0079853

RECEIVED SEPTEMBER 8, 2008

Fluor Hanford
WSCF Analytical Lab
P.O. Box 1000
Richland, WA 99352
Telephone 373-7495
Telefax 372-0456

FLUOR

Memorandum

M4W41-SLF-08-956

To:	H. Hampt	E6-35	Date:	September 8, 2008
From:	S. L. Fitzgerald, Manager WSCF Analytical Lab			

cc: w/Attachments

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

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20081513

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 WSCF20081513:

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

SLF/grf

Attachments 4

RECEIVED
JAN 14 2009
EDMC

M4W41-SLF-08-956

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20081513
Data Deliverable Date: 20-aug-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
I08-047	B1W1R3	W08P003553	WATER
	B1W1T1	W08P003549	WATER
S08-007	B1W237	W08P003550	WATER
	B1W238	W08P003551	WATER
	B1W258	W08P003554	WATER
	B1W260	W08P003552	WATER
W08-005	B1VHL0	W08P003548	WATER

M4W41-SLF-08-956

ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction

Seven groundwater samples were received at the WSCF Laboratory on July 21, 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 4) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 5.

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

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report,* pages 12 through 14, 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 20 through 21 for QC details. Analytical Note(s):

- Sample results were D flagged if dilution(s) were required.
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Nitrate-N – Matrix Spike Duplicate recovery was less than established laboratory limits. Affected sample results were N 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 22 through 25 for QC details. Analytical Note(s):

- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1VNV5 (SDG# 20081375).

- Calcium, Magnesium and Sodium concentrations exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Check standard was analyzed to ensure linearity because the sample results were greater than the calibration standard.

All other QC controls are within the established limits.

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 31 through 33 for QC details. Analytical Note(s):

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

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

- Technetium-99 – Duplicate and Matrix Spike were analyzed on sample# B1V7N8 (SDG# 20081455). Matrix Spike recovery exceeded established laboratory limits due to high sample activity.

- Tritium – Duplicate and Matrix Spike were analyzed on sample# B1V8X1 (SDG# 20081487).

All other QC controls are within the established limits.

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

Scot L. Fitzgerald
WSCF Analytical Laboratory Manager

Pauline D. Mix
WSCF Client Services

M4W41-SLF-08-956

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 38 pages
Including cover page

WSCF
ANALYTICAL RESULTS REPORT

for

GPAP
Richland, WA 99352

Attention: Steve Trent E6-35

Analytical: S. Fitzgerald 9/8/08
Client Services: PW Mix 9/7/2008

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#: WSCF20081513
Report Date: 7-sep-2008
Report WGPP/ver. 5.2
GPAP

w13qlog v4.2 07-sep-2008 08:34:33

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20081513

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37204	2	37631	41956	BLANK		Anions by Ion Chromatography
37204	12	37631	41956	BLANK		Anions by Ion Chromatography
37204	3	37631	41956	LCS		Anions by Ion Chromatography
37204	9	37631	41956	SAMPLE	W08P003551	Anions by Ion Chromatography
37204	6	37631	41956	DUP	W08P003552	Anions by Ion Chromatography
37204	7	37631	41956	MS	W08P003552	Anions by Ion Chromatography
37204	8	37631	41956	MSD	W08P003552	Anions by Ion Chromatography
37204	5	37631	41956	SAMPLE	W08P003552	Anions by Ion Chromatography
37204	8	37631	41956	SPK-RPD	W08P003552	Anions by Ion Chromatography
37204	4	37631	41956	SAMPLE	W08P003554	Anions by Ion Chromatography
37795	1	37950	42698	BLANK		ICP Metals Analysis, Grd H20 P
37795	2	37950	42698	LCS		ICP Metals Analysis, Grd H20 P
37795	4	37950	42698	MS	W08P003362	ICP Metals Analysis, Grd H20 P
37795	5	37950	42698	MSD	W08P003362	ICP Metals Analysis, Grd H20 P
37795	5	37950	42698	SPK-RPD	W08P003362	ICP Metals Analysis, Grd H20 P
37795	13	37950	42698	SAMPLE	W08P003550	ICP Metals Analysis, Grd H20 P
37795	14	37950	42698	SAMPLE	W08P003551	ICP Metals Analysis, Grd H20 P

w13qlog v4.2 07-sep-2008 08:34:33

Department: Organic

W13q Worklist/Batch/QC Report for Group# WSCF20081513

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
			42391	BLANK		VOA Ground Water Protection
			42391	LCS		VOA Ground Water Protection
			42391	MS	W08P003548	VOA Ground Water Protection
			42391	MSD	W08P003548	VOA Ground Water Protection
			42391	SAMPLE	W08P003548	VOA Ground Water Protection
			42391	SPK-RPD	W08P003548	VOA Ground Water Protection
			42391	SURR	W08P003548	VOA Ground Water Protection
			42391	SAMPLE	W08P003551	VOA Ground Water Protection
			42391	SURR	W08P003551	VOA Ground Water Protection

