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FLUOR

Memorandum

M8141-SLF-05-134

To: S. J. Trent A0-21 Date: March 18, 2005

From: S. L. Fitzgerald, Manager *[Signature]*
 WSCF Analytical Chemistry

cc: w/Attachments w/o Attachments

T. F. Dale	S3-30	D. J. Hart	S3-30
H. K. Meznarich	S3-30	M. A. Neely	S3-30
P. D. Mix	S3-30	H. S. Rich	S3-28
J. E. Trechter	S3-30	L. C. Swanson	E6-35
		File/LB	

Subject: FINAL RESULTS FOR U PLANT CLOSURE CONTAMINANT PLUME REFINEMENT-
 SAMPLE DELIVERY GROUP WSCF20050558 SAF NUMBER F05-009

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

(2) HNF-SD-CD-QAPP-017, Rev. 6, Waste Sampling & Characterization Facility Quality
 Assurance Plan

This letter contains a narrative (Attachment 1) for sample delivery group WSCF20050558, the analytical
 results (Attachment 2), and the sample receipt information (Attachment 3).

SLF/grf

Attachments 3



M8141-SLF-05-134

ATTACHMENT 1

NARRATIVE

Consisting of 3 pages
Including cover page

Sample Delivery Group	WSCF20050558
Sample Matrix	SOIL
Sample Visual	N/A
SAF Number	F05-009
Data Deliverable	Summary Report

Introduction

Three (3) U Plant Closure Contaminant Plume Refinement, 216-U-8/C4715/C4719, 44' – 46', GRP samples (B1CF41, B1CF47 and B1CF86) were received at the WSCF Laboratory on March 9, 2005. The 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 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- ICP-AES Metals by EPA Method 6010B. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

ICP-AES Metals (Titanium only) – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 10 for QC details. Analytical Notes:

- Preparation Date: 15-mar-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1CF40 (SDG# 20050554, SAF# F05-009).
- Titanium - insufficient spike concentration. Sample concentration was greater than four times the spike concentration.

- Titanium - The analyte detected in the associated preparation Blank sample was evaluated and there was no significant affect on the sample results.

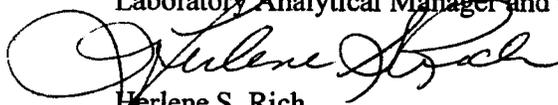
All other QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 11 through 14 for QC details. Analytical Notes:

- Preparation Date: 15-mar-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1CF40 (SDG# 20050554, SAF# F05-009).
- The analytes detected in the associated preparation Blank sample were evaluated and there was no significant affect on the sample results.
- Antimony – the Laboratory Control Sample recovery exceeded established laboratory limits, but was within the manufacturer’s limits. Sample results were below the detection limit and U-flagged.

All other QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.



Herlene S. Rich
WSCF Production Control

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline

Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

M8141-SLF-05-134

ATTACHMENT 2

ANALYTICAL RESULTS

**Consisting of 14 pages
Including cover page**

WSCF
ANALYTICAL RESULTS REPORT

for

Groundwater Remediation Program

Richland, WA 99354

Attention: Steve Trent

Analytical:

 S. Fitzgerald

Client Services:

C. D. Mix 3-11-2005

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

Confidentiality Notice: The information contained in this report is privileged and confidential information intended only for the use of the addressee. If the reader of this report is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone at (509) 373-7020.

