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RECEIVED AUGUST 8, 2007

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FLUOR

Memorandum

M4W41-SLF-07-511

To: H. Hampt E6-35 Date: August 2, 2007

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

cc: w/Attachments

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

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20071043

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. 8, Waste Sampling & Characterization Facility Quality Assurance Plan

This transmittal contains the following information for sample delivery group WSCF20071043:

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

SLF/grf

Attachments 4

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M4W41-SLF-07-511

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20071043
Data Deliverable Date: 03-aug-2007
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I07-049	B1NJV6	W07P001177	WATER
	B1NJW8	W07P001180	WATER
	B1NJW9	W07P001178	WATER
	B1NJX0	W07P001179	WATER
I07-050	B1NPB2	W07P001182	WATER
S07-001	B1LR57	W07P001181	WATER
S07-006	B1NKJ8	W07P001183	WATER
	B1NKJ9	W07P001184	WATER
W07-006	B1NN51	W07P001185	WATER

M4W41-SLF-07-511

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Sample Delivery Group	**WSCF20071043**
Sample Matrix	**Water**
Data Deliverable	**Summary Report**

Introduction

Nine (9) groundwater samples were received at the WSCF Laboratory on June 20, 2007. 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" and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

Anions – Holding 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 24 through 25 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.

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 26 through 29 for QC details. Analytical Note(s):

- Calcium, Magnesium and Sodium – insufficient spike concentrations. Sample concentrations were greater than four times the spike concentration. For results higher

than the highest calibration standard, a high-level standard and an ICP interference check sample were analyzed to ensure acceptable sample results.

- Zinc (B1NJW9) – The Matrix Spike and the Spike Relative Percent Difference (RPD) were outside established laboratory limits. However, the Matrix Spike Duplicate was within established laboratory limits and no flags were issued.

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 30 for QC details. Analytical Note(s):

- Matrix Spikes and Matrix Spike Duplicates were analyzed on samples B1P1B1 (SDG# 20071116) and B1NJV8 (SDG# 20071027).

- Uranium (B1P1B1) – insufficient spike concentrations. Sample concentrations were several times greater than the spike concentration.

All other QC controls are within the established limits.

Total Alkalinity – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 31 for QC details. Analytical Note(s):

- Duplicate was analyzed on sample# B1NMW5 (SDG# 20071021).

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 43 through 46 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NJV8 (SDG# 20071027).

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

- Ethylbenzene contamination detected in the Blank was evaluated and there was no affect on sample results.

All other QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Matrix Spike, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 52 through 54 for QC details. Analytical Note(s):

- Technetium – Duplicate and Matrix Spike were analyzed on sample# B1NJV8 (SDG# 20071027).
- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1NJY9 (SDG# 20071013).
- Gross Alpha (B1NKJ9) – Duplicate Relative Percent Difference (RPD) exceeded established limits due to low sample activity.

All other QC controls are within the established limits.

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

Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

M4W41-SLF-07-511

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 48 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical: S. Fitzgerald 8/2/07

Client Services: P.D. May 8/2/2007

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

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Report#: WSCF20071043
Report Date: 2-aug-2007
Report WGPP/ver. 5.2
GPAP

w13qlog v4.2 02-aug-2007 10:36:28

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20071043

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
32309	2	32695	36768	BLANK		Anions by Ion Chromatography
32309	13	32695	36768	BLANK		Anions by Ion Chromatography
32309	3	32695	36768	LCS		Anions by Ion Chromatography
32309	8	32695	36768	SAMPLE	W07P001177	Anions by Ion Chromatography
32309	5	32695	36768	DUP	W07P001179	Anions by Ion Chromatography
32309	6	32695	36768	MS	W07P001179	Anions by Ion Chromatography
32309	7	32695	36768	MSD	W07P001179	Anions by Ion Chromatography
32309	4	32695	36768	SAMPLE	W07P001179	Anions by Ion Chromatography
32309	7	32695	36768	SPK-RPD	W07P001179	Anions by Ion Chromatography
32309	12	32695	36768	SAMPLE	W07P001180	Anions by Ion Chromatography
32309	9	32695	36768	SAMPLE	W07P001182	Anions by Ion Chromatography
32309	10	32695	36768	SAMPLE	W07P001184	Anions by Ion Chromatography
32309	11	32695	36768	SAMPLE	W07P001185	Anions by Ion Chromatography
32373	1	32764	36820	LCS		Total Alkalinity as mg/L CaCO3
32373	13	32764	36820	LCS		Total Alkalinity as mg/L CaCO3
32373	20	32764	36820	LCS		Total Alkalinity as mg/L CaCO3
32373	3	32764	36820	DUP	W07P001152	Total Alkalinity as mg/L CaCO3
32373	19	32764	36820	SAMPLE	W07P001185	Total Alkalinity as mg/L CaCO3
32487	1	32878	36939	BLANK		ICP-200.8 MS All possible meta
32487	2	32878	36939	LCS		ICP-200.8 MS All possible meta
32487	7	32878	36939	MS	W07P001167	ICP-200.8 MS All possible meta
32487	8	32878	36939	MSD	W07P001167	ICP-200.8 MS All possible meta
32487	8	32878	36939	SPK-RPD	W07P001167	ICP-200.8 MS All possible meta
32487	12	32878	36939	SAMPLE	W07P001177	ICP-200.8 MS All possible meta
32487	13	32878	36939	SAMPLE	W07P001179	ICP-200.8 MS All possible meta
32487	14	32878	36939	SAMPLE	W07P001180	ICP-200.8 MS All possible meta
32487	15	32878	36939	SAMPLE	W07P001182	ICP-200.8 MS All possible meta
32487	4	32878	36939	MS	W07P001293	ICP-200.8 MS All possible meta
32487	5	32878	36939	MSD	W07P001293	ICP-200.8 MS All possible meta
32487	5	32878	36939	SPK-RPD	W07P001293	ICP-200.8 MS All possible meta
32685	1	33077	37211	BLANK		ICP Metals Analysis, Grd H20 P
32685	2	33077	37211	LCS		ICP Metals Analysis, Grd H20 P
32685	4	33077	37211	MS	W07P001178	ICP Metals Analysis, Grd H20 P
32685	5	33077	37211	MSD	W07P001178	ICP Metals Analysis, Grd H20 P
32685	3	33077	37211	SAMPLE	W07P001178	ICP Metals Analysis, Grd H20 P
32685	5	33077	37211	SPK-RPD	W07P001178	ICP Metals Analysis, Grd H20 P
32685	12	33077	37211	SAMPLE	W07P001183	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 02-aug-2007 10:36:28