w13qlog v4.2 07-sep-2008 08:34:33

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20081513

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
37402	1	37827	42147	BLANK		Strontium 89/90
37402	2	37827	42147	LCS		Strontium 89/90
37402	3	37827	42147	DUP	W08P003549	Strontium 89/90
37402	4	37827	42147	SAMPLE	W08P003549	Strontium 89/90
37402	5	37827	42147	SAMPLE	W08P003553	Strontium 89/90
37363	1	37790	42250	BLANK		Tritium by Liq Sct column prep
37363	2	37790	42250	LCS		Tritium by Liq Sct column prep
37363	3	37790	42250	DUP	W08P003543	Tritium by Liq Sct column prep
37363	4	37790	42250	MS	W08P003543	Tritium by Liq Sct column prep
37363	6	37790	42250	SAMPLE	W08P003549	Tritium by Liq Sct column prep
37363	7	37790	42250	SAMPLE	W08P003551	Tritium by Liq Sct column prep
37363	8	37790	42250	SAMPLE	W08P003552	Tritium by Liq Sct column prep
37431	1	37862	42370	BLANK		TC99 by Liquid Scin.
37431	2	37862	42370	LCS		TC99 by Liquid Scin.
37431	4	37862	42370	DUP	W08P003525	TC99 by Liquid Scin.
37431	3	37862	42370	MS	W08P003525	TC99 by Liquid Scin.
37431	13	37862	42370	SAMPLE	W08P003551	TC99 by Liquid Scin.
37431	14	37862	42370	SAMPLE	W08P003554	TC99 by Liquid Scin.
37649	1	38080	42555	BLANK		Gross Alpha/Gross Beta (AB32)
37649	2	38080	42555	LCS		Gross Alpha/Gross Beta (AB32)
37649	3	38080	42555	DUP	W08P003551	Gross Alpha/Gross Beta (AB32)
37649	4	38080	42555	SAMPLE	W08P003551	Gross Alpha/Gross Beta (AB32)
37649	5	38080	42555	SAMPLE	W08P003552	Gross Alpha/Gross Beta (AB32)
37649	6	38080	42555	SAMPLE	W08P003554	Gross Alpha/Gross Beta (AB32)
37729	1	38163	42556	BLANK		Gross Alpha on Alpha Plateau
37729	2	38163	42556	LCS		Gross Alpha on Alpha Plateau
37729	3	38163	42556	DUP	W08P003551	Gross Alpha on Alpha Plateau
37729	4	38163	42556	SAMPLE	W08P003551	Gross Alpha on Alpha Plateau
37729	5	38163	42556	SAMPLE	W08P003552	Gross Alpha on Alpha Plateau
37729	6	38163	42556	SAMPLE	W08P003554	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-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: S08-007
Sample # W08P003550
Client ID: B1W237 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Inorganic
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H20 P Prep											**08/24/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	B	30.6	ug/L			1.00	25		09/03/08
Magnesium	7439-95-4	LA-505-411		1.77e+04	ug/L			1.00	50		09/03/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Nickel	7440-02-0	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Potassium	7440-09-7	LA-505-411		8.54e+03	ug/L			1.00	1.7e+02		09/03/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/03/08
Sodium	7440-23-5	LA-505-411		2.66e+04	ug/L			1.00	51		09/03/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/03/08
Barium	7440-39-3	LA-505-411		47.3	ug/L			1.00	4.0		09/03/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/03/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/03/08
Vanadium	7440-62-2	LA-505-411	U	< 12.0	ug/L			1.00	12		09/03/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/03/08
Calcium	7440-70-2	LA-505-411		7.60e+04	ug/L			1.00	73		09/03/08
Strontium	7440-24-6	LA-505-411		513	ug/L			1.00	4.0		09/03/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08

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

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003551
Client ID: B1W238 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Inorganic
Sampled: 07/21/08
Received: 07/21/08

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	0.185	mg/L			2.00	0.046		07/21/08
Chloride	16887-00-6	LA-533-410	D	37.1	mg/L			10.00	0.47		07/21/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		07/21/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DN	22.6	mg/L			10.00	0.12		07/21/08
Sulfate	14808-79-8	LA-533-410	D	24.3	mg/L			2.00	0.26		07/21/08
ICP Metals Analysis, Grd H20 P Prep											**08/24/08**
ICP Metals Analysis, Grd H20 P											
Iron	7439-89-6	LA-505-411	U	< 25.0	ug/L			1.00	25		09/03/08
Magnesium	7439-95-4	LA-505-411		1.82e+04	ug/L			1.00	50		09/03/08
Manganese	7439-96-5	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Nickel	7440-02-0	LA-505-411	B	5.80	ug/L			1.00	4.0		09/03/08
Potassium	7440-09-7	LA-505-411		8.66e+03	ug/L			1.00	1.7e+02		09/03/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		09/03/08
Sodium	7440-23-5	LA-505-411		2.66e+04	ug/L			1.00	51		09/03/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		09/03/08
Barium	7440-39-3	LA-505-411		48.8	ug/L			1.00	4.0		09/03/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Chromium	7440-47-3	LA-505-411	U	< 13.0	ug/L			1.00	13		09/03/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		09/03/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		09/03/08
Vanadium	7440-62-2	LA-505-411	B	13.9	ug/L			1.00	12		09/03/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		09/03/08
Calcium	7440-70-2	LA-505-411		7.84e+04	ug/L			1.00	73		09/03/08
Strontium	7440-24-6	LA-505-411		529	ug/L			1.00	4.0		09/03/08