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

Report#: WSCF20050558

Report Date: 17-mar-2005

Report WGPP/ver. 1.1

Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-009; F05-009

Group #: WSCF20050558

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample Receive
W050000961	B1CF41	7440-32-6	Titanium	SOIL	LA-505-411		1.36e+03	mg/kg	99.33	0.099	03/16/05	03/09/05
W050000961	B1CF41	7439-98-5	Manganese	SOIL	LA-505-412		305	mg/kg	9.29	6.5	03/16/05	03/09/05
W050000961	B1CF41	7440-02-0	Nickel	SOIL	LA-505-412		7.52	mg/kg	9.29	0.20	03/16/05	03/09/05
W050000961	B1CF41	7440-22-4	Silver	SOIL	LA-505-412	U	< 9.29e-03	mg/kg	9.29	9.3e-03	03/16/05	03/09/05
W050000961	B1CF41	7440-38-0	Antimony	SOIL	LA-505-412	U	<	mg/kg	9.29	6.8	03/16/05	03/09/05
W050000961	B1CF41	7440-39-3	Barium	SOIL	LA-505-412		65.9	mg/kg	9.29	0.86	03/16/05	03/09/05
W050000961	B1CF41	7440-43-9	Cadmium	SOIL	LA-505-412		0.0786	mg/kg	9.29	0.019	03/16/05	03/09/05
W050000961	B1CF41	7440-47-3	Chromium	SOIL	LA-505-412		7.74	mg/kg	9.29	3.1	03/16/05	03/09/05
W050000961	B1CF41	7440-48-4	Cobalt	SOIL	LA-505-412		5.81	mg/kg	9.29	0.18	03/16/05	03/09/05
W050000961	B1CF41	7440-50-8	Copper	SOIL	LA-505-412		14.0	mg/kg	9.29	0.60	03/16/05	03/09/05
W050000961	B1CF41	7440-62-2	Vanadium	SOIL	LA-505-412		42.0	mg/kg	9.29	0.27	03/16/05	03/09/05
W050000961	B1CF41	7440-66-6	Zinc	SOIL	LA-505-412		49.5	mg/kg	9.29	2.3	03/16/05	03/09/05
W050000961	B1CF41	7439-92-1	Lead	SOIL	LA-505-412		4.13	mg/kg	9.29	0.24	03/16/05	03/09/05
W050000961	B1CF41	7439-97-6	Mercury	SOIL	LA-505-412	U	< 9.29e-03	mg/kg	9.29	9.3e-03	03/16/05	03/09/05
W050000961	B1CF41	7440-61-1	Uranium	SOIL	LA-505-412		0.838	mg/kg	9.29	0.15	03/16/05	03/09/05
W050000961	B1CF41	7440-38-2	Arsenic	SOIL	LA-505-412		6.77	mg/kg	9.29	2.2	03/16/05	03/09/05
W050000961	B1CF41	7782-49-2	Selenium	SOIL	LA-505-412	U	< 0.878	mg/kg	9.29	0.88	03/16/05	03/09/05
W050000961	B1CF41	7440-28-0	Thallium	SOIL	LA-505-412		0.221	mg/kg	9.29	0.019	03/16/05	03/09/05
W050000961	B1CF41	7440-24-6	Strontium	SOIL	LA-505-412		30.8	mg/kg	9.29	0.93	03/16/05	03/09/05
W050000962	B1CF47	7440-32-6	Titanium	SOIL	LA-505-411		1.51e+03	mg/kg	99.46	0.099	03/16/05	03/09/05
W050000962	B1CF47	7439-98-5	Manganese	SOIL	LA-505-412		296	mg/kg	9.97	7.0	03/16/05	03/09/05
W050000962	B1CF47	7440-02-0	Nickel	SOIL	LA-505-412		9.14	mg/kg	9.97	0.21	03/16/05	03/09/05
W050000962	B1CF47	7440-22-4	Silver	SOIL	LA-505-412	U	< 9.97e-03	mg/kg	9.97	0.010	03/16/05	03/09/05
W050000962	B1CF47	7440-38-0	Antimony	SOIL	LA-505-412	U	<	mg/kg	9.97	7.1	03/16/05	03/09/05
W050000962	B1CF47	7440-39-3	Barium	SOIL	LA-505-412		64.2	mg/kg	9.97	0.92	03/16/05	03/09/05
W050000962	B1CF47	7440-43-9	Cadmium	SOIL	LA-505-412	U	<	mg/kg	9.97	0.020	03/16/05	03/09/05

MDL = Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.

