

RECEIVED JUNE 30, 2008

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FLUOR**Memorandum**

M4W41-SLF-08-641

To: H. Hampt E6-35 Date: June 25, 2008

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

cc: w/Attachments

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

Subject: FINAL RESULTS FOR SAMPLE DELIVERY GROUP WSCF20080921 – SAF NUMBER F02-007

Reference: (1) Groundwater Protection Program-Letter of Instruction, FH-EIS-2003-MEM-001, October 31, 2002

(2) HNF-SD-CD-QAPP-017, Rev. 8, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF20080921:

- Cover sheet (Attachment 1)
- Narrative (Attachment 2)
- Issue Resolution Form (Attachment 3)
- Analytical Results (Attachment 4)
- Sample Receipt Information (Attachment 5)

SLF/grf

Attachments 5

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M4W41-SLF-08-641

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF NUMBER CROSS REFERENCE

Group#: WSCF20080921
Data Deliverable Date: 20-jun-2008
Data Deliverable: Cover Sheet

SAF#	Sample ID	WSCF#	Matrix
F02-007	B1VFD2	W08GR01186	OTHERSOL
	B1VFD2TCLP	W08GR01187	WATER
	B1VFD3	W08GR01188	OTHERSOL
	B1VFD3TCLP	W08GR01195	WATER
	B1VFD4	W08GR01189	OTHERSOL
	B1VFD4TCLP	W08GR01196	WATER
	B1VFD5	W08GR01190	OTHERSOL
	B1VFD5TCLP	W08GR01197	WATER
	B1VFD6	W08GR01191	OTHERSOL
	B1VFD6TCLP	W08GR01198	WATER
	B1VFD7	W08GR01192	OTHERSOL
	B1VFD7TCLP	W08GR01199	WATER
	B1VFD8	W08GR01193	OTHERSOL
	B1VFD8TCLP	W08GR01200	WATER
	B1VFD9	W08GR01194	OTHERSOL
	B1VFD9TCLP	W08GR01201	WATER

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ATTACHMENT 2

NARRATIVE

Consisting of 3 pages
Including cover page

Introduction

Eight S&GRP samples were received at the WSCF Laboratory on May 7, 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. Per instruction from Dana Widrig given on 6/25/2008, an unsigned Draft of an Issue Resolution Form (Date: 6-20-2008) documenting a missed regulatory hold time for the cyanide analysis is included as Attachment 3. 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.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 13 through 14, for a complete listing of approved analytical methods.

Inorganic Comments

Cyanide – The holding time requirement for this analysis was not met. See comment below. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 32 for QC details. Analytical Note(s):

- Missed Hold Time – Regulatory hold time was not met. Samples were collected and delivered to the WSCF Laboratory on May 7, 2008; however due to a large backlog of samples, the analysis could not occur until June 9, 2008 (these samples are resin samples and water samples were given priority). Per instruction from Dana Widrig given on 6/25/2008, an unsigned Draft of an Issue Resolution Form (Date: 6-20-2008) documenting this missed regulatory hold time for the cyanide analysis is included as Attachment 3.
- Matrix Spikes and Matrix Spike Duplicates analyzed on samples B1V2W1 (SDG 20081131, SAF F08-101) and B1VFD2 of this SDG.
- Batch QC (B1VFD2) - Matrix Spike and Matrix Spike Duplicate recoveries were less than established laboratory limits. Sample results were “N” flagged.
- Laboratory Control Sample recovery was slightly less than established laboratory limits.

All other QC controls are within the established limits.

ICP-MS Metals (TCLP Extraction – Chromium and Nickel) – The holding 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 page 33 for QC details. Analytical Note(s):

- Chromium sample results exceeded spiking levels by a factor of 4. Spike recoveries are not valid. Sample results were X flagged.

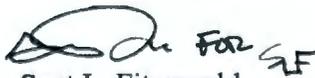
All other QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF’s radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 43 through 45 for QC details. Analytical Note(s):

- Gross Alpha – The RPD for the Duplicate analysis was greater than the laboratory requirement but the sample activity was low; therefore, the RPD evaluation criteria do not apply.
- U-233/U234, 235, 238 and 232 (tracer) – The RPD for the Duplicate analysis for the U-234 was greater than the laboratory requirement but the sample activity was low; therefore, the RPD evaluation criteria do not apply.
- 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



Andrew Kopriva
WSCF Client Services

M4W41-SLF-08-641

ATTACHMENT 3

ISSUE RESOLUTION FORM

Consisting of 2 pages
Including cover page

ISSUE RESOLUTION FORM

DRAFT

PNNL TRACKING NUMBER: 08-XXX

Date : **6-20-2008** SAF No. **F02-007**

SDG: **WSCF20080921** LOGIN No.: TEST: **CYANIDE (CN-02)**

Sample No.(s)	B1VFD2	(W08GR01186)
	B1VFD3	(W08GR01188)
	B1VFD4	(W08GR01189)
	B1VFD5	(W08GR01190)
	B1VFD6	(W08GR01191)
	B1VFD7	(W08GR01192)
	B1VFD8	(W08GR01193)
	B1VFD9	(W08GR01194)