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

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003551
Client ID: B1W238 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Inorganic
Sampled: 07/21/08
Received: 07/21/08

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		09/03/08

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

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

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003552
Client ID: B1W260 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Inorganic
Sampled: 07/21/08
Received: 07/21/08

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	0.140	mg/L			2.00	0.046		07/21/08
Chloride	16887-00-6	LA-533-410	D	16.3	mg/L			2.00	0.094		07/21/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		07/21/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DN	9.30	mg/L			2.00	0.024		07/21/08
Sulfate	14808-79-8	LA-533-410	D	22.7	mg/L			2.00	0.26		07/21/08

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)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003554
Client ID: B1W258 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Inorganic
Sampled: 07/21/08
Received: 07/21/08

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	0.110	mg/L			2.00	0.046		07/21/08
Chloride	16887-00-6	LA-533-410	D	22.3	mg/L			2.00	0.094		07/21/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		07/21/08
Nitrogen in Nitrate	NO3-N	LA-533-410	DN	4.42	mg/L			2.00	0.024		07/21/08
Sulfate	14808-79-8	LA-533-410	D	17.3	mg/L			2.00	0.26		07/21/08

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)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081513
Matrix: WATER
Test: Anions by Ion Chromatography

Sample Date: 07/21/08
Receive Date:07/21/08

Lab ID: W08P003552

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	16.3762		RPD			0.538	20.000		07/21/08
DUP	Fluoride	16984-48-8	0.1467		RPD			4.460	20.000		07/21/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	07/21/08
DUP	Nitrogen in Nitrate	NO3-N	9.2657		RPD			0.407	20.000		07/21/08
DUP	Sulfate	14808-79-8	22.4166		RPD			1.042	20.000		07/21/08
MS	Chloride	16887-00-6	0.9524	95.719	% Recov	80.000	120.000				07/21/08
MS	Fluoride	16984-48-8	0.5367	108.864	% Recov	80.000	120.000				07/21/08
MS	Nitrogen in Nitrite	NO2-N	0.5209	105.874	% Recov	80.000	120.000				07/21/08
MS	Nitrogen in Nitrate	NO3-N	0.3833	85.942	% Recov	80.000	120.000				07/21/08
MS	Sulfate	14808-79-8	1.94755	99.365	% Recov	80.000	120.000				07/21/08
MSD	Chloride	16887-00-6	0.8349	83.910	% Recov	80.000	120.000				07/21/08
MSD	Fluoride	16984-48-8	0.5216	105.801	% Recov	80.000	120.000				07/21/08
MSD	Nitrogen in Nitrite	NO2-N	0.5013	101.890	% Recov	80.000	120.000				07/21/08
MSD	Nitrogen in Nitrate	NO3-N	0.3447	77.287	% Recov	80.000	120.000				07/21/08
MSD	Sulfate	14808-79-8	1.80145	91.911	% Recov	80.000	120.000				07/21/08
SPK-RPD	Chloride	16887-00-6	83.910		RPD			13.148	20.000		07/21/08
SPK-RPD	Fluoride	16984-48-8	105.801		RPD			2.854	20.000		07/21/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	101.890		RPD			3.835	20.000		07/21/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	77.287		RPD			10.605	20.000		07/21/08
SPK-RPD	Sulfate	14808-79-8	91.911		RPD			7.794	20.000		07/21/08

BATCH QC

BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	07/21/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	07/21/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	07/21/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	07/21/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081513
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	<1.28e-2	n/a	mg/L	0.000	0.020			U	07/21/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	07/21/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	07/21/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	07/21/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	07/21/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	07/21/08
LCS	Chloride	16887-00-6	193.724	96.380	% Recov	80.000	120.000				07/21/08
LCS	Fluoride	16984-48-8	106.7812	107.210	% Recov	80.000	120.000				07/21/08
LCS	Nitrogen in Nitrite	NO2-N	99.6887	100.290	% Recov	80.000	120.000				07/21/08
LCS	Nitrogen in Nitrate	NO3-N	90.7418	100.712	% Recov	80.000	120.000				07/21/08
LCS	Sulfate	14808-79-8	386.4616	97.591	% Recov	80.000	120.000				07/21/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081513
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