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20071043

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			37240	BLANK		VOA Ground Water Protection
			37240	LCS		VOA Ground Water Protection
			37240	MS	W07P001167	VOA Ground Water Protection
			37240	MSD	W07P001167	VOA Ground Water Protection
			37240	SPK-RPD	W07P001167	VOA Ground Water Protection
			37240	SAMPLE	W07P001177	VOA Ground Water Protection
			37240	SURR	W07P001177	VOA Ground Water Protection
			37240	SAMPLE	W07P001179	VOA Ground Water Protection
			37240	SURR	W07P001179	VOA Ground Water Protection
			37240	SAMPLE	W07P001180	VOA Ground Water Protection
			37240	SURR	W07P001180	VOA Ground Water Protection
			37240	SAMPLE	W07P001181	VOA Ground Water Protection
			37240	SURR	W07P001181	VOA Ground Water Protection
			37240	SAMPLE	W07P001182	VOA Ground Water Protection
			37240	SURR	W07P001182	VOA Ground Water Protection

w13qlog v4.2 02-aug-2007 10:36:28

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20071043

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
32303	1	32690	36792	BLANK		Gross Alpha/Gross Beta (AB32)
32303	2	32690	36792	LCS		Gross Alpha/Gross Beta (AB32)
32303	3	32690	36792	DUP	W07P001184	Gross Alpha/Gross Beta (AB32)
32303	4	32690	36792	SAMPLE	W07P001184	Gross Alpha/Gross Beta (AB32)
32383	1	32775	36881	BLANK		Tritium by Liq Sct column prep
32383	4	32775	36881	LCS		Tritium by Liq Sct column prep
32383	3	32775	36881	DUP	W07P001130	Tritium by Liq Sct column prep
32383	2	32775	36881	MS	W07P001130	Tritium by Liq Sct column prep
32383	11	32775	36881	SAMPLE	W07P001177	Tritium by Liq Sct column prep
32383	12	32775	36881	SAMPLE	W07P001179	Tritium by Liq Sct column prep
32383	13	32775	36881	SAMPLE	W07P001180	Tritium by Liq Sct column prep
32383	14	32775	36881	SAMPLE	W07P001182	Tritium by Liq Sct column prep
32383	15	32775	36881	SAMPLE	W07P001184	Tritium by Liq Sct column prep
32385	1	32777	37015	BLANK		TC99 by Liquid Scin.
32385	4	32777	37015	LCS		TC99 by Liquid Scin.
32385	3	32777	37015	DUP	W07P001167	TC99 by Liquid Scin.
32385	2	32777	37015	MS	W07P001167	TC99 by Liquid Scin.
32385	9	32777	37015	SAMPLE	W07P001177	TC99 by Liquid Scin.
32385	10	32777	37015	SAMPLE	W07P001179	TC99 by Liquid Scin.
32385	11	32777	37015	SAMPLE	W07P001182	TC99 by Liquid Scin.

WSCF
METHOD REFERENCES REPORT

Department: Inorganic

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

LA-505-411	LA-505-411: ELEMENTAL ANALYSIS BY INDUCTIVELY COUPLED PLASMA ATOMIC EMISSION SPE	
	HEIS 6010_METALS_ICP	Inductively Coupled Plasma-Atomic 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
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_GPC	Strontium 89/90

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

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

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: I07-049
Sample # W07P001177
Client ID: B1NJV6 GPP-PNNL WSCF **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

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		0.346	mg/L			1.00	4.6e-03		06/21/07
Chloride	16887-00-6	LA-533-410	D	14.9	mg/L			10.00	0.32		06/21/07
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0130	mg/L			1.00	0.013		06/21/07
Nitrogen in Nitrate	NO3-N	LA-533-410	D	14.2	mg/L			10.00	0.048		06/21/07
Sulfate	14808-79-8	LA-533-410		33.9	mg/L			1.00	0.068		06/21/07
ICP-200.8 MS All possible meta Prep											**07/05/07**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		3.80	ug/L			1.00	0.0500		07/10/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001178
Client ID: B1NJW9 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/24/07**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		07/30/07
Magnesium	7439-95-4	LA-505-411		8.24e+03	ug/L			1.00	6.0		07/30/07
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Potassium	7440-09-7	LA-505-411		3.04e+03	ug/L			1.00	45		07/30/07
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/30/07
Sodium	7440-23-5	LA-505-411		1.63e+04	ug/L			1.00	27		07/30/07
Antimony	7440-36-0	LA-505-411	U	< 32.0	ug/L			1.00	32		07/30/07
Barium	7440-39-3	LA-505-411		32.6	ug/L			1.00	4.0		07/30/07
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Chromium	7440-47-3	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Copper	7440-50-8	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Vanadium	7440-62-2	LA-505-411		24.7	ug/L			1.00	7.0		07/30/07
Zinc	7440-66-6	LA-505-411		337	ug/L			1.00	4.0		07/30/07
Calcium	7440-70-2	LA-505-411		2.55e+04	ug/L			1.00	34		07/30/07
Strontium	7440-24-6	LA-505-411		99.1	ug/L			1.00	4.0		07/30/07
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001179
Client ID: B1NJX0 GPP-PNNL WSCF **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

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		0.406	mg/L			1.00	4.6e-03		06/21/07
Chloride	16887-00-6	LA-533-410		7.89	mg/L			1.00	0.032		06/21/07
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0130	mg/L			1.00	0.013		06/21/07
Nitrogen in Nitrate	NO3-N	LA-533-410		0.793	mg/L			1.00	4.8e-03		06/21/07
Sulfate	14808-79-8	LA-533-410		14.8	mg/L			1.00	0.068		06/21/07
ICP-200.8 MS All possible meta Prep											**07/05/07**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		0.961	ug/L			1.00	0.0500		07/10/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001180
Client ID: B1NJW8 GPP-PNNL WSCF **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

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		0.472	mg/L			1.00	4.6e-03		06/21/07
Chloride	16887-00-6	LA-533-410		7.47	mg/L			1.00	0.032		06/21/07
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0130	mg/L			1.00	0.013		06/21/07
Nitrogen in Nitrate	NO3-N	LA-533-410		2.30	mg/L			1.00	4.8e-03		06/21/07
Sulfate	14808-79-8	LA-533-410		17.8	mg/L			1.00	0.068		06/21/07
ICP-200.8 MS All possible meta Prep											**07/05/07**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		1.92	ug/L			1.00	0.0500		07/10/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-050
Sample # W07P001182
Client ID: B1NPB2 GPP-PNNL WSCF **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