RQ = Result Qualifier

DF = Dilution Factor

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

Report WGPP/ver. 1.1

Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-009: F05-009

Group #: WSCF20050558

Sample #	Client ID	GRP	TRENT	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive
W050000962	B1CF47	GRP	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		8.57	mg/kg	9.97	3.4	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-48-4	Cobalt	SOIL	LA-505-412		7.03	mg/kg	9.97	0.19	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-50-8	Copper	SOIL	LA-505-412		12.1	mg/kg	9.97	0.64	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-62-2	Vanadium	SOIL	LA-505-412		45.0	mg/kg	9.97	0.29	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-66-6	Zinc	SOIL	LA-505-412		42.3	mg/kg	9.97	2.5	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-412		2.78	mg/kg	9.97	0.26	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7439-97-6	Mercury	SOIL	LA-505-412	U	< 9.97e-03	mg/kg	9.97	0.010	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.475	mg/kg	9.97	0.16	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-38-2	Arsenic	SOIL	LA-505-412	U	< 2.39	mg/kg	9.97	2.4	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7782-49-2	Selenium	SOIL	LA-505-412	U	< 0.728	mg/kg	9.97	0.73	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-28-0	Thallium	SOIL	LA-505-412		0.150	mg/kg	9.97	0.020	03/16/05	03/09/05
W050000962	B1CF47	GRP	TRENT	7440-24-6	Strontium	SOIL	LA-505-412		26.6	mg/kg	9.97	1.0	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-32-6	Titanium	SOIL	LA-505-411		1.19e+03	mg/kg	99.54	0.10	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7439-96-5	Manganese	SOIL	LA-505-412		309	mg/kg	9.87	6.9	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-02-0	Nickel	SOIL	LA-505-412		8.94	mg/kg	9.87	0.21	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-22-4	Silver	SOIL	LA-505-412	U	< 9.87e-03	mg/kg	9.87	9.9e-03	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-36-0	Antimony	SOIL	LA-505-412	U	< 7.05	mg/kg	9.87	7.0	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-39-3	Barium	SOIL	LA-505-412		66.8	mg/kg	9.87	0.91	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412		0.0551	mg/kg	9.87	0.020	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		11.2	mg/kg	9.87	3.3	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-48-4	Cobalt	SOIL	LA-505-412		6.75	mg/kg	9.87	0.19	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-50-8	Copper	SOIL	LA-505-412		14.5	mg/kg	9.87	0.63	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-62-2	Vanadium	SOIL	LA-505-412		44.3	mg/kg	9.87	0.29	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-66-6	Zinc	SOIL	LA-505-412		53.8	mg/kg	9.87	2.5	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-412		3.92	mg/kg	9.87	0.26	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7439-97-6	Mercury	SOIL	LA-505-412	U	< 9.87e-03	mg/kg	9.87	9.9e-03	03/16/05	03/09/05
W050000963	B1CF86	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.496	mg/kg	9.87	0.16	03/16/05	03/09/05

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Report WGPP/ver. 1.1

Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-009: F05-009
Group #: WSCF20050558

Sample #	Client ID	GRP	TRENT	CAS #	Test Performed	Matrix	Method	RQ	Result	Unit	DF	MDL	Analyze Sample	Receive
W050000963	81CF86	GRP	TRENT	7440-38-2	Arsenic	SOIL	LA-505-412		5.86	mg/kg	9.87	2.4	03/16/05	03/09/05
W050000963	81CF86	GRP	TRENT	7782-49-2	Selenium	SOIL	LA-505-412	U	< 0.721	mg/kg	9.87	0.72	03/16/05	03/09/05
W050000963	81CF86	GRP	TRENT	7440-28-0	Thallium	SOIL	LA-505-412		0.172	mg/kg	9.87	0.020	03/16/05	03/09/05
W050000963	81CF86	GRP	TRENT	7440-24-6	Strontium	SOIL	LA-505-412		33.4	mg/kg	9.87	0.99	03/16/05	03/09/05

MDL = Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.

