

RECEIVED DECEMBER 3, 2008

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

FLUOR[®]

M4W41-SLF-08-1270

December 2, 2008

Mr. M. A. Neely, Manager
Analytical Services
CH2M HILL Plateau Remediation Contract
1933 Jadwin MSIN B6-06
Richland, WA 99352

Dear Mike:

RDR RESULTS FOR SAMPLE DELIVERY GROUP WSCF20082218

- Reference:
- (1) Memorandum of Agreement #MOA-FH-CHPRC-2008, Rev. 0, for the Performance & Payment of Services, dated October 1, 2008
 - (2) HNF-SD-CD-QAPP-017, Rev. 9, Waste Sampling & Characterization Facility Quality Assurance Plan

On November 6, 2008, RDRs R5262, R5263, R5265, R5269, R5271 and R5273 were received by the WSCF Laboratory. This letter contains the RDR information for sample delivery group WSCF20082218:

- RDRs R5262, R5263, R5265, R5269, R5271 and R5273 (Attachment 1)
- Analytical Results (Attachment 2)
- Sample Receipt Acknowledgement (Attachment 3)

In reviewing the inorganic chemistry results for anions, the reanalysis data showed no significant differences from the originally reported results.

For metal sample B1WKC6, relatively minor changes were noted: Chromium from <13 U to 20.7 B, Iron 238 to 686, Manganese 5.9 B to 10.9 B, and Vanadium 27.8 B to 15.6 B.

B1WK69 showed minor changes with results moving from B flagged to U and U to B. Sodium moved from 280 to <51 which was the most significant difference. Calcium moved from 234 B to 111 B, Iron moved 70.3 B to <25 U, Magnesium moved from 66.9 B to <50 U, and Potassium moved from <170 U to 185 B.

Owing to the high levels of many of the above analytes in actual samples, we believe that some of the above results may be due to carryover. We have since adjusted the rinse time between samples from 90 seconds to 120 seconds.

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EDMC

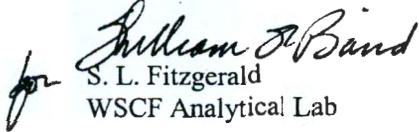
M. A. Neely (CHPRC)
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One anomaly was noted for the radiochemistry reanalysis. Sample B1WYD1 was initially reported at 28 pCi/L Sr-89/90. Reanalysis provided a less than detectable result, with a MDA of 1.1 pCi/L. The cause of this is not known. All other results compared well with the initial data.

Please accept our apology for any inconvenience this may have created. If you have any questions, don't hesitate to call on Pauline Mix, telephone 372-1488, for assistance.

Very truly yours,


S. L. Fitzgerald
WSCF Analytical Lab

SLF/grf

Attachments 3

cc:	w/Attachments			
	T. F. Dale	S3-30	J. E. Trechter	S3-30
	A. J. Kopriva	S3-30	S. J. Trent	B6-06
	H. K. Mezmarich	S3-30	File/LB	
	P. D. Mix	S3-30		

M4W41-SLF-08-1270

ATTACHMENT 1

RDRs R5262, R5263, R5265, R5269, R5271 AND R5273

Consisting of 7 pages
Including cover page

11/06/2008
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

**Waste Sampling &
600 AREA Hanford, MSIN
Richland, WA 99352**

Battelle PNNL Order Number: 081106WSCF-R5262

Sample Delivery Group: WSCF20081609 (WSCF20082218)

Special Instructions None

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
W08P003661	B1VLT4	Reanalysis	15/15	BETA_GPC
W08P003657	B1VLT0	Reanalysis	15/15	BETA_GPC
W08P003661	B1VLT4	Reanalysis	15/15	ALPHA_GPC
W08P003657	B1VLT0	Reanalysis	15/15	ALPHA_GPC

WSCF Response

Samples were reanalyzed, and report and EDD file submitted to client.

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352
C/O Mr. Mike Neely

11/06/2008
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

**Waste Sampling &
600 AREA Hanford, MSIN
Richland, WA 99352**

Battelle PNNL Order Number: 081106WSCF-R5263

Sample Delivery Group: WSCF20081691 (**WSCF20082218**)

Special Instructions Please provide raw data on the anion rechecks.