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

Lab ID: W08P003362
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	1045	104.500	% Recov	75.000	125.000				09/03/08
MS	Barium	7440-39-3	521	104.200	% Recov	75.000	125.000				09/03/08
MS	Beryllium	7440-41-7	550.7	110.140	% Recov	75.000	125.000				09/03/08
MS	Calcium	7440-70-2	1090	109.000	% Recov	75.000	125.000				09/03/08
MS	Cadmium	7440-43-9	1077	107.700	% Recov	75.000	125.000				09/03/08
MS	Cobalt	7440-48-4	1030	103.000	% Recov	75.000	125.000				09/03/08
MS	Chromium	7440-47-3	1061	106.100	% Recov	75.000	125.000				09/03/08
MS	Copper	7440-50-8	1040	104.000	% Recov	75.000	125.000				09/03/08
MS	Iron	7439-89-6	1046	104.600	% Recov	75.000	125.000				09/03/08
MS	Potassium	7440-09-7	10955	109.550	% Recov	75.000	125.000				09/03/08
MS	Magnesium	7439-95-4	830	83.000	% Recov	75.000	125.000				09/03/08
MS	Manganese	7439-96-5	1071	107.100	% Recov	75.000	125.000				09/03/08
MS	Sodium	7440-23-5	920	92.000	% Recov	75.000	125.000				09/03/08
MS	Nickel	7440-02-0	1054.2	105.420	% Recov	75.000	125.000				09/03/08
MS	Antimony	7440-36-0	1127	112.700	% Recov	75.000	125.000				09/03/08
MS	Strontium	7440-24-6	526	105.200	% Recov	75.000	125.000				09/03/08
MS	Vanadium	7440-62-2	1027.6	102.760	% Recov	75.000	125.000				09/03/08
MS	Zinc	7440-66-6	1055	105.500	% Recov	75.000	125.000				09/03/08
MSD	Silver	7440-22-4	1026	102.600	% Recov	75.000	125.000				09/03/08
MSD	Barium	7440-39-3	512.1	102.420	% Recov	75.000	125.000				09/03/08
MSD	Beryllium	7440-41-7	537.1	107.420	% Recov	75.000	125.000				09/03/08
MSD	Calcium	7440-70-2	610	61.000	% Recov	75.000	125.000				09/03/08
MSD	Cadmium	7440-43-9	1058	105.800	% Recov	75.000	125.000				09/03/08
MSD	Cobalt	7440-48-4	1010	101.000	% Recov	75.000	125.000				09/03/08
MSD	Chromium	7440-47-3	1032	103.200	% Recov	75.000	125.000				09/03/08
MSD	Copper	7440-50-8	1026	102.600	% Recov	75.000	125.000				09/03/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081513
Matrix: WATER
Test: ICP Metals Analysis, Grd H20 P

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

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	1022	102.200	% Recov	75.000	125.000				09/03/08
MSD	Potassium	7440-09-7	11025	110.250	% Recov	75.000	125.000				09/03/08
MSD	Magnesium	7439-95-4	880	88.000	% Recov	75.000	125.000				09/03/08
MSD	Manganese	7439-96-5	1041	104.100	% Recov	75.000	125.000				09/03/08
MSD	Sodium	7440-23-5	1090	109.000	% Recov	75.000	125.000				09/03/08
MSD	Nickel	7440-02-0	1031.2	103.120	% Recov	75.000	125.000				09/03/08
MSD	Antimony	7440-36-0	1118	111.800	% Recov	75.000	125.000				09/03/08
MSD	Strontium	7440-24-6	514.3	102.860	% Recov	75.000	125.000				09/03/08
MSD	Vanadium	7440-62-2	1000.6	100.060	% Recov	75.000	125.000				09/03/08
MSD	Zinc	7440-66-6	1039	103.900	% Recov	75.000	125.000				09/03/08
SPK-RPD	Silver	7440-22-4	102.600		RPD			1.835	20.000		09/03/08
SPK-RPD	Barium	7440-39-3	102.420		RPD			1.723	20.000		09/03/08
SPK-RPD	Beryllium	7440-41-7	107.420		RPD			2.500	20.000		09/03/08
SPK-RPD	Calcium	7440-70-2	61.000		RPD			56.471	20.000 *		09/03/08
SPK-RPD	Cadmium	7440-43-9	105.800		RPD			1.780	20.000		09/03/08
SPK-RPD	Cobalt	7440-48-4	101.000		RPD			1.961	20.000		09/03/08
SPK-RPD	Chromium	7440-47-3	103.200		RPD			2.771	20.000		09/03/08
SPK-RPD	Copper	7440-50-8	102.600		RPD			1.355	20.000		09/03/08
SPK-RPD	Iron	7439-89-6	102.200		RPD			2.321	20.000		09/03/08
SPK-RPD	Potassium	7440-09-7	110.250		RPD			0.637	20.000		09/03/08
SPK-RPD	Magnesium	7439-95-4	88.000		RPD			5.848	20.000		09/03/08
SPK-RPD	Manganese	7439-96-5	104.100		RPD			2.841	20.000		09/03/08
SPK-RPD	Sodium	7440-23-5	109.000		RPD			16.915	20.000		09/03/08
SPK-RPD	Nickel	7440-02-0	103.120		RPD			2.206	20.000		09/03/08
SPK-RPD	Antimony	7440-36-0	111.800		RPD			0.802	20.000		09/03/08
SPK-RPD	Strontium	7440-24-6	102.860		RPD			2.249	20.000		09/03/08
SPK-RPD	Vanadium	7440-62-2	100.060		RPD			2.662	20.000		09/03/08
SPK-RPD	Zinc	7440-66-6	103.900		RPD			1.528	20.000		09/03/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20081513
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	09/03/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	09/03/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	09/03/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	09/03/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	09/03/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	09/03/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	09/03/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	09/03/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	09/03/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	09/03/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	09/03/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	09/03/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	09/03/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	09/03/08
BLANK	Antimony	7440-36-0	<56	n/a	ug/L					U	09/03/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	09/03/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	09/03/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	09/03/08
LCS	Silver	7440-22-4	1000	100.000	% Recov	80.000	120.000				09/03/08
LCS	Barium	7440-39-3	489.8	97.960	% Recov	80.000	120.000				09/03/08
LCS	Beryllium	7440-41-7	533.3	106.660	% Recov	80.000	120.000				09/03/08
LCS	Calcium	7440-70-2	1113	111.300	% Recov	80.000	120.000				09/03/08
LCS	Cadmium	7440-43-9	1060	106.000	% Recov	80.000	120.000				09/03/08
LCS	Cobalt	7440-48-4	1011	101.100	% Recov	80.000	120.000				09/03/08
LCS	Chromium	7440-47-3	1019	101.900	% Recov	80.000	120.000				09/03/08
LCS	Copper	7440-50-8	991.4	99.140	% Recov	80.000	120.000				09/03/08
LCS	Iron	7439-89-6	990.3	99.030	% Recov	80.000	120.000				09/03/08
LCS	Potassium	7440-09-7	10480	104.800	% Recov	80.000	120.000				09/03/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Inorganic**