RQ = Result Qualifier

DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
 Report WGPP/ver. 1.1

Groundwater Remediation Program

WSCF ANALYTICAL LABORATORY QC REPORT

SAF Number: F05-009
 Sample Date: 03/08/05
 Receive Date: 03/09/05

SDG Number: WSCF20050558
 Matrix: SOLID
 Test: ICP Metals Analysis, Grd H20 P

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
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Lab ID: W050000952
BATCH QC ASSOCIATED WITH SAMPLE

MS	Titanium	7440-32-6	320	n/a	% Recov	03/16/05	75.000	125.000	
MSD	Titanium	7440-32-6	289	n/a	% Recov	03/16/05	75.000	125.000	
SPK-RPD	Titanium	7440-32-6		n/a	RPD	03/16/05	0.000	20.000	

BATCH QC

BLANK	Titanium	7440-32-6	0.3	0.300	ug/L	03/16/05			
LCS	Titanium	7440-32-6	688	135.167	% Recov	03/16/05	9.000	191.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SAF Number: F05-009
 Sample Date: 03/08/05
 Receive Date: 03/09/05

SDG Number: WSCF20050558
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050000952									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Silver	7440-22-4	293.3	73.325	% Recov	03/16/05	70.000	130.000	
MS	Arsenic	7440-38-2	426.088	106.522	% Recov	03/16/05	70.000	130.000	
MS	Barium	7440-39-3	441.59	110.397	% Recov	03/16/05	70.000	130.000	
MS	Cadmium	7440-43-9	414.31332	103.578	% Recov	03/16/05	70.000	130.000	
MS	Cobalt	7440-48-4	403.508	100.877	% Recov	03/16/05	70.000	130.000	
MS	Chromium	7440-47-3	398.904	99.726	% Recov	03/16/05	70.000	130.000	
MS	Copper	7440-50-8	404.18	101.045	% Recov	03/16/05	70.000	130.000	
MS	Mercury	7439-97-6	20.45	102.250	% Recov	03/16/05	70.000	130.000	
MS	Manganese	7439-96-5	429.3	107.325	% Recov	03/16/05	70.000	130.000	
MS	Nickel	7440-02-0	403.56	100.890	% Recov	03/16/05	70.000	130.000	
MS	Lead	7439-92-1	403.856	100.964	% Recov	03/16/05	70.000	130.000	
MS	Antimony	7440-36-0	458.5	114.625	% Recov	03/16/05	70.000	130.000	
MS	Selenium	7782-49-2	431.103	107.776	% Recov	03/16/05	70.000	130.000	
MS	Strontium	7440-24-6	412.33	103.082	% Recov	03/16/05	70.000	130.000	
MS	Thallium	7440-28-0	392.4206	98.105	% Recov	03/16/05	70.000	130.000	
MS	Uranium	7440-61-1	404.2757	101.069	% Recov	03/16/05	70.000	130.000	
MS	Vanadium	7440-62-2	390.44	97.610	% Recov	03/16/05	70.000	130.000	
MS	Zinc	7440-66-6	413.85	103.463	% Recov	03/16/05	70.000	130.000	
MSD	Silver	7440-22-4	345.8	86.450	% Recov	03/16/05	70.000	130.000	
MSD	Arsenic	7440-38-2	401.188	100.297	% Recov	03/16/05	70.000	130.000	
MSD	Barium	7440-39-3	401.99	100.498	% Recov	03/16/05	70.000	130.000	
MSD	Cadmium	7440-43-9	401.51332	100.378	% Recov	03/16/05	70.000	130.000	
MSD	Cobalt	7440-48-4	396.708	99.177	% Recov	03/16/05	70.000	130.000	
MSD	Chromium	7440-47-3	390.004	97.501	% Recov	03/16/05	70.000	130.000	
MSD	Copper	7440-50-8	395.38	98.845	% Recov	03/16/05	70.000	130.000	
MSD	Mercury	7439-97-6	19.38	96.900	% Recov	03/16/05	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050558
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: F05-009
 Sample Date: 03/08/05
 Receive Date: 03/09/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Manganese	7439-96-5	379.6	94.900	% Recov	03/16/05	70.000	130.000	
MSD	Nickel	7440-02-0	391.76	97.940	% Recov	03/16/05	70.000	130.000	
MSD	Lead	7439-92-1	387.256	96.814	% Recov	03/16/05	70.000	130.000	
MSD	Antimony	7440-36-0	443.9	110.975	% Recov	03/16/05	70.000	130.000	
MSD	Selenium	7782-49-2	418.503	104.626	% Recov	03/16/05	70.000	130.000	
MSD	Strontium	7440-24-6	387.83	99.457	% Recov	03/16/05	70.000	130.000	