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
W08P003847	B1WKC8	Recheck	15/15	300.0_ANIONS_IC
W08P003845	B1WKC6	Recheck	15/15	300.0_ANIONS_IC
W08P003845	B1WKC6	Reanalysis	15/15	6010_METALS_ICP

WSCF Response

- **300.0 Anions – Samples were re-checked and no anomalies identified**
- **6010 Metals – Sample was reanalyzed, and report and EDD file submitted to client.**

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352
C/O Mr. Mike Neely

11/06/2008
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

**Waste Sampling &
600 AREA Hanford, MSIN
Richland, WA 99352**

Battelle PNNL Order Number: 081106WSCF-R5265

Sample Delivery Group: WSCF20081765 (**WSCF20082218**)

Special Instructions None

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
W08P004054	B1WK69	Reanalysis	15/15	6010_METALS_ICP
W08P004054	B1WK69	Reanalysis	15/15	6010_METALS_ICP
W08P004054	B1WK69	Reanalysis	15/15	6010_METALS_ICP

WSCF Response

Sample was reanalyzed, and report and EDD file submitted to client.

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352
C/O Mr. Mike Neely

11/06/2008
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

**Waste Sampling &
600 AREA Hanford, MSIN
Richland, WA 99352**

Battelle PNNL Order Number: 081106WSCF-R5269

Sample Delivery Group: WSCF20081907 (WSCF20082218)

Special Instructions None

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
W08P004320	B1X1C3	Reanalysis	15/15	BETA_GPC
W08P004319	B1X1C2	Reanalysis	15/15	BETA_GPC

WSCF Response

Samples were reanalyzed, and report and EDD file submitted to client.

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352
C/O Mr. Mike Neely

11/06/2008
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

**Waste Sampling &
600 AREA Hanford, MSIN
Richland, WA 99352**

Battelle PNNL Order Number: 081106WSCF-R5271

Sample Delivery Group: WSCF20082000 (**WSCF20082218**)

Special Instructions None

Samples(s)

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
W08P004427	B1WYD1	Reanalysis	15/15	SRTOT_SEP_PRECIP
W08P004429	B1WYC5	Reanalysis	15/15	SRTOT_SEP_PRECIP

WSCF Response

Samples were reanalyzed, and report and EDD file submitted to client.

Deliver Report Results to: CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352
C/O Mr. Mike Neely

11/06/2008
RECHECK, RECOUNT, OR REANALYSIS ORDER
CONTRACT NO MW6-SBB-A19981

**Waste Sampling &
600 AREA Hanford, MSIN
Richland, WA 99352**

Battelle PNNL Order Number: 081106WSCF-R5273

Sample Delivery Group: WSCF20082064 (**WSCF20082218**)

Special Instructions None

Samples(s).

Lab Sample ID	PNNL Sample	Action	TAT	METHOD_NAME:
W08P004499	B1WRL8	Reanalysis	15/15	300.0_ANIONS_IC

WSCF Response

Sample was reanalyzed, and report and EDD file submitted to client.

Deliver Report Results to:CH2M Hill Plateau Remediation Company

P.O. Box 1600
Mail Stop - B6-06
Richland, WA 99352
C/O Mr. Mike Neely

M4W41-SLF-08-1270

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 20 pages
Including cover page

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-008
Sample # W08P004707
Client ID: B1WKC6

6010 RERUN
 WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Inorganic
Sampled: 08/10/08
Received: 08/11/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP Metals Analysis, Grd H2O P Prep											
ICP Metals Analysis, Grd H2O P											
Iron	7439-89-6	LA-505-411		686	ug/L			1.00	25		11/13/08
Magnesium	7439-95-4	LA-505-411		8.38e+03	ug/L			1.00	50		11/13/08
Manganese	7439-96-5	LA-505-411	B	10.9	ug/L			1.00	4.0		11/13/08
Nickel	7440-02-0	LA-505-411	B	13.1	ug/L			1.00	4.0		11/13/08
Potassium	7440-09-7	LA-505-411		3.67e+03	ug/L			1.00	1.7e+02		11/13/08
Silver	7440-22-4	LA-505-411	U	< 5.00	ug/L			1.00	5.0		11/13/08
Sodium	7440-23-5	LA-505-411		1.92e+04	ug/L			1.00	51		11/13/08
Antimony	7440-36-0	LA-505-411	U	< 56.0	ug/L			1.00	56		11/13/08
Barium	7440-39-3	LA-505-411		28.7	ug/L			1.00	4.0		11/13/08
Cadmium	7440-43-9	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/13/08
Chromium	7440-47-3	LA-505-411	B	20.7	ug/L			1.00	13		11/13/08
Cobalt	7440-48-4	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/13/08
Copper	7440-50-8	LA-505-411	U	< 6.00	ug/L			1.00	6.0		11/13/08
Vanadium	7440-62-2	LA-505-411	B	15.6	ug/L			1.00	12		11/13/08
Zinc	7440-66-6	LA-505-411	U	< 9.00	ug/L			1.00	9.0		11/13/08
Calcium	7440-70-2	LA-505-411		2.74e+04	ug/L			1.00	73		11/13/08
Strontium	7440-24-6	LA-505-411		168	ug/L			1.00	4.0		11/13/08
Beryllium	7440-41-7	LA-505-411	U	< 4.00	ug/L			1.00	4.0		11/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: G08-009
Sample # W08P004713
Client ID: B1WRL8