Submitted By:	WW Baird	Submitted To:	H Hampt
Phone No.	373-7189	Phone No.	376-4319
Fax No.	372-0456	Fax No	

<u>ISSUE</u>	<u>PROPOSED RESOLUTION</u>
<p>Missed 14-day regulatory holding time for Cyanide analysis on S&GRP resin samples identified above.</p> <p>Samples were collected and delivered to the WSCF Laboratory on May 7, 2008. However, due to a large backlog of Cyanide samples in-house; the resin samples (identified above) could not be analyzed within the 14-day regulatory hold time requirement.</p> <p>The Client (Steve Trent) was contacted; and it was verbally agreed, analyses of the water samples should be given priority over the resin samples. And, additionally, it was also agreed the WSCF Laboratory would try to analyze the resin samples within a ~ 2X hold time requirement.</p> <p>Resin samples were analyzed on June 9, 2008, ~ 33 days after sample collection.</p>	<p>Accept Cyanide results and document missed holding time in the case narrative.</p>

GRP COMMENTS

M4W41-SLF-08-641

ATTACHMENT 4

ANALYTICAL RESULTS

Consisting of 37 pages
Including cover page

**WSCF
ANALYTICAL RESULTS REPORT**

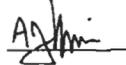
for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:  ADRIOS 6-25-08

Client Services:  Andrew Kopriva 6/25/08

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.

Contract#: FH-EIS-2003-MEM-001

Report#: WSCF20080921

Report Date: 24-jun-2008

Report WGPP/ver. 5.2

Groundwater Remediation Program

Department: Radiochemistry

W13q Worklist/Batch/QC Report for Group# WSCF20080921

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
36357	1	36772	41112	BLANK		Gross Alpha/Gross Beta (AB32)
36357	2	36772	41112	LCS		Gross Alpha/Gross Beta (AB32)
36357	3	36772	41112	DUP	W08GR01186	Gross Alpha/Gross Beta (AB32)
36357	4	36772	41112	SAMPLE	W08GR01186	Gross Alpha/Gross Beta (AB32)
36357	5	36772	41112	SAMPLE	W08GR01188	Gross Alpha/Gross Beta (AB32)
36357	6	36772	41112	SAMPLE	W08GR01189	Gross Alpha/Gross Beta (AB32)
36357	7	36772	41112	SAMPLE	W08GR01190	Gross Alpha/Gross Beta (AB32)
36357	8	36772	41112	SAMPLE	W08GR01191	Gross Alpha/Gross Beta (AB32)
36357	9	36772	41112	SAMPLE	W08GR01192	Gross Alpha/Gross Beta (AB32)
36357	10	36772	41112	SAMPLE	W08GR01193	Gross Alpha/Gross Beta (AB32)
36357	11	36772	41112	SAMPLE	W08GR01194	Gross Alpha/Gross Beta (AB32)
36771	1	37189	41544	BLANK		Uranium Isotopics by AEA
36771	2	37189	41544	LCS		Uranium Isotopics by AEA
36771	3	37189	41544	DUP	W08GR01186	Uranium Isotopics by AEA
36771	4	37189	41544	SAMPLE	W08GR01186	Uranium Isotopics by AEA
36771	5	37189	41544	SURR	W08GR01186	Uranium Isotopics by AEA
36771	6	37189	41544	SAMPLE	W08GR01188	Uranium Isotopics by AEA
36771	7	37189	41544	SURR	W08GR01188	Uranium Isotopics by AEA
36771	8	37189	41544	SAMPLE	W08GR01189	Uranium Isotopics by AEA
36771	9	37189	41544	SURR	W08GR01189	Uranium Isotopics by AEA
36771	10	37189	41544	SAMPLE	W08GR01190	Uranium Isotopics by AEA
36771	11	37189	41544	SURR	W08GR01190	Uranium Isotopics by AEA
36771	12	37189	41544	SAMPLE	W08GR01191	Uranium Isotopics by AEA
36771	13	37189	41544	SURR	W08GR01191	Uranium Isotopics by AEA
36771	14	37189	41544	SAMPLE	W08GR01192	Uranium Isotopics by AEA
36771	15	37189	41544	SURR	W08GR01192	Uranium Isotopics by AEA
36771	17	37189	41544	SAMPLE	W08GR01193	Uranium Isotopics by AEA
36771	16	37189	41544	SURR	W08GR01193	Uranium Isotopics by AEA
36771	19	37189	41544	SAMPLE	W08GR01194	Uranium Isotopics by AEA
36771	18	37189	41544	SURR	W08GR01194	Uranium Isotopics by AEA