MSD	Thallium	7440-28-0	378.1206	94.780	% Recov	03/16/05	70.000	130.000	
MSD	Uranium	7440-61-1	388.1757	97.044	% Recov	03/16/05	70.000	130.000	
MSD	Vanadium	7440-62-2	388.04	97.010	% Recov	03/16/05	70.000	130.000	
MSD	Zinc	7440-66-6	402.45	100.612	% Recov	03/16/05	70.000	130.000	
SPK-RPD	Silver	7440-22-4	86.450	16.429	RPD	03/16/05	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	100.297	6.020	RPD	03/16/05	0.000	20.000	
SPK-RPD	Barium	7440-39-3	100.498	9.388	RPD	03/16/05	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	100.378	3.138	RPD	03/16/05	0.000	20.000	
SPK-RPD	Cobalt	7440-48-4	99.177	1.700	RPD	03/16/05	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	97.501	2.256	RPD	03/16/05	0.000	20.000	
SPK-RPD	Copper	7440-50-8	98.845	2.201	RPD	03/16/05	0.000	20.000	
SPK-RPD	Mercury	7439-97-6	96.900	5.373	RPD	03/16/05	0.000	20.000	
SPK-RPD	Manganese	7439-96-5	94.900	12.288	RPD	03/16/05	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	97.940	2.967	RPD	03/16/05	0.000	20.000	
SPK-RPD	Lead	7439-92-1	96.814	4.197	RPD	03/16/05	0.000	20.000	
SPK-RPD	Antimony	7440-36-0	110.975	3.236	RPD	03/16/05	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	104.626	2.866	RPD	03/16/05	0.000	20.000	
SPK-RPD	Strontium	7440-24-6	99.457	3.580	RPD	03/16/05	0.000	20.000	
SPK-RPD	Thallium	7440-28-0	94.780	3.448	RPD	03/16/05	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	97.044	4.063	RPD	03/16/05	0.000	20.000	
SPK-RPD	Vanadium	7440-62-2	97.010	0.617	RPD	03/16/05	0.000	20.000	
SPK-RPD	Zinc	7440-66-6	100.612	2.794	RPD	03/16/05	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050558
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: F05-009
 Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BATCH QC									
BLANK	Silver	7440-22-4	1.589e-3	0.002	ug/L	03/16/05			
BLANK	Arsenic	7440-38-2	0.24	0.240	ug/L	03/16/05			
BLANK	Barium	7440-39-3	9.2e-2	0.092	ug/L	03/16/05			
BLANK	Cadmium	7440-43-9	2e-3	0.002	ug/L	03/16/05			
BLANK	Cobalt	7440-48-4	1.9e-2	0.019	ug/L	03/16/05			
BLANK	Chromium	7440-47-3	0.336	0.336	ug/L	03/16/05			
BLANK	Copper	7440-50-8	6.414e-2	0.064	ug/L	03/16/05			
BLANK	Mercury	7439-97-6	1e-3	0.001	ug/L	03/16/05			
BLANK	Manganese	7439-96-5	0.697	0.697	ug/L	03/16/05			
BLANK	Nickel	7440-02-0	2.1e-2	0.021	ug/L	03/16/05			
BLANK	Lead	7439-92-1	2.644e-2	0.026	ug/L	03/16/05			
BLANK	Antimony	7440-38-0	0.714	0.714	ug/L	03/16/05			
BLANK	Selenium	7782-49-2	7.3e-2	0.073	ug/L	03/16/05			
BLANK	Strontium	7440-24-6	0.1	0.100	ug/L	03/16/05			
BLANK	Thallium	7440-28-0	1.321e-2	0.013	ug/L	03/16/05			
BLANK	Uranium	7440-61-1	1.814e-2	0.018	ug/L	03/16/05			
BLANK	Vanadium	7440-62-2	2.9e-2	0.029	ug/L	03/16/05			
BLANK	Zinc	7440-66-6	0.7331	0.733	ug/L	03/16/05			
LCS	Silver	7440-22-4	143.2	110.154	% Recov	03/16/05	110.000	170.000	
LCS	Arsenic	7440-38-2	170.3	105.776	% Recov	03/16/05	82.000	142.000	
LCS	Barium	7440-39-3	242.2	96.111	% Recov	03/16/05	79.000	123.000	
LCS	Cadmium	7440-43-9	133.4	104.219	% Recov	03/16/05	88.000	127.000	
LCS	Cobalt	7440-48-4	35.36	100.455	% Recov	03/16/05	78.000	111.000	
LCS	Chromium	7440-47-3	70.6	101.583	% Recov	03/16/05	50.000	126.000	
LCS	Copper	7440-50-8	151.2	102.162	% Recov	03/16/05	61.000	134.000	
LCS	Mercury	7439-97-6	16.14	95.503	% Recov	03/16/05	75.000	114.000	
LCS	Manganese	7439-96-5	410.4	100.588	% Recov	03/16/05	79.000	114.000	
LCS	Nickel	7440-02-0	152	103.401	% Recov	03/16/05	84.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050558
 Matrix: SOLID
 Test: ICP-2008 MS All possible metal