IC RERUN
WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Inorganic
Sampled: 09/24/08
Received: 09/24/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 0.0464	mg/L			2.00	0.046		11/10/08
Chloride	16887-00-6	LA-533-410	DU	< 0.0938	mg/L			2.00	0.094		11/10/08
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.0256	mg/L			2.00	0.026		11/10/08
Nitrogen in Nitrate	NO3-N	LA-533-410	D	0.340	mg/L			2.00	0.024		11/10/08
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 0.121	mg/L			2.00	0.12		11/10/08
Sulfate	14808-79-8	LA-533-410	DU	< 0.264	mg/L			2.00	0.26		11/10/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

* - Indicates results that have NOT been validated;

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

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

O - Analyte was identified at a secondary dilution factor (inorg)

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082218
 Matrix: WATER
 Test: Anions by Ion Chromatography

Sample Date: 09/24/08
 Receive Date: 09/24/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004713											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Chloride	16887-00-6	<9.38e-2		RPD			n/a	20.000	U	11/10/08
DUP	Fluoride	16984-48-8	<4.64e-2		RPD			n/a	20.000	U	11/10/08
DUP	Nitrogen in Nitrite	NO2-N	<2.56e-2		RPD			n/a	20.000	U	11/10/08
DUP	Nitrogen in Nitrate	NO3-N	0.3465		RPD			1.864	20.000		11/10/08
DUP	Phosphate (P) by IC	PO4-P	<0.1212		RPD			n/a	20.000	U	11/10/08
DUP	Sulfate	14808-79-8	<0.264		RPD			n/a	20.000	U	11/10/08
MS	Chloride	16887-00-6	0.9558	97.036	% Recov	80.000	120.000				11/10/08
MS	Fluoride	16984-48-8	0.47185	93.436	% Recov	80.000	120.000				11/10/08
MS	Nitrogen in Nitrite	NO2-N	0.4461	90.671	% Recov	80.000	120.000				11/10/08
MS	Nitrogen in Nitrate	NO3-N	0.4379	98.404	% Recov	80.000	120.000				11/10/08
MS	Phosphate (P) by IC	PO4-P	0.9274	96.907	% Recov	80.000	120.000				11/10/08
MS	Sulfate	14808-79-8	1.86255	94.068	% Recov	80.000	120.000				11/10/08
MSD	Chloride	16887-00-6	0.9589	97.350	% Recov	80.000	120.000				11/10/08
MSD	Fluoride	16984-48-8	0.46965	93.000	% Recov	80.000	120.000				11/10/08
MSD	Nitrogen in Nitrite	NO2-N	0.4571	92.907	% Recov	80.000	120.000				11/10/08
MSD	Nitrogen in Nitrate	NO3-N	0.4474	100.539	% Recov	80.000	120.000				11/10/08
MSD	Phosphate (P) by IC	PO4-P	0.8995	93.992	% Recov	80.000	120.000				11/10/08
MSD	Sulfate	14808-79-8	1.91045	96.487	% Recov	80.000	120.000				11/10/08
SPK-RPD	Chloride	16887-00-6	97.350		RPD			0.323	20.000		11/10/08
SPK-RPD	Fluoride	16984-48-8	93.000		RPD			0.468	20.000		11/10/08
SPK-RPD	Nitrogen in Nitrite	NO2-N	92.907		RPD			2.436	20.000		11/10/08
SPK-RPD	Nitrogen in Nitrate	NO3-N	100.539		RPD			2.146	20.000		11/10/08
SPK-RPD	Phosphate (P) by IC	PO4-P	93.992		RPD			3.054	20.000		11/10/08
SPK-RPD	Sulfate	14808-79-8	96.487		RPD			2.539	20.000		11/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082218
 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
BATCH QC											
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/10/08
BLANK	Chloride	16887-00-6	<4.69e-2	n/a	mg/L	0.000	0.030			U	11/10/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/10/08
BLANK	Fluoride	16984-48-8	<2.32e-2	n/a	mg/L	0.000	0.030			U	11/10/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/10/08
BLANK	Nitrogen in Nitrite	NO2-N	<1.28e-2	n/a	mg/L	0.000	0.020			U	11/10/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/10/08
BLANK	Nitrogen in Nitrate	NO3-N	<1.21e-2	n/a	mg/L	0.000	0.040			U	11/10/08
BLANK	Phosphate (P) by IC	PO4-P	<6.06e-2	n/a	mg/L	0.000	0.200			U	11/10/08
BLANK	Phosphate (P) by IC	PO4-P	<6.06e-2	n/a	mg/L	0.000	0.200			U	11/10/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/10/08
BLANK	Sulfate	14808-79-8	<0.132	n/a	mg/L	0.000	0.200			U	11/10/08
LCS	Chloride	16887-00-6	193.9805	97.488	% Recov	80.000	120.000				11/10/08
LCS	Fluoride	16984-48-8	104.0234	101.984	% Recov	80.000	120.000				11/10/08
LCS	Nitrogen in Nitrite	NO2-N	95.997	96.578	% Recov	80.000	120.000				11/10/08
LCS	Nitrogen in Nitrate	NO3-N	90.9739	101.195	% Recov	80.000	120.000				11/10/08
LCS	Phosphate (P) by IC	PO4-P	192.9537	99.769	% Recov	80.000	120.000				11/10/08
LCS	Sulfate	14808-79-8	392.1665	98.042	% Recov	80.000	120.000				11/10/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082218
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H20 P