Department: Inorganic

W13q Worklist/Batch/QC Report for Group# WSCF20080921

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
				SAMPLE	W08GR01186	TCLP Extraction
				SAMPLE	W08GR01188	TCLP Extraction
				SAMPLE	W08GR01189	TCLP Extraction
				SAMPLE	W08GR01190	TCLP Extraction
				SAMPLE	W08GR01191	TCLP Extraction
				SAMPLE	W08GR01192	TCLP Extraction
				SAMPLE	W08GR01193	TCLP Extraction
				SAMPLE	W08GR01194	TCLP Extraction
36393	1	36808	41136	BLANK		ICP-200.8 MS All possible meta
36393	2	36808	41136	LCS		ICP-200.8 MS All possible meta
36393	4	36808	41136	MS	W08GR01187	ICP-200.8 MS All possible meta
36393	5	36808	41136	MSD	W08GR01187	ICP-200.8 MS All possible meta
36393	3	36808	41136	SAMPLE	W08GR01187	ICP-200.8 MS All possible meta
36393	5	36808	41136	SPK-RPD	W08GR01187	ICP-200.8 MS All possible meta
36393	6	36808	41136	SAMPLE	W08GR01195	ICP-200.8 MS All possible meta
36393	7	36808	41136	SAMPLE	W08GR01196	ICP-200.8 MS All possible meta
36393	8	36808	41136	SAMPLE	W08GR01197	ICP-200.8 MS All possible meta
36393	9	36808	41136	SAMPLE	W08GR01198	ICP-200.8 MS All possible meta
36393	10	36808	41136	SAMPLE	W08GR01199	ICP-200.8 MS All possible meta
36393	11	36808	41136	SAMPLE	W08GR01200	ICP-200.8 MS All possible meta
36393	12	36808	41136	SAMPLE	W08GR01201	ICP-200.8 MS All possible meta
36662	1	37078	41407	BLANK		Cyanide by Midi/Spectrophotom
36662	2	37078	41407	LCS		Cyanide by Midi/Spectrophotom
36662	4	37078	41407	MS	W08GR01186	Cyanide by Midi/Spectrophotom
36662	5	37078	41407	MSD	W08GR01186	Cyanide by Midi/Spectrophotom
36662	3	37078	41407	SAMPLE	W08GR01186	Cyanide by Midi/Spectrophotom
36662	5	37078	41407	SPK-RPD	W08GR01186	Cyanide by Midi/Spectrophotom
36662	7	37078	41407	SAMPLE	W08GR01188	Cyanide by Midi/Spectrophotom
36662	8	37078	41407	SAMPLE	W08GR01189	Cyanide by Midi/Spectrophotom
36662	9	37078	41407	SAMPLE	W08GR01190	Cyanide by Midi/Spectrophotom
36662	10	37078	41407	SAMPLE	W08GR01191	Cyanide by Midi/Spectrophotom
36662	11	37078	41407	SAMPLE	W08GR01192	Cyanide by Midi/Spectrophotom
36662	12	37078	41407	SAMPLE	W08GR01193	Cyanide by Midi/Spectrophotom
36662	13	37078	41407	SAMPLE	W08GR01194	Cyanide by Midi/Spectrophotom
36662	15	37078	41407	MS	W08GR01485	Cyanide by Midi/Spectrophotom
36662	16	37078	41407	MSD	W08GR01485	Cyanide by Midi/Spectrophotom
36662	16	37078	41407	SPK-RPD	W08GR01485	Cyanide by Midi/Spectrophotom

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 Francium 89/90
LA-508-471	LA-508-471: ALPHA ENERGY ANALYZER DATA ACQUISITION AND SYSTEM CHECKOUT USING ALP HEIS PUISO_IE_PRECIP_AEA Plutonium by Alpha Energy Analysis HEIS RAISO_AEA Radium-226

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

Report Date: 24-jun-2008
Report#: WSCF20080921
Report WGPPM/5.2

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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-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY EPA-600/R-94-111 200.8 DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS HEIS 200.8 METALS_ICPMS Inductively Coupled Plasma - Mass Spectrometry HEIS RADISOTOPES_ICPMS Radioisotopes by ICP/MS
LA-544-441	LA-544-441: WSCF TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) LOW ACTIVITY EPA SW-846 1311 TOXICITY CHARACTERISTIC LEACHING PROCEDURE
LA-695-402	LA-695-402: DETERMINATION OF CYANIDE BY MIDIDISTILLATION AND SPECTROPHOTOMETRIC EPA-600/4-79-020 335.2 Cyanide, Total HEIS 335.2_CYANIDE Cyanide, Total