SAF Number: F05-009
 Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Lead	7439-92-1	143.7	101.197	% Recov	03/16/05	87.000	120.000	
LCS	Antimony	7440-36-0	115.6	189.819	% Recov	03/16/05	61.000	135.000	*
LCS	Selenium	7782-49-2	68.82	107.196	% Recov	03/16/05	83.000	145.000	
LCS	Strontium	7440-24-6	80.13	95.393	% Recov	03/16/05	80.000	120.000	
LCS	Thallium	7440-28-0	82.81	98.345	% Recov	03/16/05	79.000	125.000	
LCS	Uranium	7440-61-1	372.3	93.075	% Recov	03/16/05	69.000	107.000	
LCS	Vanadium	7440-82-2	95.44	98.088	% Recov	03/16/05	77.000	111.000	
LCS	Zinc	7440-86-6	183.5	111.212	% Recov	03/16/05	76.000	148.000	

WSCF ANALYTICAL COMMENT REPORT

Attention: Steve Trent
Project Number F05-009

Group #: WSCF20050558

Sample # Client ID Lab Area Test Comment

VALGROUP

ICP-MS: Preparation blank results are in ug/L (ppb) and sample results are in ug/g (ppm). Sb LCS recovery is within mfg. specifications; no flag issued.

ICP-AES: Spiking level for Titanium was insufficient for sample concentration, MS/MSD results NA.

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/1 Report#: WSCF20050558

Report Date: 17-mar-2005

Page 1

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Project Number : Group #: 20050558

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
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RQ = Result Qualifier

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WGPFPE v 1.1 Report#: 20050558 Report Date: 17-mar-2005

WSCF METHOD REFERENCES REPORT

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 EPA SW-846 6010B	INDUCTIVELY COUPLED PLASMA-ATOMIC EMISSION SPECTROMETRY
LA-505-412	LA-505-412: DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY EPA-600/R-94-111 200.8	DETERMINATION OF TRACE ELEMENTS IN WATERS AND WASTES BY INDUCTIVELY COUPLED PLAS

Note: A complete list of WSCF analytical procedures and referenced regulatory or industry methods is available online at [\\ap006.aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf](http://ap006.aspdocs\WSCF\Sample Mgmt\ProcedureMethodCrossReference.pdf). This document includes on-line links to full-text versions of the procedures and methods, where available.