Sample Date: 08/10/08
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004707											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Silver	7440-22-4	967	96.700	% Recov	75.000	125.000				11/13/08
MS	Barium	7440-39-3	466.1	93.220	% Recov	75.000	125.000				11/13/08
MS	Beryllium	7440-41-7	521.3	104.260	% Recov	75.000	125.000				11/13/08
MS	Calcium	7440-70-2	1190	119.000	% Recov	75.000	125.000				11/13/08
MS	Cadmium	7440-43-9	1013	101.300	% Recov	75.000	125.000				11/13/08
MS	Cobalt	7440-48-4	982	98.200	% Recov	75.000	125.000				11/13/08
MS	Chromium	7440-47-3	981.3	98.130	% Recov	75.000	125.000				11/13/08
MS	Copper	7440-50-8	958.8	95.880	% Recov	75.000	125.000				11/13/08
MS	Iron	7439-89-6	943	94.300	% Recov	75.000	125.000				11/13/08
MS	Potassium	7440-09-7	10339	103.390	% Recov	75.000	125.000				11/13/08
MS	Magnesium	7439-95-4	1275	127.500	% Recov	75.000	125.000				11/13/08
MS	Manganese	7439-96-5	991.1	99.110	% Recov	75.000	125.000				11/13/08
MS	Sodium	7440-23-5	1750	175.000	% Recov	75.000	125.000				11/13/08
MS	Nickel	7440-02-0	991.9	99.190	% Recov	75.000	125.000				11/13/08
MS	Antimony	7440-36-0	943.3	94.330	% Recov	75.000	125.000				11/13/08
MS	Strontium	7440-24-6	506.3	101.260	% Recov	75.000	125.000				11/13/08
MS	Vanadium	7440-62-2	979.7	97.970	% Recov	75.000	125.000				11/13/08
MS	Zinc	7440-66-6	1020	102.000	% Recov	75.000	125.000				11/13/08
MSD	Silver	7440-22-4	979.6	97.960	% Recov	75.000	125.000				11/13/08
MSD	Barium	7440-39-3	469.6	93.920	% Recov	75.000	125.000				11/13/08
MSD	Beryllium	7440-41-7	521.2	104.240	% Recov	75.000	125.000				11/13/08
MSD	Calcium	7440-70-2	380	38.000	% Recov	75.000	125.000				11/13/08
MSD	Cadmium	7440-43-9	1017	101.700	% Recov	75.000	125.000				11/13/08
MSD	Cobalt	7440-48-4	990.9	99.090	% Recov	75.000	125.000				11/13/08
MSD	Chromium	7440-47-3	997.3	99.730	% Recov	75.000	125.000				11/13/08
MSD	Copper	7440-50-8	983.4	98.340	% Recov	75.000	125.000				11/13/08