SDG Number: WSCF20081513
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	1001	100.100	% Recov	80.000	120.000				09/03/08
LCS	Manganese	7439-96-5	1024	102.400	% Recov	80.000	120.000				09/03/08
LCS	Sodium	7440-23-5	1018	101.800	% Recov	80.000	120.000				09/03/08
LCS	Nickel	7440-02-0	1047	104.700	% Recov	80.000	120.000				09/03/08
LCS	Antimony	7440-36-0	1159	115.900	% Recov	80.000	120.000				09/03/08
LCS	Strontium	7440-24-6	492.4	98.480	% Recov	80.000	120.000				09/03/08
LCS	Vanadium	7440-62-2	991.8	99.180	% Recov	80.000	120.000				09/03/08
LCS	Zinc	7440-66-6	1034	103.400	% Recov	80.000	120.000				09/03/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081513
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Tc99 high matrix recovery due to high Tc99 sample activity. ICP-AES: MS/MSD recoveries for Calcium, Sodium and Magnesium are not valid because sample >4X spike amount B-flags used for sample results <5X MDL

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

This report may not be reproduced, except in its entirety without the written approval of the WSCF Laboratory.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-005
Sample # W08P003548
Client ID: B1VHL0 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Organic
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Trichloroethene	79-01-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		07/31/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/31/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08

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)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)
D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.(org)

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-005
Sample # W08P003548
Client ID: B1VHL0 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Organic
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/31/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08

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)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003551
Client ID: B1W238 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Organic
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Trichloroethene	79-01-6	LA-523-455	J	2.30	ug/L			1.00	1.0		07/31/08
Benzene	71-43-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Toluene	108-88-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Chlorobenzene	108-90-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,1-Dichloroethane	75-34-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Ethylbenzene	100-41-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,2-Dichloroethane	107-06-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Tetrachloroethene	127-18-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Xylenes (total)	1330-20-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Carbon tetrachloride	56-23-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Acetone	67-64-1	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Chloroform	67-66-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
1-Butanol	71-36-3	LA-523-455	U	< 100	ug/L			1.00	1.0e+02		07/31/08
Tetrahydrofuran	109-99-9	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/31/08
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08

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)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003551
Client ID: B1W238 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Organic
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Ethyl cyanide	107-12-0	LA-523-455	U	< 2.00	ug/L			1.00	2.0		07/31/08
1,4-Dichlorobenzene	106-46-7	LA-523-455	U	< 1.00	ug/L			1.00	1.0		07/31/08

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)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081513
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 07/21/08
Receive Date:07/21/08