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

Report Date: 24-jun-2008
Report#: WSCF20080921
Report WGPPM/5.2

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01186
Client ID: B1VFD2

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

TRENT
WSCF

Matrix: OTHERSOL

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	N	3.33	mg/kg			0.75	0.15		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01187
Client ID: B1VFD2TCLP TRENT

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Matrix: WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
WSCF											
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412		2.20	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	6.38e +03	ug/L			10.00	5.00		05/20/08

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

N - Spike sample recovery is outside control limits.(inorg)
 X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2
 Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01188
Client ID: B1VFD3

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	NU	< 0.156	mg/kg			0.78	0.16		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01189
Client ID: B1VFD4

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-895-402	N	7.65	mg/kg			0.89	0.14		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01190
Client ID: B1VFD5

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	N	21.0	mg/kg			0.96	0.19		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01191
Client ID: B1VFD6

**TRENT
WSCF**

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	N	22.8	mg/kg			0.62	0.12		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01192
Client ID: B1VFD7

TRENT
WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	N	2.29	mg/kg			0.98	0.20		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01193
Client ID: B1VFD8

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	N	15.0	mg/kg			0.87	0.17		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01194
Client ID: B1VFD9

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Cyanide											
Cyanide	57-12-5	LA-695-402	N	26.5	mg/kg			0.88	0.18		06/09/08
TCLP Extraction											
TCLP Extraction	TCLP	LA-544-441		Done	NONE			1.00	0.0		05/13/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent

SAF Number: F02-007

Sample # W08GR01195

Client ID: B1VFD3TCLP TRENT

WSCF

Matrix: WATER

Group #: WSCF20080921

Department: Inorganic

Sampled: 05/07/08

Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412	U	< 2.00	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	5.94e+03	ug/L			10.00	5.00		05/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01196
Client ID: B1VFD4TCLP

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

TREN
WSCF

Matrix: WATER

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412	U	< 2.00	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	4.39e +03	ug/L			10.00	5.00		05/20/08

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

N - Spike sample recovery is outside control limits.(inorg)
 X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2
 Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01197
Client ID: B1VFD5TCLP TRENT

Matrix: WATER

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
WSCF											
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412	U	< 2.00	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	3.73e +03	ug/L			10.00	5.00		05/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01198
Client ID: B1VFD6TCLP TRENT

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Matrix: WATER

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412	U	< 2.00	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	2.56e +03	ug/L			10.00	5.00		05/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01199
Client ID: B1VFD7TCLP TRENT

Matrix: WATER

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412	U	< 2.00	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	2.35e+03	ug/L			10.00	5.00		05/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01200
Client ID: B1VFD8TCLP TRENT

Matrix: WATER

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
WSCF											
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412		2.50	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	2.10e + 03	ug/L			10.00	5.00		05/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

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Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01201
Client ID: B1VFD9TCLP TRENT

Group #: WSCF20080921
Department: Inorganic
Sampled: 05/07/08
Received: 05/07/08

Matrix: WATER

WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
ICP-200.8 MS All possible meta Prep											05/19/08
ICP-200.8 MS All possible meta											
Nickel	7440-02-0	LA-505-412		2.22	ug/L			10.00	2.00		05/20/08
Chromium	7440-47-3	LA-505-412	X	2.03e +03	ug/L			10.00	5.00		05/20/08

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

N - Spike sample recovery is outside control limits.(inorg)

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WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F02-007

Group #: WSCF20080921
Department: Inorganic

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Gross alpha batch duplicate is flagged for poor RPD due to the inhomogeneity of the sample. Imh ICP-MS: Chromium spike amount more than 4X the sample result Spike recovery cannot be expected. "X" flag Cyanide: Spke recoveries about 50%. "N" flag LCS 84% recovery. ICV and spike recovery for the solids both excellent. Spikes at 40 ug/L, LCS at 50 ug/L indicating that data at the LCS level is good so data accepted. W08GR01186, 1188-1194/U-235 duplicate is flagged for poor RPD but the sample activity is low level. RPD doesn't apply to low level samples. Imh

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20080921
 Matrix: SOLID
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 05/07/08
 Receive Date: 05/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01186											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	0.96	53.631	% Recov	75.000	125.000			•	06/09/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	0.71	45.513	% Recov	75.000	125.000			•	06/09/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	45.513		RPD			16.376	20.000		06/05/08
Lab ID: W08GR01485											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	2.07	99.519	% Recov	75.000	125.000				06/09/08
MSD	Cyanide by Midi/Spectrophotom	57-12-5	1.76	99.435	% Recov	75.000	125.000				06/09/08
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	99.435		RPD			0.084	20.000		06/05/08
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	< 4	n/a	ug/L	-4.000	4.000			U	06/09/08
LCS	Cyanide by Midi/Spectrophotom	57-12-5	42.1	84.200	% Recov	85.000	115.000			•	06/09/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20080921
 Matrix: WATER
 Test: ICP-200.8 MS All possible meta