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082218
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date: 08/10/08
 Receive Date: 08/11/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	Iron	7439-89-6	961	96.100	% Recov	75.000	125.000				11/13/08
MSD	Potassium	7440-09-7	10399	103.990	% Recov	75.000	125.000				11/13/08
MSD	Magnesium	7439-95-4	1362	136.200	% Recov	75.000	125.000				11/13/08
MSD	Manganese	7439-96-5	993.1	99.310	% Recov	75.000	125.000				11/13/08
MSD	Sodium	7440-23-5	1920	192.000	% Recov	75.000	125.000				11/13/08
MSD	Nickel	7440-02-0	1000.9	100.090	% Recov	75.000	125.000				11/13/08
MSD	Antimony	7440-36-0	959.5	95.950	% Recov	75.000	125.000				11/13/08
MSD	Strontium	7440-24-6	505	101.000	% Recov	75.000	125.000				11/13/08
MSD	Vanadium	7440-62-2	993.4	99.340	% Recov	75.000	125.000				11/13/08
MSD	Zinc	7440-66-6	1035	103.500	% Recov	75.000	125.000				11/13/08
SPK-RPD	Silver	7440-22-4	97.960		RPD			1.295	20.000		11/13/08
SPK-RPD	Barium	7440-39-3	93.920		RPD			0.748	20.000		11/13/08
SPK-RPD	Beryllium	7440-41-7	104.240		RPD			0.019	20.000		11/13/08
SPK-RPD	Calcium	7440-70-2	38.000		RPD			103.185	20.000		11/13/08
SPK-RPD	Cadmium	7440-43-9	101.700		RPD			0.394	20.000		11/13/08
SPK-RPD	Cobalt	7440-48-4	99.090		RPD			0.902	20.000		11/13/08
SPK-RPD	Chromium	7440-47-3	99.730		RPD			1.617	20.000		11/13/08
SPK-RPD	Copper	7440-50-8	98.340		RPD			2.533	20.000		11/13/08
SPK-RPD	Iron	7439-89-6	96.100		RPD			1.891	20.000		11/13/08
SPK-RPD	Potassium	7440-09-7	103.990		RPD			0.579	20.000		11/13/08
SPK-RPD	Magnesium	7439-95-4	136.200		RPD			6.598	20.000		11/13/08
SPK-RPD	Manganese	7439-96-5	99.310		RPD			0.202	20.000		11/13/08
SPK-RPD	Sodium	7440-23-5	192.000		RPD			9.264	20.000		11/13/08
SPK-RPD	Nickel	7440-02-0	100.090		RPD			0.903	20.000		11/13/08
SPK-RPD	Antimony	7440-36-0	95.950		RPD			1.703	20.000		11/13/08
SPK-RPD	Strontium	7440-24-6	101.000		RPD			0.257	20.000		11/13/08
SPK-RPD	Vanadium	7440-62-2	99.340		RPD			1.389	20.000		11/13/08
SPK-RPD	Zinc	7440-66-6	103.500		RPD			1.460	20.000		11/13/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082218
 Matrix: WATER
 Test: ICP Metals Analysis, Grd H2O P