Lab ID: W08P003548
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MS	1,1-Dichloroethene	75-35-4	21.940	87.800	% Recov	63.000	117.000				07/31/08
MS	Benzene	71-43-2	24.820	99.300	% Recov	75.000	129.000				07/31/08
MS	4-Bromofluorobenzene(Surr)	460-00-4	46.600	93.200	% Recov	75.000	125.000				07/31/08
MS	Chlorobenzene	108-90-7	25.280	101.000	% Recov	79.000	119.000				07/31/08
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.450	105.000	% Recov	75.000	125.000				07/31/08
MS	Toluene-d8(Surr)	2037-26-5	47.860	95.700	% Recov	75.000	125.000				07/31/08
MS	Toluene	108-88-3	24.740	99.000	% Recov	76.000	120.000				07/31/08
MS	Trichloroethene	79-01-6	20.510	82.000	% Recov	73.000	123.000				07/31/08
MSD	1,1-Dichloroethene	75-35-4	22.150	88.600	% Recov	63.000	117.000				07/31/08
MSD	Benzene	71-43-2	24.860	99.400	% Recov	75.000	129.000				07/31/08
MSD	4-Bromofluorobenzene(Surr)	460-00-4	47.740	95.500	% Recov	75.000	125.000				07/31/08
MSD	Chlorobenzene	108-90-7	25.620	102.000	% Recov	79.000	119.000				07/31/08
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.440	105.000	% Recov	75.000	125.000				07/31/08
MSD	Toluene-d8(Surr)	2037-26-5	47.820	95.600	% Recov	75.000	125.000				07/31/08
MSD	Toluene	108-88-3	24.660	98.600	% Recov	76.000	120.000				07/31/08
MSD	Trichloroethene	79-01-6	19.960	79.800	% Recov	73.000	123.000				07/31/08
SPK-RPD	1,1-Dichloroethene	75-35-4	88.600		RPD			0.907	20.000		07/31/08
SPK-RPD	Benzene	71-43-2	99.400		RPD			0.101	20.000		07/31/08
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	95.500		RPD			2.438	20.000		07/31/08
SPK-RPD	Chlorobenzene	108-90-7	102.000		RPD			0.985	20.000		07/31/08
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	105.000		RPD			0.000	20.000		07/31/08
SPK-RPD	Toluene-d8(Surr)	2037-26-5	95.600		RPD			0.105	20.000		07/31/08
SPK-RPD	Toluene	108-88-3	98.600		RPD			0.405	20.000		07/31/08
SPK-RPD	Trichloroethene	79-01-6	79.800		RPD			2.719	20.000		07/31/08
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.430	94.900	% Recov	75.000	125.000				07/31/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.090	104.000	% Recov	75.000	125.000				07/31/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20081513
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date: 07/21/08
Receive Date:07/21/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SURR	Toluene-d8(Surr)	2037-26-5	48.780	97.600	% Recov	75.000	125.000				07/31/08
Lab ID: W08P003551											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	47.610	95.200	% Recov	75.000	125.000				07/31/08
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.680	105.000	% Recov	75.000	125.000				07/31/08
SURR	Toluene-d8(Surr)	2037-26-5	48.150	96.300	% Recov	75.000	125.000				07/31/08
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1,4-Dichlorobenzene	106-46-7	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/L					U	07/30/08
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/L					U	07/30/08
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	47.100	94.200	% Recov	75.000	125.000				07/30/08
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/L					U	07/30/08
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/L					U	07/30/08
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	53.120	106.000	% Recov	75.000	125.000				07/30/08
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Ethyl cyanide	107-12-0	< 2.0	n/a	ug/L					U	07/30/08
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/L					U	07/30/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20081513
Matrix: WATER
Test: VOA Ground Water Protection

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/L	0.000	5.000			U	07/30/08
BLANK	Tetrahydrofuran	109-99-9	< 2.0	n/a	ug/L					U	07/30/08
BLANK	Toluene-d8(Surr)	2037-26-5	47.550	95.100	% Recov	75.000	125.000				07/30/08
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/L					U	07/30/08
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/L					U	07/30/08
LCS	1,1-Dichloroethene	75-35-4	21.760	87.000	% Recov	75.000	125.000				07/31/08
LCS	Benzene	71-43-2	24.040	96.200	% Recov	75.000	125.000				07/31/08
LCS	4-Bromofluorobenzene(Surr)	460-00-4	48.240	96.500	% Recov	75.000	125.000				07/31/08
LCS	Chlorobenzene	108-90-7	24.250	97.000	% Recov	75.000	125.000				07/31/08
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	52.120	104.000	% Recov	75.000	125.000				07/31/08
LCS	Toluene-d8(Surr)	2037-26-5	48.440	96.900	% Recov	75.000	125.000				07/31/08
LCS	Toluene	108-88-3	23.750	95.000	% Recov	75.000	125.000				07/31/08
LCS	Trichloroethene	79-01-6	19.410	77.600	% Recov	75.000	125.000				07/31/08

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: I08-047
Sample # W08P003549
Client ID: B1W1T1 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Radiochemistry
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-5.00	pCi/L	+-5.00	pCi/L	1.00	0.81		08/01/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		98.8	Percent			1.00	0.0		08/01/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		510	pCi/L	+-184	pCi/L	1.00	2.2e+02		08/04/08

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)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003551
Client ID: B1W238 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Radiochemistry
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415		1.80	pCi/L	+-1.19	pCi/L	1.00	1.6		08/22/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		11.0	pCi/L	+-1.87*	pCi/L	1.00	1.7		08/19/08
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421		32.0	pCi/L	+-7.68	pCi/L	1.00	6.3		08/08/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		1.50e+05	pCi/L	+-3.00e+04	pCi/L	1.00	2.2e+02		08/04/08

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)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003552
Client ID: B1W260 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Radiochemistry
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.630	pCi/L	+-0.970	pCi/L	1.00	1.6		08/22/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		8.80	pCi/L	+-1.67	pCi/L	1.00	1.7		08/19/08
Tritium by Liq Sct column prep											
Tritium	10028-17-8	LA-508-421		2.10e+05	pCi/L	+-4.20e+04	pCi/L	1.00	2.2e+02		08/04/08