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		0.274	mg/L			1.00	4.6e-03		06/21/07
Chloride	16887-00-6	LA-533-410	D	53.1	mg/L			10.00	0.32		06/21/07
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0130	mg/L			1.00	0.013		06/21/07
Nitrogen in Nitrate	NO3-N	LA-533-410	D	15.0	mg/L			10.00	0.048		06/21/07
Sulfate	14808-79-8	LA-533-410	D	49.9	mg/L			10.00	0.68		06/21/07
ICP-200.8 MS All possible meta Prep											**07/05/07**
ICP-200.8 MS All possible meta											
Uranium	7440-61-1	LA-505-412		1.45	ug/L			1.00	0.0500		07/10/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S07-006
Sample # W07P001183
Client ID: B1NKJ8 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**07/24/07**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411		11.7	ug/L			1.00	9.0		07/30/07
Magnesium	7439-95-4	LA-505-411		9.16e+03	ug/L			1.00	6.0		07/30/07
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Nickel	7440-02-0	LA-505-411		4.00	ug/L			1.00	4.0		07/30/07
Potassium	7440-09-7	LA-505-411		6.36e+03	ug/L			1.00	45		07/30/07
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		07/30/07
Sodium	7440-23-5	LA-505-411		2.86e+04	ug/L			1.00	27		07/30/07
Antimony	7440-36-0	LA-505-411	U	< 32.0	ug/L			1.00	32		07/30/07
Barium	7440-39-3	LA-505-411		29.5	ug/L			1.00	4.0		07/30/07
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Chromium	7440-47-3	LA-505-411		7.20	ug/L			1.00	4.0		07/30/07
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Copper	7440-50-8	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07
Vanadium	7440-62-2	LA-505-411		29.9	ug/L			1.00	7.0		07/30/07
Zinc	7440-66-6	LA-505-411		93.5	ug/L			1.00	4.0		07/30/07
Calcium	7440-70-2	LA-505-411		3.57e+04	ug/L			1.00	34		07/30/07
Strontium	7440-24-6	LA-505-411		166	ug/L			1.00	4.0		07/30/07
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		07/30/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S07-006
Sample # W07P001184
Client ID: B1NKJ9 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410		0.570	mg/L			1.00	4.6e-03		06/21/07
Chloride	16887-00-6	LA-533-410		14.4	mg/L			1.00	0.032		06/21/07
Nitrogen in Nitrite	NO2-N	LA-533-410	U	< 0.0130	mg/L			1.00	0.013		06/21/07
Nitrogen in Nitrate	NO3-N	LA-533-410	U	< 4.80e-03	mg/L			1.00	4.8e-03		06/21/07
Sulfate	14808-79-8	LA-533-410	D	61.9	mg/L			10.00	0.68		06/21/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W07-006
Sample # W07P001185
Client ID: B1NN51 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Inorganic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410		0.381	mg/L			1.00	4.6e-03		06/21/07
Chloride	16887-00-6	LA-533-410		12.6	mg/L			1.00	0.032		06/21/07
Nitrogen in Nitrite	NO2-N	LA-533 410	U	< 0.0130	mg/L			1.00	0.013		06/21/07
Nitrogen in Nitrate	NO3-N	LA-533-410	D	13.5	mg/L			10.00	0.048		06/21/07
Sulfate	14808-79-8	LA-533-410		24.0	mg/L			1.00	0.068		06/21/07
Total Alkalinity as mg/L CaCO3											
Total Alkalinity as mg/L CaCO3	ALKALINITY	LA-531-411		89.0	mg/L			1.00	1.0		06/26/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 06/20/07
Receive Date:06/20/07

Lab ID: W07P001179

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
DUP	Chloride	16887-00-6	7.9877		RPD			1.238	20.000		06/21/07
DUP	Fluoride	16984-48-8	0.4069		RPD			0.295	20.000		06/21/07
DUP	Nitrogen in Nitrite	NO2-N	<1.3e-2		RPD			n/a	20.000	U	06/21/07
DUP	Nitrogen in Nitrate	NO3-N	0.804		RPD			1.428	20.000		06/21/07
DUP	Sulfate	14808-79-8	14.8346		RPD			0.493	20.000		06/21/07
MS	Chloride	16887-00-6	1.1127	112.394	% Recov	75.000	125.000				06/21/07
MS	Fluoride	16984-48-8	0.53	105.578	% Recov	75.000	125.000				06/21/07
MS	Nitrogen in Nitrite	NO2-N	0.5163	104.726	% Recov	75.000	125.000				06/21/07
MS	Nitrogen in Nitrate	NO3-N	0.4841	107.339	% Recov	75.000	125.000				06/21/07
MS	Sulfate	14808-79-8	2.2106	111.646	% Recov	75.000	125.000				06/21/07
MSD	Chloride	16887-00-6	1.0489	105.949	% Recov	75.000	125.000				06/21/07
MSD	Fluoride	16984-48-8	0.5238	104.343	% Recov	75.000	125.000				06/21/07
MSD	Nitrogen in Nitrite	NO2-N	0.5106	103.570	% Recov	75.000	125.000				06/21/07
MSD	Nitrogen in Nitrate	NO3-N	0.478	105.987	% Recov	75.000	125.000				06/21/07
MSD	Sulfate	14808-79-8	2.1114	106.636	% Recov	75.000	125.000				06/21/07
SPK-RPD	Chloride	16887-00-6	105.949		RPD			5.904	20.000		06/21/07
SPK-RPD	Fluoride	16984-48-8	104.343		RPD			1.177	20.000		06/21/07
SPK-RPD	Nitrogen in Nitrite	NO2-N	103.570		RPD			1.110	20.000		06/21/07
SPK-RPD	Nitrogen in Nitrate	NO3-N	105.987		RPD			1.268	20.000		06/21/07
SPK-RPD	Sulfate	14808-79-8	106.636		RPD			4.590	20.000		06/21/07