Sample Date: 05/07/08
 Receive Date: 05/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01187											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Chromium	7440-47-3	241	60.250	% Recov	70.000	130.000				05/20/08
MS	Nickel	7440-02-0	362.598	90.650	% Recov	70.000	130.000				05/20/08
MSD	Chromium	7440-47-3	433	108.250	% Recov	70.000	130.000				05/20/08
MSD	Nickel	7440-02-0	372.698	93.174	% Recov	70.000	130.000				05/20/08
SPK-RPD	Chromium	7440-47-3	108.250		RPD			56.973	20.000		05/20/08
SPK-RPD	Nickel	7440-02-0	93.174		RPD			2.748	20.000		05/20/08
BATCH QC											
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	05/20/08
BLANK	Nickel	7440-02-0	<0.2	n/a	ug/L					U	05/20/08
LCS	Chromium	7440-47-3	37.73	94.325	% Recov	85.000	115.000				05/20/08
LCS	Nickel	7440-02-0	36.83	92.075	% Recov	85.000	115.000				05/20/08

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01186
Client ID: B1VFD2

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		3.40	pCi/g	+ -0.476	pCi/g	1.00	0.15		05/14/08
Gross beta	12587-47-2	LA-508-415		9.80	pCi/g	+ -1.08	pCi/g	1.00	0.28		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		3.30	pCi/g	+ -0.924	pCi/g	1.00	0.087		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.130	pCi/g	+ -0.0793	pCi/g	1.00	0.028		06/20/08
Uranium-238	U-238	LA-508-471		2.80	pCi/g	+ -0.728	pCi/g	1.00	0.025		06/20/08
U-232 tracer by AEA	U232	LA-508-471		20.0	pCi/g			1.00	0.16		06/20/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

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+ - Indicates more than six qualifier symbols

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01188
Client ID: BIVFD3

TRENT
WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415	U	-8.00e-03	pCi/g	+ -0.0610	pCi/g	1.00	0.13		05/14/08
Gross beta	12587-47-2	LA-508-415		0.490	pCi/g	+ -0.181	pCi/g	1.00	0.25		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		0.110	pCi/g	+ -0.0726	pCi/g	1.00	0.073		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.0520	pCi/g	+ -0.0447	pCi/g	1.00	0.023		06/20/08
Uranium-238	U-238	LA-508-471		0.120	pCi/g	+ -0.0696	pCi/g	1.00	0.021		06/20/08
U-232 tracer by AEA	U232	LA-508-471		18.0	pCi/g			1.00	0.10		06/20/08

MDL = Minimum Detection Limit

RQ = Result Qualifier

TP Err = Total Propagated Error

DF = Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01189
Client ID: BIVFD4

TRENT
WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		9.10	pCi/g	+ -1.09	pCi/g	1.00	0.15		05/14/08
Gross beta	12587-47-2	LA-508-415		20.0	pCi/g	+ -2.00	pCi/g	1.00	0.28		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		8.60	pCi/g	+ -2.32	pCi/g	1.00	0.087		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.420	pCi/g	+ -0.172	pCi/g	1.00	0.075		06/20/08
Uranium-238	U-238	LA-508-471		7.10	pCi/g	+ -1.92	pCi/g	1.00	0.025		06/20/08
U-232 tracer by AEA	U232	LA-508-471		20.0	pCi/g			1.00	0.11		06/20/08

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

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

X - Other flags/notes described in the comments/narrative(inorg)

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

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01190
Client ID: B1VFD5

TRENT
WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		25.0	pCi/g	+ -2.75	pCi/g	1.00	0.14		05/14/08
Gross beta	12587-47-2	LA-508-415		45.0	pCi/g	+ -4.50	pCi/g	1.00	0.27		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		23.0	pCi/g	+ -5.98	pCi/g	1.00	0.063		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.970	pCi/g	+ -0.320	pCi/g	1.00	0.086		06/20/08
Uranium-238	U-238	LA-508-471		18.0	pCi/g	+ -4.68	pCi/g	1.00	0.063		06/20/08
U-232 tracer by AEA	U232	LA-508-471		19.0	pCi/g			1.00	0.10		06/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01191
Client ID: B1VFD6

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		30.0	pCi/g	+ -3.00	pCi/g	1.00	0.14		05/14/08
Gross beta	12587-47-2	LA-508-415		38.0	pCi/g	+ -3.80	pCi/g	1.00	0.26		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		25.0	pCi/g	+ -6.50	pCi/g	1.00	0.081		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.970	pCi/g	+ -0.320	pCi/g	1.00	0.088		06/20/08
Uranium-238	U-238	LA-508-471		19.0	pCi/g	+ -4.94	pCi/g	1.00	0.064		06/20/08
U-232 tracer by AEA	U232	LA-508-471		19.0	pCi/g			1.00	0.12		06/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01192
Client ID: B1VFD7