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)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

D - Analyte was identified at a secondary dilution factor(inorg)
N - Spike sample recovery is outside control limits.(inorg)
U - Analyzed for but not detected above limiting criteria.(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: I08-047
Sample # W08P003553
Client ID: B1W1R3 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Radiochemistry
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-7.00	pCi/L	+-7.00	pCi/L	1.00	0.86		08/01/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		93.1	Percent			1.00	0.0		08/01/08

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)
J - Analyte < lowest calibration but >= MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-007
Sample # W08P003554
Client ID: B1W258 PNNL-GPP WSCF

Matrix: WATER

Group #: WSCF20081513
Department: Radiochemistry
Sampled: 07/21/08
Received: 07/21/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha on Alpha Plateau											
Gross alpha on alpha plateau	12587-46-1	LA-508-415	U	0.830	pCi/L	+-0.946	pCi/L	1.00	1.5		08/22/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		9.60	pCi/L	+-1.73	pCi/L	1.00	1.6		08/19/08
TC99 by Liquid Scin.											
Tc-99 by Liquid Scin.	14133-76-7	LA-508-421	U	-2.20	pCi/L	+-3.83	pCi/L	1.00	6.3		08/08/08

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)
J - Analyte < lowest calibration but > = MDL.(org)
U - Analyzed for but not detected above limiting criteria(inorg)

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

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

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081513
Matrix: WATER
Test: Gross Alpha on Alpha Plateau

Sample Date: 07/21/08
Receive Date:07/21/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003551											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	1.8		RPD			0.000	20.000		08/22/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-2.7E-01	n/a	pCi/L	-100.000	100.000				08/22/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	32.4	83.634	% Recov	80.000	120.000				08/22/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081513
Matrix: WATER
Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 07/21/08
Receive Date:07/21/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003551											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	1.3e+01		RPD			16.667	20.000		08/19/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U2.7E-02	n/a	pCi/L	-10.000	10.000				08/19/08
LCS	Gross beta	12587-47-2	122	108.734	% Recov	80.000	120.000				08/19/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20081513
Matrix: WATER
Test: Strontium 89/90

Sample Date: 07/21/08
Receive Date:07/21/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003549											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	95.5	95.500	% Recov	30.000	105.000				08/01/08
DUP	Strontium-89/90	SR-RAD	U-4.7		RPD			n/a	20.000		08/01/08
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	94.8	94.800	% Recov	30.000	105.000				08/01/08
BLANK	Strontium-89/90	10098-97-2	U-3.4	n/a	pCi/L	-10.000	100.000				08/01/08
LCS	Sr-85 Tracer by Beta Counting	SR85	91.8	91.800	% Recov	30.000	105.000				08/01/08
LCS	Strontium-89/90	10098-97-2	147.	105.885	% Recov	80.000	120.000				08/01/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081513
Matrix: WATER
Test: TC99 by Liquid Scin.

Sample Date: 07/15/08
Receive Date:07/15/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003525											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tc-99 by Liquid Scin.	14133-76-7	1.8E+04		RPD			0.000	20.000		08/08/08
MS	Tc-99 by Liquid Scin.	14133-76-7	1332.8	177.234	% Recov	75.000	125.000			*	08/08/08
BATCH QC											
BLANK	Tc-99 by Liquid Scin.	14133-76-7	U-3.5	n/a	pCi/L	-10.000	10.000				08/08/08
LCS	Tc-99 by Liquid Scin.	14133-76-7	201	106.858	% Recov	80.000	120.000				08/08/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Radiochemistry**

SDG Number: WSCF20081513
Matrix: WATER
Test: Tritium by Liq Sct column prep

Sample Date: 07/17/08
Receive Date:07/17/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P003543											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Tritium	10028-17-8	2.0E+03		RPD			0.000	20.000		08/04/08
MS	Tritium	10028-17-8	24510	95.318	% Recov	75.000	125.000				08/04/08
BATCH QC											
BLANK	Tritium	10028-17-8	U-2.7E+01	n/a	pCi/L	-10.000	1000.000				08/04/08
LCS	Tritium	10028-17-8	2870.0	84.204	% Recov	80.000	120.000				08/04/08

WSCF
ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20081513
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Tc99 high matrix recovery due to high Tc99 sample activity. ICP-AES: MS/MSD recoveries for Calcium, Sodium and Magnesium are not valid because sample >4X spike amount B-flags used for sample results <5X MDL

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

This report may not be reproduced, except in its entirety without the written approval of the WSCF Laboratory.