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BATCH QC											
BLANK	Silver	7440-22-4	<5	n/a	ug/L					U	11/13/08
BLANK	Barium	7440-39-3	<4	n/a	ug/L					U	11/13/08
BLANK	Beryllium	7440-41-7	<4	n/a	ug/L					U	11/13/08
BLANK	Calcium	7440-70-2	<73	n/a	ug/L					U	11/13/08
BLANK	Cadmium	7440-43-9	<4	n/a	ug/L					U	11/13/08
BLANK	Cobalt	7440-48-4	<4	n/a	ug/L					U	11/13/08
BLANK	Chromium	7440-47-3	<13	n/a	ug/L					U	11/13/08
BLANK	Copper	7440-50-8	<6	n/a	ug/L					U	11/13/08
BLANK	Iron	7439-89-6	<25	n/a	ug/L					U	11/13/08
BLANK	Potassium	7440-09-7	<170	n/a	ug/L					U	11/13/08
BLANK	Magnesium	7439-95-4	<50	n/a	ug/L					U	11/13/08
BLANK	Manganese	7439-96-5	<4	n/a	ug/L					U	11/13/08
BLANK	Sodium	7440-23-5	<51	n/a	ug/L					U	11/13/08
BLANK	Nickel	7440-02-0	<4	n/a	ug/L					U	11/13/08
BLANK	Antimony	7440-38-0	<56	n/a	ug/L					U	11/13/08
BLANK	Strontium	7440-24-6	<4	n/a	ug/L					U	11/13/08
BLANK	Vanadium	7440-62-2	<12	n/a	ug/L					U	11/13/08
BLANK	Zinc	7440-66-6	<9	n/a	ug/L					U	11/13/08
LCS	Silver	7440-22-4	926.8	92.680	% Recov	80.000	120.000				11/13/08
LCS	Barium	7440-39-3	450.9	90.180	% Recov	80.000	120.000				11/13/08
LCS	Beryllium	7440-41-7	512	102.400	% Recov	80.000	120.000				11/13/08
LCS	Calcium	7440-70-2	1047	104.700	% Recov	80.000	120.000				11/13/08
LCS	Cadmium	7440-43-9	1005	100.500	% Recov	80.000	120.000				11/13/08
LCS	Cobalt	7440-48-4	983.8	98.380	% Recov	80.000	120.000				11/13/08
LCS	Chromium	7440-47-3	961.9	96.190	% Recov	80.000	120.000				11/13/08
LCS	Copper	7440-50-8	964.2	96.420	% Recov	80.000	120.000				11/13/08
LCS	Iron	7439-89-6	974.5	97.450	% Recov	80.000	120.000				11/13/08
LCS	Potassium	7440-09-7	10320	103.200	% Recov	80.000	120.000				11/13/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20082218
Matrix: WATER
Test: ICP Metals Analysis, Grd H2O P

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	Magnesium	7439-95-4	974.3	97.430	% Recov	80.000	120.000				11/13/08
LCS	Manganese	7439-96-5	968.1	96.810	% Recov	80.000	120.000				11/13/08
LCS	Sodium	7440-23-5	1013	101.300	% Recov	80.000	120.000				11/13/08
LCS	Nickel	7440-02-0	994.2	99.420	% Recov	80.000	120.000				11/13/08
LCS	Antimony	7440-36-0	977.4	97.740	% Recov	80.000	120.000				11/13/08
LCS	Strontium	7440-24-6	483.5	96.700	% Recov	80.000	120.000				11/13/08
LCS	Vanadium	7440-62-2	946.6	94.660	% Recov	80.000	120.000				11/13/08
LCS	Zinc	7440-66-6	1008	100.800	% Recov	80.000	120.000				11/13/08

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent E6-35

Group #: WSCF20082218
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		ICP-AES: Sample results <5X MDL; "B" flag. Magnesium, sodium, and calcium sample results exceed spiking level by a factor of 4 so spike recoveries are not valid. Check standard used to ensure sodium and calcium linearity because sample results exceed calibration standard.

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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wgppc/5.2 Report#: WSCF20082218

Report Date: 25-nov-2008

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P004705
Client ID: B1VLT4

A&B RERUN
WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Radiochemistry
Sampled: 07/31/08
Received: 07/31/08

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		29.8	pCi/L	+ -5.39	pCi/L	1.00	3.1		11/24/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		8.85e+03	pCi/L	+ -885	pCi/L	1.00	3.5		11/23/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

Report WGPP/ver. 5.2

GPAP

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-006
Sample # W08P004706
Client ID: B1VLT0

A&B RERUN
WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Radiochemistry
Sampled: 07/31/08
Received: 07/31/08

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		26.8	pCi/L	+ -4.72	pCi/L	1.00	2.6		11/24/08
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		7.82e +03	pCi/L	+ -782	pCi/L	1.00	2.9		11/23/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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

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

D - Analyte was identified at a secondary dilution factor(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: W08-009
Sample # W08P004709
Client ID: B1X1C3

BETA RERUN
WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Radiochemistry
Sampled: 09/03/08
Received: 09/03/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		46.7	pCi/L	+6.07	pCi/L	1.00	3.3		11/23/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

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

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: W08-009
Sample # W08P004710
Client ID: B1X1C2