BATCH QC

BLANK	Chloride	16887-00-6	<3.2e-2	n/a	mg/L	0.000	0.030			U	06/21/07
BLANK	Chloride	16887-00-6	<3.2e-2	n/a	mg/L	0.000	0.030			U	06/21/07
BLANK	Fluoride	16984-48-8	<4.6e-3	n/a	mg/L	0.000	0.030			U	06/21/07
BLANK	Fluoride	16984-48-8	<4.6e-3	n/a	mg/L	0.000	0.030			U	06/21/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20071043
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Nitrogen in Nitrite	NO2-N	<1.3e-2	n/a	mg/L	0.000	0.020			U	06/21/07
BLANK	Nitrogen in Nitrite	NO2-N	<1.3e-2	n/a	mg/L	0.000	0.020			U	06/21/07
BLANK	Nitrogen in Nitrate	NO3-N	<4.8e-3	n/a	mg/L	0.000	0.040			U	06/21/07
BLANK	Nitrogen in Nitrate	NO3-N	<4.8e-3	n/a	mg/L	0.000	0.040			U	06/21/07
BLANK	Sulfate	14808-79-8	<6.8e-2	n/a	mg/L	0.000	0.200			U	06/21/07
BLANK	Sulfate	14808-79-8	<6.8e-2	n/a	mg/L	0.000	0.200			U	06/21/07
LCS	Chloride	16887-00-6	185.7985	92.899	% Recov	80.000	120.000				06/21/07
LCS	Fluoride	16984-48-8	95.4373	94.492	% Recov	80.000	120.000				06/21/07
LCS	Nitrogen in Nitrite	NO2-N	101.1237	101.530	% Recov	80.000	120.000				06/21/07
LCS	Nitrogen in Nitrate	NO3-N	89.6084	98.255	% Recov	80.000	120.000				06/21/07
LCS	Sulfate	14808-79-8	371.9104	92.978	% Recov	80.000	120.000				06/21/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/20/07
Receive Date:06/20/07

Lab ID: W07P001178
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	976.2	97.620	% Recov	75.000	125.000				07/30/07
MS	Barium	7440-39-3	487.3	97.460	% Recov	75.000	125.000				07/30/07
MS	Beryllium	7440-41-7	511.3	102.260	% Recov	75.000	125.000				07/30/07
MS	Calcium	7440-70-2	NA	n/a	% Recov	75.000	125.000				07/30/07
MS	Cadmium	7440-43-9	993.9	99.390	% Recov	75.000	125.000				07/30/07
MS	Cobalt	7440-48-4	996.1	99.610	% Recov	75.000	125.000				07/30/07
MS	Chromium	7440-47-3	979	97.900	% Recov	75.000	125.000				07/30/07
MS	Copper	7440-50-8	980.7	98.070	% Recov	75.000	125.000				07/30/07
MS	Iron	7439-89-6	1002	100.200	% Recov	75.000	125.000				07/30/07
MS	Potassium	7440-09-7	10007	100.070	% Recov	75.000	125.000				07/30/07
MS	Magnesium	7439-95-4	NA	n/a	% Recov	75.000	125.000				07/30/07
MS	Manganese	7439-96-5	1000	100.000	% Recov	75.000	125.000				07/30/07
MS	Sodium	7440-23-5	NA	n/a	% Recov	75.000	125.000				07/30/07
MS	Nickel	7440-02-0	981.1	98.110	% Recov	75.000	125.000				07/30/07
MS	Antimony	7440-36-0	1035	103.500	% Recov	75.000	125.000				07/30/07
MS	Strontium	7440-24-6	503.2	100.640	% Recov	75.000	125.000				07/30/07
MS	Vanadium	7440-62-2	985.3	98.530	% Recov	75.000	125.000				07/30/07
MS	Zinc	7440-66-6	726.1	72.610	% Recov	75.000	125.000				07/30/07
MSD	Silver	7440-22-4	970.2	97.020	% Recov	75.000	125.000				07/30/07
MSD	Barium	7440-39-3	486.9	97.380	% Recov	75.000	125.000				07/30/07
MSD	Beryllium	7440-41-7	508	101.600	% Recov	75.000	125.000				07/30/07
MSD	Calcium	7440-70-2	NA	n/a	% Recov	75.000	125.000				07/30/07
MSD	Cadmium	7440-43-9	992.5	99.250	% Recov	75.000	125.000				07/30/07
MSD	Cobalt	7440-48-4	988.3	98.830	% Recov	75.000	125.000				07/30/07
MSD	Chromium	7440-47-3	967.3	96.730	% Recov	75.000	125.000				07/30/07
MSD	Copper	7440-50-8	975.8	97.580	% Recov	75.000	125.000				07/30/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