M4W41-SLF-08-956

ATTACHMENT 4

SAMPLE RECEIPT INFORMATION

Consisting of 8 pages
Including cover page

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

File

ACKNOWLEDGMENT OF SAMPLES RECEIVED

08/20/08

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20081513

Revised H3 added to W08P003550

The following samples were received from you on 07/21/08. 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
W08P003548	B1VHL0	PNNL-GPP @VOA-GPP	Water	07/21/0
W08P003549	B1W1T1	PNNL-GPP @H3-33 @SR89_90	Water	07/21/0
W08P003550	B1W237	PNNL-GPP @GPP6010	Water	07/21/0
W08P003551	B1W238	PNNL-GPP @AB-32 @ALPHA @GPP6010 @H3-33 @IC-30 @TC99-30 @VOA-GPP	Water	07/21/0
W08P003552	B1W260	PNNL-GPP @AB-32 @ALPHA @H3-33 @IC-30	Water	07/21/0
W08P003553	B1W1R3	PNNL-GPP @SR89_90	Water	07/21/0
W08P003554	B1W258	PNNL-GPP @AB-32 @ALPHA @IC-30 @TC99-30	Water	07/21/0

Test Acronym Description

Test Acronym	Description
@AB-32	Gross Alpha/Gross Beta (AB32)
@ALPHA	Gross Alpha on Alpha Plateau
@GPP6010	ICP Metals Analysis, Grd H20 P
@H3-33	Tritium by Liq Sct column prep
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90
@TC99-30	TC99 by Liquid Scin.
@VOA-GPP	VOA Ground Water Protection

FLUOR HANFORD

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

08/20/08 20081513

W08-005-477

Collector: D. Woehle	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-506-16	Ice Chest No.: GWS-010 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
B1VHL0 W08	P003548	W	7/21/08	1203	1x20-mL P	Activity Scan	None
B1VHL0	↓	W	↓	↓	4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woehle			1410 JUL 21 2008				1410 JUL 21 2008
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

I08-047-8

Collector D. Woehle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. I08-047	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title 100KR4IAM(1/2), JULY 2008	HWF-N-50646	**Ice Chest No.** GWS-010 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol CERCLA	**Priority:** 30 Days **PRIORITY**	**Offsite Property No.**

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
100 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W1T1	3549	W	7/21/08	1311	1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2
B1W1T1	↓	W	↓	↓	1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woehle			JUL 21 2008 1410	TA Fitzgerald			JUL 21 2008 1410
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

S08-007-6

Page 1 of 1

Collector D. Woehle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-007	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, JULY 2008	HWF-N-506-L	**Ice Chest No.** 6W5010 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 30 Days **PRIORITY**	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W237 (F)	3550	W	7/21/08	1208	1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1W238	3551	W			4x40-mL aGs*	8260_VOA_GCMS: List-2 (25)	HCl or H2SO4 to pH <2 Cool~4C
B1W238		W			1x500-mL G/P	6010_METALS_ICP: List-3 (18)	HNO3 to pH <2
B1W238		W			1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1W238		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1W238		W			1x1000-mL G/P	TC99_3MDSK_LSC: Tc-99 (1)	HCl to pH <2
B1W238		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woehle			1410 JUL 21 2008				1510 JUL 21 2008
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

S08-007-28

Collector D. Woehle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-007	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV JULY 2008	HNF-N-5816	**Ice Chest No.** GW5 010 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 30 Days **PRIORITY**	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W260	3552	W	7/21/08	1109	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1W260		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1W260		W			1x250-mL G	TRITIUM_EIE_LSC: Tritium (1)	None

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woehle			JUL 21 2008 1410				JUL 21 2008 1410
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

C.O.C. # **I08-047-60**

Page 1 of 1

Collector D. Woehle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. I08-047	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title 100KR4IAM(1/2) JULY 2008	HWF-N-SOL-16	**Ice Chest No.** 6WS-010 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol CERCLA	**Priority:** 30 Days **PRIORITY**	**Offsite Property No.**

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

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☑ No ☐
100 Area Generator Knowledge Information Form applies.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W1R3	W0W355	W	7/21/08	1109	1x1-L G/P	Strontium-89,90 -- Total Sr	HNO3 to pH <2

ICED

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D. Woehle			1410 JUL 21 2008	TA PNA 21/11			1410 JUL 21 2008
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

C.O.C. # **S08-007-24**

Collector D. Woehle	**Contact/Requester** Steve Trent	**Telephone No.** 509-373-5869 **MSIN** **FAX**
SAF No. S08-007	**Sampling Origin** Hanford Site	**Purchase Order/Charge Code**
Project Title SURV, JULY 2008	HWF-W-S06-16	**Ice Chest No.** LWS-010 **Temp.**
Shipped To (Lab) Waste Sampling & Characterization	**Method of Shipment** Govt. Vehicle	**Bill of Lading/Air Bill No.**
Protocol SURV	**Priority:** 30 Days **PRIORITY**	**Offsite Property No.**

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

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1W258	3554	W	7/21/08	1035	1x500-mL P	300.0_ANIONS_IC: List-1 (5)	Cool~4C
B1W258		W			1x500-mL G/P	ALPHABETA_GPC: Alpha discrete + Beta (2); ALPHABETA_GPC: Alpha discrete + Beta (2)	HNO3 to pH <2
B1W258		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
D. Woehle	D. Woehle	1410 JUL 21 2008	TA Rizzini		1410 JUL 21 2008
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