	1024	1x500-mL G/P	6010_METALS_ICP: List-5 (19)	HNO3 to pH <2
B1V6C7	2759	W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1V6C7		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1V6C7		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1V6C7		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1V6C7		W			1x500-mL G/P	6010_METALS_ICP: List-5 (19)	HNO3 to pH <2
B1V6C7		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VFB8	2760	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VFB8		W			1x500-mL G/P	GAMMA_GS: List-1 (10)	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D. R. Brewington		06-09-08 14:15 JUN 09 2008		Victor Bins		JUN 09 2008 14:15
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 Liquid
SO	= Solid	T	= Tissue
SL	= Sludge	WI	= Wipe
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

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

I08-038-19

Collector Fluor Hanford	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. I08-038	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title 2ZP1 MAY 2008	HNF-N-506-TR	**Ice Chest No.** GPR-026 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol CERCLA	**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 ☐
200 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1V6D0 (F)	2761	W	6-9-08	1024	1x500-mL G/P	6010_METALS_ICP: List-5 (19)	HNO3 to pH <2
B1V6D1	2762	W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1V6D1		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1V6D1		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1V6D1		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1V6D1		W			1x500-mL G/P	6010_METALS_ICP: List-5 (19)	HNO3 to pH <2
B1V6D1		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1VFC4	2763	W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1VFC4		W			1x500-mL G/P	GAMMA_GS: List-1 (10)	HNO3 to pH <2

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Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
FLUOR HANFORD BRENNINGTON			JUN 09 2008 14:15				JUN 09 2008 14:15
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 *

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SL	= Sludge	WI	= Wine
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A	= Air	X	= Other

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

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

I08-038-11

Page 1 of 1

Collector	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. I08-038	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title 2ZPL MAY 2008	HNF-N-506-12	**Ice Chest No.** GRP-02L **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol CERCLA	**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 ☐
200 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1V6C1	2764	W	06/09/08	1026	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1V6C1	↓	W	↓	↓	1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1V6C1		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1V6C1		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

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Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Fluor Hanford D R BREWINGTON	D.R. Brewington		JUN 09 2008 14:15	V. Hu	Bias		JUN 09 2008 14:15
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 *

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SL	= Sludge	WI	= Wine
W	= Water	L	= Liquid
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FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

W08-004-196

Collector Fluor Hanford	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. D. R. BREWINGTON W08-004	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title RCRA APRIL 2008	HNF-N-506-12	**Ice Chest No.** GPR-024 **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
B1V387	2765	W	6-9-08	1000	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1V387	↓	W	↓	↓	1x20-mL P	Activity Scan	None

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Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
[illegible]	D.R. Brewington	[signature]	JUN 09 2008 1445	V. Hoff Bruns		[signature]	JUN 09 2008 1445
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 *

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