Sample Date: 06/20/07
Receive Date:06/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	983.4	98.340	% Recov	75.000	125.000				07/30/07
MSD	Potassium	7440-09-7	9847	98.470	% Recov	75.000	125.000				07/30/07
MSD	Magnesium	7439-95-4	NA	n/a	% Recov	75.000	125.000				07/30/07
MSD	Manganese	7439-96-5	994.5	99.450	% Recov	75.000	125.000				07/30/07
MSD	Sodium	7440-23-5	NA	n/a	% Recov	75.000	125.000				07/30/07
MSD	Nickel	7440-02-0	981.6	98.160	% Recov	75.000	125.000				07/30/07
MSD	Antimony	7440-36-0	988.9	98.890	% Recov	75.000	125.000				07/30/07
MSD	Strontium	7440-24-6	498.2	99.640	% Recov	75.000	125.000				07/30/07
MSD	Vanadium	7440-62-2	969.9	96.990	% Recov	75.000	125.000				07/30/07
MSD	Zinc	7440-66-6	971.1	97.110	% Recov	75.000	125.000				07/30/07
SPK-RPD	Silver	7440-22-4	97.020		RPD			0.617	20.000		07/30/07
SPK-RPD	Barium	7440-39-3	97.380		RPD			0.082	20.000		07/30/07
SPK-RPD	Beryllium	7440-41-7	101.600		RPD			0.648	20.000		07/30/07
SPK-RPD	Calcium	7440-70-2			RPD			n/a	20.000		07/30/07
SPK-RPD	Cadmium	7440-43-9	99.250		RPD			0.141	20.000		07/30/07
SPK-RPD	Cobalt	7440-48-4	98.830		RPD			0.786	20.000		07/30/07
SPK-RPD	Chromium	7440-47-3	96.730		RPD			1.202	20.000		07/30/07
SPK-RPD	Copper	7440-50-8	97.580		RPD			0.501	20.000		07/30/07
SPK-RPD	Iron	7439-89-6	98.340		RPD			1.874	20.000		07/30/07
SPK-RPD	Potassium	7440-09-7	98.470		RPD			1.612	20.000		07/30/07
SPK-RPD	Magnesium	7439-95-4			RPD			n/a	20.000		07/30/07
SPK-RPD	Manganese	7439-96-5	99.450		RPD			0.552	20.000		07/30/07
SPK-RPD	Sodium	7440-23-5			RPD			n/a	20.000		07/30/07
SPK-RPD	Nickel	7440-02-0	98.160		RPD			0.051	20.000		07/30/07
SPK-RPD	Antimony	7440-36-0	98.890		RPD			4.556	20.000		07/30/07
SPK-RPD	Strontium	7440-24-6	99.640		RPD			0.999	20.000		07/30/07
SPK-RPD	Vanadium	7440-62-2	96.990		RPD			1.575	20.000		07/30/07
SPK-RPD	Zinc	7440-66-6	97.110		RPD			28.871	20.000 •		07/30/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
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	07/30/07
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	07/30/07
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	07/30/07
BLANK	Calcium	7440-70-2	<34	n/a	ug/L					U	07/30/07
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	07/30/07
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	07/30/07
BLANK	Chromium	7440-47-3	<4	n/a	ug/L					U	07/30/07
BLANK	Copper	7440-50-8	<4	n/a	ug/L					U	07/30/07
BLANK	Iron	7439-89-6	<9	n/a	ug/L					U	07/30/07
BLANK	Potassium	7440-09-7	<45	n/a	ug/L					U	07/30/07
BLANK	Magnesium	7439-95-4	<6	n/a	ug/L					U	07/30/07
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	07/30/07
BLANK	Sodium	7440-23-5	<27	n/a	ug/L					U	07/30/07
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	07/30/07
BLANK	Antimony	7440-36-0	<32	n/a	ug/L					U	07/30/07
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	07/30/07
BLANK	Vanadium	7440-62-2	<7	n/a	ug/L					U	07/30/07
BLANK	Zinc	7440-66-6	<4	n/a	ug/L					U	07/30/07
LCS	Silver	7440-22-4	989.8	98.980	% Recov	80.000	120.000				07/30/07
LCS	Barium	7440-39-3	494.2	98.840	% Recov	80.000	120.000				07/30/07
LCS	Beryllium	7440-41-7	514.9	102.980	% Recov	80.000	120.000				07/30/07
LCS	Calcium	7440-70-2	1009	100.900	% Recov	80.000	120.000				07/30/07
LCS	Cadmium	7440-43-9	1001	100.100	% Recov	80.000	120.000				07/30/07
LCS	Cobalt	7440-48-4	1001	100.100	% Recov	80.000	120.000				07/30/07
LCS	Chromium	7440-47-3	978.7	97.870	% Recov	80.000	120.000				07/30/07
LCS	Copper	7440-50-8	999.1	99.910	% Recov	80.000	120.000				07/30/07
LCS	Iron	7439-89-6	1004	100.400	% Recov	80.000	120.000				07/30/07
LCS	Potassium	7440-09-7	9637	96.370	% Recov	80.000	120.000				07/30/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
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	971.2	97.120	% Recov	80.000	120.000				07/30/07
LCS	Manganese	7439-96-5	1004	100.400	% Recov	80.000	120.000				07/30/07
LCS	Sodium	7440-23-5	996.3	99.630	% Recov	80.000	120.000				07/30/07
LCS	Nickel	7440-02-0	988.9	98.890	% Recov	80.000	120.000				07/30/07
LCS	Antimony	7440-36-0	1019	101.900	% Recov	80.000	120.000				07/30/07
LCS	Strontium	7440-24-6	499.7	99.940	% Recov	80.000	120.000				07/30/07
LCS	Vanadium	7440-62-2	989.3	98.930	% Recov	80.000	120.000				07/30/07
LCS	Zinc	7440-66-6	989.4	98.940	% Recov	80.000	120.000				07/30/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
Matrix: WATER
Test: ICP-200.8 MS All possible meta

Sample Date: 06/19/07
Receive Date:06/19/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07P001167											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	39.488	98.720	% Recov	70.000	130.000				07/10/07
MSD	Uranium	7440-61-1	39.488	98.720	% Recov	70.000	130.000				07/10/07
SPK-RPD	Uranium	7440-61-1	98.720		RPD			0.000	20.000		07/10/07
Lab ID: W07P001293											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Uranium	7440-61-1	n/a	n/a	% Recov	70.000	130.000				07/10/07
MSD	Uranium	7440-61-1	n/a	n/a	% Recov	70.000	130.000				07/10/07
SPK-RPD	Uranium	7440-61-1			RPD			n/a	20.000		07/10/07
BATCH QC											
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	07/10/07
LCS	Uranium	7440-61-1	37.96	94.900	% Recov	85.000	115.000				07/10/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071043
Matrix: WATER
Test: Total Alkalinity as mg/L CaCO3

Sample Date: 06/18/07
Receive Date:06/18/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07P001152											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Total Alkalinity as mg/L CaCO3	ALKALINITY	91.46		RPD			1.098	20.000		06/26/07
BATCH QC											
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	123	106.957	%Recove	80.000	120.000				06/26/07
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	124	107.826	%Recove	80.000	120.000				06/26/07
LCS	Total Alkalinity as mg/L CaCO3	ALKALINITY	44.23	98.728	%Recove	80.000	120.000				06/26/07

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20071043
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		W07P01184/Gross alpha duplicate is flagged for poor RPD however, the sample activity is low level. RPD does not apply to low level samples. ICP-AES: Magnesium, sodium, and calcium sample results beyond effective spike range (spike results marked "NA"). Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard. Low zinc MS recovery; no flag issued because all other QC is acceptable.