TRENT
WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		5.50	pCi/g	+0.715	pCi/g	1.00	0.14		05/14/08
Gross beta	12587-47-2	LA-508-415		9.70	pCi/g	+1.07	pCi/g	1.00	0.26		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		3.70	pCi/g	+0.999	pCi/g	1.00	0.080		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.150	pCi/g	+0.0885	pCi/g	1.00	0.069		06/20/08
Uranium-238	U-238	LA-508-471		3.00	pCi/g	+0.840	pCi/g	1.00	0.080		06/20/08
U-232 tracer by AEA	U232	LA-508-471		19.0	pCi/g			1.00	0.14		06/20/08

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

N - Spike sample recovery is outside control limits.(inorg)
 X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2
 Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01193
Client ID: B1VFD8

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		12.0	pCi/g	+ -1.32	pCi/g	1.00	0.14		05/14/08
Gross beta	12587-47-2	LA-508-415		28.0	pCi/g	+ -2.80	pCi/g	1.00	0.25		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		14.0	pCi/g	+ -3.64	pCi/g	1.00	0.086		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.560	pCi/g	+ -0.202	pCi/g	1.00	0.024		06/20/08
Uranium-238	U-238	LA-508-471		12.0	pCi/g	+ -3.12	pCi/g	1.00	0.074		06/20/08
U-232 tracer by AEA	U232	LA-508-471		18.0	pCi/g			1.00	0.074		06/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

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

Report WGPP/ver. 5.2

Groundwater Remediation Program

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WSCF

ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F02-007
Sample # W08GR01194
Client ID: B1VFD9

TRENT
 WSCF

Matrix: OTHERSOL

Group #: WSCF20080921
Department: Radiochemistry
Sampled: 05/07/08
Received: 05/07/08

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Gross Alpha/Gross Beta (AB32)											
Gross alpha	12587-46-1	LA-508-415		20.0	pCi/g	+ -2.20	pCi/g	1.00	0.13		05/14/08
Gross beta	12587-47-2	LA-508-415		33.0	pCi/g	+ -3.30	pCi/g	1.00	0.25		05/14/08
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		21.0	pCi/g	+ -5.46	pCi/g	1.00	0.058		06/20/08
Uranium-235	15117-96-1	LA-508-471		0.880	pCi/g	+ -0.290	pCi/g	1.00	0.080		06/20/08
Uranium-238	U-238	LA-508-471		16.0	pCi/g	+ -4.16	pCi/g	1.00	0.021		06/20/08
U-232 tracer by AEA	U232	LA-508-471		18.0	pCi/g			1.00	0.085		06/20/08

MDL=Minimum Detection Limit

RQ=Result Qualifier

TP Err=Total Propagated Error

DF=Dilution Factor

N - Spike sample recovery is outside control limits.(inorg)

X - Other flags/notes described in the comments/narrative(inorg)

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

* - Indicates results that have NOT been validated;

+ - Indicates more than six qualifier symbols

Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F02-007

Group #: WSCF20080921
Department: Radiochemistry

Sample #	Client ID	Lab Area	Test	Comment
		VALGROUP		Gross alpha batch duplicate is flagged for poor RPD due to the inhomogeneity of the sample. Imh ICP-MS: Chromium spike amount more than 4X the sample result Spike recovery cannot be expected. "X" flag Cyanide: Spke recoveries about 50%. "N" flag LCS 84% recovery. ICV and spike recovery for the solids both excellent. Spikes at 40 ug/L, LCS at 50 ug/L indicating that data at the LCS level is good so data accepted. W08GR01186, 1188-1194/U-235 duplicate is flagged for poor RPD but the sample activity is low level. RPD doesn't apply to low level samples. Imh

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

VALTEST - Test Validation
LOGTEST - Login for Tests

TESTDATA - Test Data Entry

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20080921
 Matrix: SOLID
 Test: Gross Alpha/Gross Beta (AB32)

Sample Date: 05/07/08
 Receive Date: 05/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01186											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Gross alpha	12587-46-1	5.4		RPD			45.455	20.000		05/14/08
DUP	Gross beta	12587-47-2	11.3		RPD			14.218	20.000		05/14/08
BATCH QC											
BLANK	Gross alpha	12587-46-1	U2.7E-02	n/a	pCi/g	-10.000	10.000				05/14/08
BLANK	Gross beta	12587-47-2	U3.5E-02	n/a	pCi/g	-10.000	10.000				05/14/08
LCS	Gross alpha	12587-46-1	7.82	101.034	% Recov	80.000	120.000				05/14/08
LCS	Gross beta	12587-47-2	25.1	111.904	% Recov	80.000	120.000				05/14/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20080921
 Matrix: SOLID
 Test: Uranium Isotopics by AEA