BETA RERUN
WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Radiochemistry
Sampled: 09/03/08
Received: 09/03/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross beta	12587-47-2	LA-508-415		49.9	pCi/L	+6.34	pCi/L	1.00	3.3		11/23/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

Report WGPP/ver. 5.2

GPAP

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-009
Sample # W08P004711
Client ID: B1WYD1

SR RERUN
WSCF

Matrix: WATER

Group #: WSCF20082218
Department: Radiochemistry
Sampled: 09/16/08
Received: 09/16/08

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	-0.770	pCi/L	+ -1.09	pCi/L	1.00	1.1		11/23/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		91.0	Percent			1.00	0.0		11/23/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

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

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

Report WGPP/ver. 5.2

GPAP

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent E6-35
SAF Number: S08-009
Sample # W08P004712
Client ID: B1WYC5

Group #: WSCF20082218
Department: Radiochemistry
Sampled: 09/16/08
Received: 09/16/08

SR RERUN
WSCF

Matrix: WATER

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	-1.70	pCi/L	+ -1.70	pCi/L	1.00	1.1		11/23/08
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		91.4	Percent			1.00	0.0		11/23/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

* - Indicates results that have NOT been validated;

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

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

D - Analyte was identified at a secondary dilution factor(inorg)

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

GPAP

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082218
 Matrix: WATER
 Test: Gross Alpha on Alpha Plateau

Sample Date: 07/31/08
 Receive Date: 07/31/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004705											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha on alpha plateau	12587-46-1	33.6		RPD			11.987	20.000		11/24/08
BATCH QC											
BLANK	Gross alpha on alpha plateau	12587-46-1-ap	U-.4	n/a	pCi/L	-100.000	100.000				11/24/08
LCS	Gross alpha on alpha plateau	12587-46-1-ap	66.7	94.744	% Recov	80.000	120.000				11/24/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082218
 Matrix: WATER
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 07/31/08
 Receive Date: 07/31/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004705											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross beta	12587-47-2	8.94E+03		RPD			1.012	20.000		11/23/08
BATCH QC											
BLANK	Gross beta	12587-47-2	U1.0	n/a	pCi/L	-10.000	10.000				11/23/08
LCS	Gross beta	12587-47-2	221	108.333	% Recov	80.000	120.000				11/23/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20082218
 Matrix: WATER
 Test: Strontium 89/90

Sample Date: 09/16/08
 Receive Date: 09/16/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08P004711											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	91.0	91.000	% Recov	30.000	105.000				11/23/08
Lab ID: W08P004712											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	91.4	91.400	% Recov	30.000	105.000				11/23/08
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	89.9	89.900	% Recov	30.000	105.000				11/23/08
BLANK	Strontium-89/90	10098-97-2	U-.95	n/a	pCi/L	-10.000	100.000				11/23/08
LCS	Sr-85 Tracer by Beta Counting	SR85	94.3	94.300	% Recov	30.000	105.000				11/23/08
LCS	Strontium-89/90	10098-97-2	100.2	100.200	% Recov	80.000	120.000				11/23/08

M4W41-SLF-08-1270

ATTACHMENT 4

SAMPLE RECEIPT ACKNOWLEDGEMENT

Consisting of 2 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

ACKNOWLEDGMENT OF SAMPLES RECEIVED

GPAP

Richland, WA 99352
Attn: Steve Trent E6-35

Customer Code: PNNL-GPP
PO#: 122543
Group#: 20082218

The following samples were received from you on 07/31/08. 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
W08P004705	B1VLT4	A&B RERUN @AB-32 @ALPHA	Water	07/31/08
W08P004706	B1VLT0	A&B RERUN @AB-32 @ALPHA	Water	07/31/08
W08P004707	B1WKC6	6010 RERUN @GPP6010	Water	08/10/08
W08P004708	B1WK69	6010 RERUN @GPP6010	Water	08/17/08
W08P004709	B1X1C3	BETA RERUN @AB-32	Water	09/03/08
W08P004710	B1X1C2	BETA RERUN @AB-32	Water	09/03/08
W08P004711	B1WYD1	SR RERUN @SR89_90	Water	09/16/08
W08P004712	B1WYC5	SR RERUN @SR89_90	Water	09/16/08
W08P004713	B1WRL8	IC RERUN @IC-30	Water	09/24/08

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
@IC-30	Anions by Ion Chromatography
@SR89_90	Strontium 89/90