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: I07-049
Sample # W07P001177
Client ID: B1NJV6 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon tetrachloride	56-23-5	LA-523-455		21.0	ug/L			1.00	1.0		06/28/07
Acetone	67-64-1	LA-523-455	J	4.50	ug/L			1.00	1.0		06/28/07
Chloroform	67-66-3	LA-523-455	J	1.40	ug/L			1.00	1.0		06/28/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/28/07
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/28/07
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001177
Client ID: B1NJV6 GPP-PNNL WSCF **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

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		06/28/07
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001179
Client ID: B1NJX0 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon tetrachloride	56-23-5	LA-523-455	J	2.80	ug/L			1.00	1.0		06/28/07
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/28/07
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/28/07
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

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

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001179
Client ID: B1NJX0 GPP-PNNL WSCF
Matrix: WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

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		06/28/07
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001180
Client ID: B1NJW8 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon tetrachloride	56-23-5	LA-523-455	J	1.40	ug/L			1.00	1.0		06/28/07
Acetone	67-64-1	LA-523-455	J	4.50	ug/L			1.00	1.0		06/28/07
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/28/07
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/28/07
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001180
Client ID: B1NJW8 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S07-001
Sample # W07P001181
Client ID: B1LR57 GPP-PNNL

Matrix: WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Methylenechloride	75-09-2	LA-523-455	J	3.30	ug/L			1.00	1.0		06/28/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/28/07
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/28/07
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S07-001
Sample # W07P001181
Client ID: B1LR57 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-050
Sample # W07P001182
Client ID: B1NPB2 GPP-PNNL WSCF
Matrix: WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

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		06/28/07
Trichloroethene	79-01-6	LA-523-455	J	4.00	ug/L			1.00	1.0		06/28/07
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon tetrachloride	56-23-5	LA-523-455		1.70e+03	ug/L			1.00	10		07/01/07
Acetone	67-64-1	LA-523-455	J	4.20	ug/L			1.00	1.0		06/28/07
Chloroform	67-66-3	LA-523-455		10.0	ug/L			1.00	1.0		06/28/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		06/28/07
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		06/28/07
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-050
Sample # W07P001182
Client ID: B1NPB2 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Organic
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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		06/28/07
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		06/28/07

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

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

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071043
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/19/07
Receive Date:06/19/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07P001167											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,1-Dichloroethene	75-35-4	28.130	113.000	% Recov	63.000	117.000				06/27/07
MS	Benzene	71-43-2	28.190	113.000	% Recov	75.000	129.000				06/27/07
MS	4-Bromofluorobenzene(Surr)	460-00-4	49.990	100.000	% Recov	84.000	116.000				06/27/07
MS	Chlorobenzene	108-90-7	20.510	82.000	% Recov	79.000	119.000				06/27/07
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.270	103.000	% Recov	82.000	136.000				06/27/07
MS	Toluene-d8(Surr)	2037-26-5	51.960	104.000	% Recov	89.000	119.000				06/27/07
MS	Toluene	108-88-3	25.300	101.000	% Recov	76.000	120.000				06/27/07
MS	Trichloroethene	79-01-6	23.620	94.500	% Recov	73.000	123.000				06/27/07
MSD	1,1-Dichloroethene	75-35-4	28.020	112.000	% Recov	63.000	117.000				06/27/07
MSD	Benzene	71-43-2	28.680	115.000	% Recov	75.000	129.000				06/27/07
MSD	4-Bromofluorobenzene(Surr)	460-00-4	50.140	100.000	% Recov	84.000	116.000				06/27/07
MSD	Chlorobenzene	108-90-7	20.190	80.800	% Recov	79.000	119.000				06/27/07
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.210	102.000	% Recov	82.000	136.000				06/27/07
MSD	Toluene-d8(Surr)	2037-26-5	52.190	104.000	% Recov	89.000	119.000				06/27/07
MSD	Toluene	108-88-3	25.850	103.000	% Recov	76.000	120.000				06/27/07
MSD	Trichloroethene	79-01-6	24.050	96.200	% Recov	73.000	123.000				06/27/07
SPK-RPD	1,1-Dichloroethene	75-35-4	112.000		RPD			0.889	20.000		06/27/07
SPK-RPD	Benzene	71-43-2	115.000		RPD			1.754	20.000		06/27/07
SPK-RPD	Chlorobenzene	108-90-7	80.800		RPD			1.474	20.000		06/27/07
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	102.000		RPD			0.976	20.000		06/27/07
SPK-RPD	Toluene-d8(Surr)	2037-26-5	104.000		RPD			0.000	20.000		06/27/07
SPK-RPD	Toluene	108-88-3	103.000		RPD			1.961	20.000		06/27/07
SPK-RPD	Trichloroethene	79-01-6	96.200		RPD			1.783	20.000		06/27/07

Lab ID: W07P001177
BATCH QC ASSOCIATED WITH SAMPLE

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071043
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 06/20/07
Receive Date:06/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	4-Bromofluorobenzene(Surr)	460-00-4	49.220	98.400	% Recov	84.000	116.000				06/28/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.400	103.000	% Recov	82.000	136.000				06/28/07
SURR	Toluene-d8(Surr)	2037-26-5	52.500	105.000	% Recov	89.000	119.000				06/28/07
Lab ID: W07P001179											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	49.780	99.600	% Recov	84.000	116.000				06/28/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.980	102.000	% Recov	82.000	136.000				06/28/07
SURR	Toluene-d8(Surr)	2037-26-5	53.000	106.000	% Recov	89.000	119.000				06/28/07
Lab ID: W07P001180											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	49.150	98.300	% Recov	84.000	116.000				07/28/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.880	102.000	% Recov	82.000	136.000				07/28/07
SURR	Toluene-d8(Surr)	2037-26-5	52.790	106.000	% Recov	89.000	119.000				07/28/07
Lab ID: W07P001181											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.930	97.900	% Recov	84.000	116.000				06/28/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.450	103.000	% Recov	82.000	136.000				06/28/07
SURR	Toluene-d8(Surr)	2037-26-5	53.130	106.000	% Recov	89.000	119.000				06/28/07
Lab ID: W07P001182											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	48.630	97.300	% Recov	84.000	116.000				06/28/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.380	101.000	% Recov	82.000	136.000				06/28/07
SURR	Toluene-d8(Surr)	2037-26-5	53.020	106.000	% Recov	89.000	119.000				06/28/07
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	06/27/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071043
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	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	06/27/07
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	06/27/07
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	06/27/07
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	06/27/07
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	06/27/07
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	06/27/07
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	06/27/07
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	49.800	99.600	% Recov	84.000	116.000				06/27/07
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	06/27/07
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	06/27/07
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	51.080	102.000	% Recov	82.000	136.000				06/27/07
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Ethylbenzene	100-41-4	11	11.000	ug/L						06/27/07
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	06/27/07
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	06/27/07
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	06/27/07
BLANK	Toluene-d8(Surr)	2037-26-5	52.750	106.000	% Recov	89.000	119.000				06/27/07
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	06/27/07
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	06/27/07
LCS	1,1-Dichloroethene	75-35-4	28.170	113.000	% Recov	70.000	130.000				06/28/07
LCS	Benzene	71-43-2	27.700	111.000	% Recov	70.000	130.000				06/28/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071043
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
LCS	4-Bromofluorobenzene(Surr)	460-00-4	49.520	99.000	% Recov	84.000	116.000				06/28/07
LCS	Chlorobenzene	108-90-7	20.420	81.700	% Recov	70.000	130.000				06/28/07
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	50.510	101.000	% Recov	82.000	136.000				06/28/07
LCS	Toluene-d8(Surr)	2037-26-5	51.600	103.000	% Recov	89.000	119.000				06/28/07
LCS	Toluene	108-88-3	25.950	104.000	% Recov	70.000	130.000				06/28/07
LCS	Trichloroethene	79-01-6	23.870	95.500	% Recov	70.000	130.000				06/28/07