Sample Date: 05/07/08
 Receive Date: 05/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01186											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	U-232 tracer by AEA	U232	20.03	86.560	% Recov	30.000	105.000				06/20/08
DUP	Uranium-233/234	U-233/234	3.7		RPD			11.429	20.000		06/20/08
DUP	Uranium-235	15117-96-1	0.18		RPD			32.258	20.000		06/20/08
DUP	Uranium-238	U-238	2.6		RPD			0.000	20.000		06/20/08
SURR	U-232 tracer by AEA	U232	20.03	84.630	% Recov	30.000	105.000				06/20/08
Lab ID: W08GR01188											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	18.09	98.190	% Recov	30.000	105.000				06/20/08
Lab ID: W08GR01189											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	19.91	86.510	% Recov	30.000	105.000				06/20/08
Lab ID: W08GR01190											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	19.42	93.760	% Recov	30.000	105.000				06/20/08
Lab ID: W08GR01191											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	18.51	92.010	% Recov	30.000	105.000				06/20/08
Lab ID: W08GR01192											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	18.96	93.730	% Recov	30.000	105.000				06/20/08

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20080921
 Matrix: SOLID
 Test: Uranium Isotopics by AEA

Sample Date: 05/07/08
 Receive Date: 05/07/08

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W08GR01193											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	18.06	89.970	% Recov	30.000	105.000				06/20/08
Lab ID: W08GR01194											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	17.69	91.440	% Recov	30.000	105.000				06/20/08
BATCH QC											
BLANK	U-232 tracer by AEA	U232	20.55	85.290	% Recov	30.000	105.000				06/20/08
BLANK	Uranium-233/234	13966-29-5	U1.9e-2	n/a	pCi/g	-10.000	1000.000				06/20/08
BLANK	Uranium-235	15117-96-1	U2.1e-2	n/a	pCi/g	-10.000	1000.000				06/20/08
BLANK	Uranium-238	24678-82-8	5.7e-2	0.057	pCi/g	-10.000	1000.000				06/20/08
LCS	U-232 tracer by AEA	U232	11.41	81.860	% Recov	30.000	105.000				06/20/08
LCS	Uranium-233/234	13966-29-5	N/A	n/a	% Recov	75.000	125.000				06/20/08
LCS	Uranium-235	15117-96-1	N/A	n/a	% Recov	75.000	125.000				06/20/08
LCS	Uranium-238	24678-82-8	19.78	104.352	% Recov	80.000	120.000				06/20/08

M4W41-SLF-08-641

ATTACHMENT 5

SAMPLE RECEIPT INFORMATION

Consisting of 5 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

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122597/ES10
Group#: 20080921
Project#: F02-007
Proj Mgr: Steve Trent G6-35
Phone: 373-5869

The following samples were received from you on 05/07/08. 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
W08GR01186	B1VFD2	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01187	B1VFD2TCLP	TRENT @2008	Water	05/07/08
W08GR01188	B1VFD3	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01189	B1VFD4	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01190	B1VFD5	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01191	B1VFD6	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01192	B1VFD7	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01193	B1VFD8	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01194	B1VFD9	TRENT @AB-32	Solid, or handle as if solid CN-02	05/07/08
W08GR01195	B1VFD3TCLP	TRENT @2008	Water	05/07/08
W08GR01196	B1VFD4TCLP	TRENT @2008	Water	05/07/08
W08GR01197	B1VFD5TCLP	TRENT @2008	Water	05/07/08
W08GR01198	B1VFD6TCLP	TRENT @2008	Water	05/07/08
W08GR01199	B1VFD7TCLP	TRENT @2008	Water	05/07/08
W08GR01200	B1VFD8TCLP	TRENT @2008	Water	05/07/08

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 122597/ES10
Group#: 20080921
Project#: F02-007
Proj Mgr: Steve Trent G6-35
Phone: 373-5869

Sample#	Sample Id	Tests Scheduled	Matrix	Sample Date
W08GR01201	B1VFD9TCLP	TRENT @2008	Water	05/07/08

Test Acronym Description

Test Acronym	Description
@2008	ICP-200.8 MS All possible meta
@AB-32	Gross Alpha/Gross Beta (AB32)
@AEA-32	Uranium Isotopics by AEA
CN-02	Cyanide by Midi/Spectrophotom
TCLPEXTR	TCLP Extraction

COLLECTOR

UOKER
6/20

SAMPLING LOCATION

KW P&T Spent Resin

ICE CHEST NO.

COMPANY CONTACT

TRENT, SJ

TELEPHONE NO.

373-5869

PROJECT COORDINATOR

TRENT, SJ

PRICE CODE

9N

DATA TURNAROUND

45 Days / 45 Days

PROJECT DESIGNATION

100-KR-4 Pump & Treat - Spent Resin Waste Designation

SAF NO.

F02-007

AIR QUALITY

FIELD LOGBOOK NO.