Report Date: 17-mar-2005
Report#: WSCF20050558
Report WGPPM/O

W13q Worklist/Batch/QC Report for Group# WSCF20050558

WL#	S#	Batch	QC#	Tray Type	Sample#	Test
25384	1	25750	29143	BLANK		ICP-2008 MS All possible metal
25384	2	25750	29143	LCS		ICP-2008 MS All possible metal
25384	4	25750	29143	MS	W050000952	ICP-2008 MS All possible metal
25384	5	25750	29143	MSD	W050000952	ICP-2008 MS All possible metal
25384	5	25750	29143	SPK-RPD	W050000952	ICP-2008 MS All possible metal
25384	10	25750	29143	SAMPLE	W050000961	ICP-2008 MS All possible metal
25384	11	25750	29143	SAMPLE	W050000962	ICP-2008 MS All possible metal
25384	12	25750	29143	SAMPLE	W050000963	ICP-2008 MS All possible metal
25369	1	25735	29153	BLANK		ICP Metals Analysis, Grd H20 P
25369	2	25735	29153	LCS		ICP Metals Analysis, Grd H20 P
25369	4	25735	29153	MS	W050000952	ICP Metals Analysis, Grd H20 P
25369	5	25735	29153	MSD	W050000952	ICP Metals Analysis, Grd H20 P
25369	5	25735	29153	SPK-RPD	W050000952	ICP Metals Analysis, Grd H20 P
25369	10	25735	29153	SAMPLE	W050000961	ICP Metals Analysis, Grd H20 P
25369	11	25735	29153	SAMPLE	W050000962	ICP Metals Analysis, Grd H20 P
25369	12	25735	29153	SAMPLE	W050000963	ICP Metals Analysis, Grd H20 P

M8141-SLF-05-134

ATTACHMENT 3

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

File
V13
3/18/05

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Groundwater Remediation Program

Richland, WA 99354
Attn: Steve Trent

Customer Code: GPP
PO#: 119141/ES10
Group#: 20050558
Project#: F05-009
Proj Mgr: Steve Trent A0-21
Phone: 373-5869



The following samples were received from you on 03/09/05. 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
W050000961	B1CF41	GRP @2008	TRENT Solid, or handle as if solid @GPP6010	03/09/05
W050000962	B1CF47	GRP @2008	TRENT Solid, or handle as if solid @GPP6010	03/09/05
W050000963	B1CF86	GRP @2008	TRENT Solid, or handle as if solid @GPP6010	03/09/05

Test Acronym Description

Test Acronym	Description
@2008	ICP-2008 MS All possible metal
@GPP6010	ICP Metals Analysis, Grd H2O P

COLLECTOR: POPE/PFISTER/MOKLER/TYRA
 COMPANY CONTACT: JACKSON, RL
 TELEPHONE NO.: 372-9004
 PROJECT COORDINATOR: TRENT, SJ
 PRICE CODE: 8B
 DATA TURNAROUND: 7 Days / 18 Days

SAMPLING LOCATION: 216-U-8, 04715, 4494-46ft
 PROJECT DESIGNATION: U Plant Closure Contaminant Plume Refinement
 SAF NO.: F05-009
 AIR QUALITY:

ICE CHEST NO.:
 FIELD LOGBOOK NO.: HMFN-439.1
 COA: 119141E510
 METHOD OF SHIPMENT: GOVERNMENT VEHICLE
 BILL OF LADING/AIR BILL NO.: N/A

SHIPPED TO: Waste Sampling & Characterization

POSSIBLE SAMPLE HAZARDS/REMARKS: None

MATRIX*	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL HANDLING AND/OR STORAGE
A=Air						
DL=Drum						
Liquids						
DS=Drum						
Solids						
L=Liquid						
O=Oil						
S=Soil						
SE=Sediment						
T=Tissue						
V=Vegetation						
W=Water						
W=Wipe						
X=Other						