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001177
Client ID: B1NJV6 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Radiochemistry
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Technetium-99	14133-76-7	LA-508-421		150	pCi/L	+-30.0	pCi/L	1.00	6.1		07/13/07
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.20e+04	pCi/L	+-2.40e+03	pCi/L	1.00	2.1e+02		06/29/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001179
Client ID: B1NJX0 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Radiochemistry
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Technetium-99	14133-76-7	LA-508-421	U	-3.00	pCi/L	+-3.66	pCi/L	1.00	6.1		07/13/07
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	51.0	pCi/L	+-96.9	pCi/L	1.00	2.1e+02		06/29/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criterie(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-049
Sample # W07P001180
Client ID: B1NJW8 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Radiochemistry
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF 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	U	82.0	pCi/L	+-115	pCi/L	1.00	2.1e+02		06/29/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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Report WGPP/ver. 5.2
GPAP

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I07-050
Sample # W07P001182
Client ID: B1NPB2 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Radiochemistry
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
TC99 by Liquid Scin.											
Technetium-99	14133-76-7	LA-508-421		28.0	pCi/L	+-6.72	pCi/L	1.00	6.1		07/13/07
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421	U	140	pCi/L	+-126	pCi/L	1.00	2.1e+02		06/29/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(inorg)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S07-006
Sample # W07P001184
Client ID: B1NKJ9 GPP-PNNL **Matrix:** WATER

Group #: WSCF20071043
Department: Radiochemistry
Sampled: 06/20/07
Received: 06/20/07

Test Performed	CAS #	WSCF Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		3.60	pCi/L	+-1.44	pCi/L	1.00	0.86		06/22/07
Gross beta	12587-47-2	LA-508-415		22.0	pCi/L	+-3.30	pCi/L	1.00	2.4		06/22/07
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.10e+04	pCi/L	+-2.20e+03	pCi/L	1.00	2.1e+02		06/29/07

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

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

D - Analyte was identified at a secondary dilution factor(inorg)
U - Analyzed for but not detected above limiting criteria(Inorg)

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

Report WGPP/ver. 5.2
GPAP

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071043
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 06/20/07
Receive Date:06/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07P001184											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha	12587-46-1	5.1		RPD			34.483	20.000 *		06/22/07
DUP	Gross beta	12587-47-2	2.5E+01		RPD			12.766	20.000		06/22/07
BATCH QC											
BLANK	Gross alpha	12587-46-1	U2.9E-01	n/a	pCi/L	-10.000	10.000				06/22/07
BLANK	Gross beta	12587-47-2	U9.5E-01	n/a	pCi/L	-10.000	10.000				06/22/07
LCS	Gross alpha	12587-46-1	57.4	111.133	% Recov	80.000	120.000				06/22/07
LCS	Gross beta	12587-47-2	169.0	113.006	% Recov	80.000	120.000				06/22/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071043
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 06/19/07
Receive Date:06/19/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07P001167											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Technetium-99	14133-76-7	U0.3		RPD			n/a	20.000		07/13/07
MS	Technetium-99	14133-76-7	241.9	99.449	% Recov	75.000	125.000				07/13/07
BATCH QC											
BLANK	Technetium-99	14133-76-7	U-2.8	n/a	pCi/L	-10.000	10.000				07/13/07
LCS	Technetium-99	14133-76-7	305.2	100.362	% Recov	80.000	120.000				07/13/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071043
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 06/15/07
Receive Date:06/15/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07P001130											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	6.5E+02		RPD			14.876	20.000		06/29/07
MS	Tritium	10028-17-8	15539.0	90.698	% Recov	75.000	125.000				06/29/07
BATCH QC											
BLANK	Tritium	10028-17-8	U-3.1E+01	n/a	pCi/L	-10.000	1000.000				06/29/07
LCS	Tritium	10028-17-8	1810.0	89.185	% Recov	80.000	120.000				06/29/07

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20071043
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		W07P01184/Gross alpha duplicate is flagged for poor RPD however, the sample activity is low level. RPD does not apply to low level samples. ICP-AES: Magnesium, sodium, and calcium sample results beyond effective spike range (spike results marked "NA"). Check and high standards used to ensure magnesium, sodium, and calcium linearity because sample results are greater than the calibration standard. Low zinc MS recovery; no flag issued because all other QC is acceptable.

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

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M4W41-SLF-07-511

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 9 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
8/3/07

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20071043

The following samples were received from you on 06/20/07. 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
W07P001177	B1NJV6	@2008 @H3-33 @IC-30 @TC99-30 @VOA-GPP	GPP-PNNL Water	06/20/07
W07P001178	B1NJW9	@GPP6010	GPP-PNNL Water	06/20/07
W07P001179	B1NJX0	@2008 @H3-33 @IC-30 @TC99-30 @VOA-GPP	GPP-PNNL Water	06/20/07
W07P001180	B1NJW8	@2008 @H3-33 @IC-30 @VOA-GPP	GPP-PNNL Water	06/20/07
W07P001181	B1LR57	@VOA-GPP	GPP-PNNL Water	06/20/07
W07P001182	B1NPB2	@2008 @H3-33 @IC-30 @TC99-30 @VOA-GPP	GPP-PNNL Water	06/20/07
W07P001183	B1NKJ8	@GPP6010	GPP-PNNL Water	06/20/07
W07P001184	B1NKJ9	@AB-32 @H3-33 @IC-30	GPP-PNNL Water	06/20/07
W07P001185	B1NN51	@IC-30 ALKALI	GPP-PNNL Water	06/20/07