ACTUAL SAMPLE DEPTH

COA

122552ES10

METHOD OF SHIPMENT

GOVERNMENT VEHICLE

SHIPPED TO

Waste Sampling & Characterization

OFFSITE PROPERTY NO.

N/A

BILL OF LADING/AIR BILL NO.

N/A

MATRIX*

- A=Air
- DL=Drum
- Liquids
- DS=Drum
- Solids
- L=Liquid
- O=Oil
- S=Soil
- SE=Sediment
- T=Tissue
- V=Vegetation
- W=Water
- WI=Wipe
- X=Other

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 HANDLING AND/OR STORAGE

PRESERVATION

Cool~4C

TYPE OF CONTAINER

P

NO. OF CONTAINER(S)

1

VOLUME

500ml

SAMPLE ANALYSIS

SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.

MATRIX*

B1VFD2	188	OTHER SOLID
B1VFD3	188	OTHER SOLID
B1VFD4	189	OTHER SOLID
B1VFD5	190	OTHER SOLID
B1VFD6	191	OTHER SOLID

SAMPLE DATE

SAMPLE TIME

5/7/8	0833	029038
5/7/8	0825	029038
5/7/8	0831	029038
5/7/8	0828	029038
5/7/8	0838	029038

TCLP- 1187
195
196
197
198

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM

S. M... Dulek

DATE/TIME

5/9/8 1125

RECEIVED BY/STORED IN

[Signature]

DATE/TIME

5/7/08 1125

** Fluor Hanford requires Gross Alpha and Beta detection limits of 5 pCi/g and 10 pCi/g, respectively.

** The lab will group samples submitted for analysis under SAF/FSR F02-007 and F02-008 into one analytical batch for QC and reporting purposes. (1)Metals by ICP (TCLP) - 1311/200.8 {Chromium} Metals by ICP (TCLP) Add-on - 1311/200.8 {Nickel} Gross Alpha; Gross Beta; Isotopic Uranium; Cyanide (Total) - 335.2;

RELINQUISHED BY/REMOVED FROM

DATE/TIME

RECEIVED BY/STORED IN

DATE/TIME

LABORATORY SECTION

RECEIVED BY

TITLE

DATE/TIME

FINAL SAMPLE DISPOSITION

DISPOSAL METHOD

DISPOSED BY

DATE/TIME

49 of 50

COLLECTOR
Mark
SAMPLING LOCATION
KW P&T Spent Resin
ICE CHEST NO.

COMPANY CONTACT
TRENT, SJ
PROJECT DESIGNATION
100-KR-4 Pump & Treat - Spent Resin Waste Designation
FIELD LOGBOOK NO.

TELEPHONE NO.
373-5869
PROJECT COORDINATOR
TRENT, SJ
SAF NO.
F02-007
COA
122552E510

PRICE CODE
9N
AIR QUALITY

DATA
TURNAROUND
45 Days / 45
Days

SHIPPED TO
Waste Sampling & Characterization

OFFSITE PROPERTY NO.
N/A

BILL OF LADING/AIR BILL NO.
N/A

MATRIX*
A=Air
DL=Drum
Liquids
DS=Drum
Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

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)

PRESERVATION
Cool--4C
TYPE OF CONTAINER
P
NO. OF CONTAINER(S)
1
VOLUME
500mL
SAMPLE ANALYSIS
SEE ITEM (1) IN SPECIAL INSTRUCTIONS

METHOD OF SHIPMENT
GOVERNMENT VEHICLE

SPECIAL HANDLING AND/OR STORAGE

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1VFD7	192 OTHER SOLID	5/7/8	0945	029038	TCLD	199
B1VFD8	193 OTHER SOLID	5/7/8	0840	029038		200
B1VFD9	194 OTHER SOLID	5/7/8	0844	029038		201
						£

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM
J. M. ... 5/7/8 1125
DATE/TIME

RELINQUISHED BY/REMOVED FROM
DATE/TIME

SIGN/ PRINT NAMES

RECEIVED BY/STORED IN
[Signature] 5/7/08 1125
DATE/TIME

RECEIVED BY/STORED IN
DATE/TIME

SPECIAL INSTRUCTIONS

** Fluor Hanford requires Gross Alpha and Beta detection limits of 5 pCi/g and 10 pCi/g, respectively.

** The lab will group samples submitted for analysis under SAF/FSR F02-007 and F02-008 into one analytical batch for QC and reporting purposes.
(1)Metals by ICP (TCLP) - 1311/200.8 {Chromium} Metals by ICP (TCLP) Add-on - 1311/200.8 {Nickel} Gross Alpha; Gross Beta; Isotopic Uranium; Cyanide (Total) - 335.2;

50 of 50

LABORATORY SECTION RECEIVED BY
FINAL SAMPLE DISPOSITION DISPOSAL METHOD

TITLE DATE/TIME
DISPOSED BY DATE/TIME