SAMPLE NO.: 20050558
 MATRIX*: BICF41 U05 000961 SOIL
 SAMPLE DATE: 3-9-05
 SAMPLE TIME: 1430
 SPECIAL INSTRUCTIONS: X

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN / PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	SPECIAL INSTRUCTIONS
POPE/PFISTER 3-9-05	15:15		VICTOR ISMERS	3/9/05 15:15	(1)ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc) ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Selenium, Strontium, Thallium, Uranium) ICP/MS - 200.8 (Hg); ICP-Metals-60499 (TAL) (Magnesium) ICP Metals - 60108 (Add-On) (Titanium) PYS 3-2-05
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME		RECEIVED BY/STORED IN	DATE/TIME	
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:

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 COMPANY CONTACT: JACKSON, RL TELEPHONE NO. 372-9004 PROJECT COORDINATOR: TRENT, SJ
 PROJECT DESIGNATION: U Plant Closure Contaminant Plume Refinement SAF NO. F05-009
 FIELD LOGBOOK NO. COA 11914IES10 METHOD OF SHIPMENT: GOVERNMENT VEHICLE
 OFFSITE PROPERTY NO. HUF-D-429 1 BILL OF LADING/AIR BILL NO. N/A

COLLECTOR: POPE/PFISTER/MOKLER/TYRA
 SAMPLING LOCATION: 216-U-8 (4719 44ft - 46 ft)
 ICE CHEST NO. 44ft - 46 ft

SHIPPED TO: Waste Sampling & Characterization
 MATRIX*: None
 POSSIBLE SAMPLE HAZARDS/REMARKS: None

MATRIX*	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
None	JAG	1	60mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	3-9-05	1207

SPECIAL HANDLING AND/OR STORAGE: [REDACTED]

CHAIN OF POSSESSION	SIGN/PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: J. Pope		[Signature]	3-9-05 15:15	[Signature]	3-9-05 3:30
RELINQUISHED BY/REMOVED FROM:					
RELINQUISHED BY/REMOVED FROM:					
RELINQUISHED BY/REMOVED FROM:					
RELINQUISHED BY/REMOVED FROM:					
RELINQUISHED BY/REMOVED FROM:					

SPECIAL INSTRUCTIONS: (1) ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc) ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Selenium, Strontium, Thallium, Uranium) ICP/MS - 200.8 (Hg); ICP/MS - 6010B (TAL) (Magnesium) ICP Metals - 6010B (Add-On) (Titanium) ~~MS 3-2-05~~

Fluor Hanford Inc		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1	
COLLECTOR POPE/PESTER/MOKLER/TYRA	COMPANY CONTACT JACKSON, RL	TELEPHONE NO. 372-9004	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8B	DATA TURNAROUND
SAMPLING LOCATION 216-U-8 C4715 4421-410ft ICE CHEST NO.	PROJECT DESIGNATION U Plant Closure Contaminant Plume Refinement	COA 119141ES10	SAP NO. F05-009	AIR QUALITY <input type="checkbox"/>	7 Days / 15 Days 9/21/03
FIELD LOGBOOK NO. HMJF-N-429-1	OFFSITE PROPERTY NO. N/A	METHOD OF SHIPMENT GOVERNMENT VEHICLE	BILL OF LADING/AIR BILL NO. N/A		
SHIPPED TO Waste Sampling & Characterization	PRESERVATION None	TYPE OF CONTAINER 3G	NO. OF CONTAINERS(S) 1	VOLUME 50ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids O=Oil S=Soil SE=Sediment T=Trasat V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL HANDLING AND/OR STORAGE	SAMPLE NO. 963	MATRIX* SOIL	SAMPLE DATE/SAMPLE TIME 3-4-05 1930 X
CHAIN OF POSSESSION			SIGN/PRINT NAMES		
RELINQUISHED BY/REMOVED FROM S. H. H. 3-4-05	DATE/TIME 15:15	RECEIVED BY/STORED IN Victor B. S. 3/4/05	DATE/TIME 15:15	SPECIAL INSTRUCTIONS (1) ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc) ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Selenium, Strontium, Thallium, Uranium) ICP/MS - 200.8 (Hg); ICP-Metalic - 6010B TPO F05-009 (Magnesium) ICP Metals - 6010B (Add-On) (Titanium) TPO 8-2-03	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
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	