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@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

20071043

I07-049-10

Collector Fluor Hanford R. T. SICKLE	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. I07-049	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title 2UP1-LOI, JUNE 2007	HNF-N-506 9	**Ice Chest No.** SWL 595 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS

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

20071043

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

All Labs except WSCF: Batch all samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all GW samples submitted into one SDG, daily closure.
All SDG?s are to be sent to Steve Trent, FH

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NJV6	W07P00177	W	6-20-07	1254	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool 4C
B1NJV6		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1NJV6		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1NJV6		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH<2
B1NJV6		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED
Initial
Date

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Fluor Hanford R. T. SICKLE			1320 JUN 20 2007			1320	JUN 20 2007
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

20071043

I07-049-36

Collector: Fluor Hanford R. T. SICKLE	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: I07-049	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: 2UP1-LOI JUNE 2007	HNF-N-506 9	Ice Chest No.: SML 595 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

All Labs except WSCF: Batch all samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all GW samples submitted into one SDG, daily closure.
All SDG?s are to be sent to Steve Trent, FH

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NJW9 (F)	W07P001174	W	6-20-07	1013	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1NJX0	W07P001174	W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool 4C
B1NJX0		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1NJX0		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1NJX0		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH<2
B1NJX0		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED
Initial
Date

Relinquished By	Received By
Print: Fluor Hanford R. T. SICKLE Sign: Date/Time: 1320 JUN 20 2007	Print: Sign: Date/Time: 1320 JUN 20 2007
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

60 of 94

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

I07-049-30

20071043

Collector: Fluor Hanford R. T. SICKLE	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: I07-049	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: 2UP1-LOI JUNE 2007	HNF-N-506 9	Ice Chest No.: SML 595 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

All Labs except WSCF: Batch all samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all GW samples submitted into one SDG, daily closure.
All SDG?s are to be sent to Steve Trent, FH

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NJW8	W07A4N0	W	6-20-07	1202	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool 4C
B1NJW8		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2
B1NJW8		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1NJW8		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED
Initial
Date

Relinquished By: Fluor Hanford R. T. SICKLE Print Sign 1320 Date/Time JUN 20 2007	Received By: Print Sign 1320 Date/Time JUN 20 2007	Matrix *
Relinquished By Date/Time	Received By Date/Time	S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solid, DL = Drum Liqui, T = Tissue, WI = Wine, L = Liquid, V = Vegetation, X = Other
Relinquished By Date/Time	Received By Date/Time	
Relinquished By Date/Time	Received By Date/Time	

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

S07-001-438

Page 1 of 1

200071093

Collector: Fluor Hanford R. T. SICKLE	Contact/Requester: Dot Stewart	Telephone No.: 509-376-5056 MSIN FAX
SAF No.: S07-001	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: SURV, JANUARY 2007	HNF-N-506 9	Ice Chest No.: SMLL 595 Temp.
Shipped To (Lab): Waste Sampling & Characterization	Method of Shipment: Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol: SURV	Priority: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐

All Labs except WSCF: Batch all PNNL samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.

WSCF: Batch all PNNL GW samples submitted into one SDG, daily closure.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1LR57	W07B001181	W	6-20-07	1013	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool 4C
B1LR57		W	↓	↓	1x20-mL P	Activity Scan	None

ICED
Initial
Date

Relinquished By	Date/Time	Received By	Date/Time
Fluor Hanford R. T. SICKLE Print Sign 1320	JUN 20 2007	Print Sign 1320	JUN 20 2007
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

6106

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

I07-050-23

2007 1043

Collector: Fluor Hanford F.M. HALL	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: I07-050	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: 2ZP1-LOI JUNE 2007	HNF-N-506-7	Ice Chest No.: 562 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
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐
All Labs except WSCF: Batch all samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all GW samples submitted into one SDG, daily closure.
All SDG?s are to be sent to Steve Trent, FH

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NPB2	W07P051182	W	6/20/7	1031	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool 4C
B1NPB2		W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1NPB2		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1NPB2		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1NPB2		W			1x500-mL G/P	200.8_METALS_ICPMS: Uranium (1)	HNO3 to pH <2

ICED
Initial
Date

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Fluor Hanford F.M. HALL			JUN 20 2007 1405				JUN 20 2007 1405
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

S07-006-22

20071043

Collector Fluor Hanford F. M. HALL	Contact/Requester Steve Trent	Telephone No. 509-373-5869 MSIN FAX
SAF No. S07-006	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title SURV. JUNE 2007	HNF-N-506-7	Ice Chest No. 562 Temp.
Shipped To (Lab) Waste Sampling & Characterization	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No.
Protocol SURV	Priority: 45 Days	Offsite Property No.

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

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☑ No ☐

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NKJ8 (F)	W07P001153	W	6/20/7	1256	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1NKJ9	W07P001154	W	↓	↓	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1NKJ9		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None
B1NKJ9		W			1x500-mL G/P	ALPHABETA_GPC: Alpha + Beta (2); ALPHABETA_GPC: Alpha + Beta (2)	HNO3 to pH <2

ICED
VB Initial
Date

Relinquished By	Date/Time	Received By	Date/Time
Fluor Hanford F. M. HALL Print / Sign JUN 20 2007	1405	Print / Sign JUN 20 2007	1405
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

W07-006-394

2007/043

Collector: Fluor Hanford F.M. HALL	Contact/Requester: Steve Trent	Telephone No.: 509-373-5869 MSIN FAX
SAF No.: W07-006	Sampling Origin: Hanford Site	Purchase Order/Charge Code
Project Title: RCRA, JUNE 2007	HMF-M-506-7	Ice Chest No.: 562 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 ☐

All Labs except WSCF: Batch all samples submitted under A, G, I, S, and W 07 SAFs into one SDG, not to exceed SDG closure of 14 days.
WSCF: Batch all GW samples submitted into one SDG, daily closure.
All SDG?s are to be sent to Steve Trent, FH

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1NN51	W07P0,185	W	6/20/7	1136	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool 4C
B1NN51		W	↓	↓	1x500-mL G/P	310.1_ALKALINITY: Alkalinity (1)	Cool 4C

ICED
Initial
Date

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Fluor Hanford F.M. HALL			JUN 20 2007 1405				JUN 20 2007 1405
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