0085440

SAF-RC-116
Columbia River Component of the RCBRA – Sediment
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 3/10/10
INITIAL/DATE

COMMENTS:

SDG SEQ011510 SAF-RC-116

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sampling Location: 300A J30016

RECEIVED
MAR 24 2010
EDMC

Analytical Chemistry Data Package
Inorganics Analysis

Project: Washington Closures Hanford
AVS/SEM Analysis of Sediment

SDG011510
SDG012110
SDG012810
SDG020410

PNNL Project No. 56166
MSL CF No. 2981

Pacific Northwest
NATIONAL LABORATORY

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
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SEQ011510

INORGANIC CHEMISTRY ANALYSIS DATA PACKAGE CONTENTS

AVS/SEM Analysis in Sediment

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Sample Custody Information

Laboratory Sample Log-In and Chain of Custody Forms for:

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Project: Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID	AVS µmole/g	SEM Cd µg/L	SEM Cd µg/g	SEM Cd µmole/g	SEM Cu µg/L	SEM Cu µg/g	SEM Cu µmole/g
J19FB6	2981-331 R1	SDG011510	79.6	012210AVS	0.0245	4.58	0.178	0.00159	31.6	1.23	0.0194
J19FB6DUP	2981-331 R2	SDG011510	79.0	012210AVS	0.0221	3.57	0.193	0.00172	27.3	1.48	0.0232
J19F71	2981-332 R1	SDG012110	43.3	012710AVS	14.9	7.64	3.44	0.0306	25.9	11.7	0.184
J19F71DUP	2981-332 R2	SDG012110	43.3	012710AVS	14.2	5.13	1.99	0.0177	15.0	5.81	0.0915
J19H15	2981-334	SDG012110	86.2	012510AVS	0.107	1.36	0.166	0.00148	26.4	3.23	0.0509
J19H16	2981-338	SDG012810	83.6	020110AVS	0.0237	1.07	0.175	0.00155	17.9	2.92	0.0460
J19H31	2981-339 R1	SDG012810	64.8	020310AVS	0.0175	1.69	0.299	0.00266	24.5	4.33	0.0681
J19H31DUP	2981-339 R2	SDG012810	64.8	020310AVS	0.0187	1.68	0.317	0.00282	23.3	4.40	0.0692
J19FD3	2981-340	SDG012810	66.1	020310AVS	0.0178	2.03	0.364	0.00324	27.6	4.95	0.0778
J19HV9	2981-341	SDG012810	73.7	020110AVS	0.978	9.09	1.20	0.0107	53.3	7.05	0.111
J19HW0	2981-342	SDG012810	86.8	020110AVS	0.0382	0.237	0.0325	0.000289	17.4	2.38	0.0375
J19HV8	2981-343	SDG012810	77.2	020110AVS	0.296	2.49	0.292	0.00260	36.5	4.28	0.0673
J19FJ6	2981-344 R1	SDG012810	77.2	020310AVS	1.84	1.75	0.273	0.00243	31.0	4.83	0.0760
J19FJ6DUP	2981-344 R2	SDG012810	77.2	020310AVS	0.648	2.94	0.267	0.00238	54.5	4.95	0.0780
J19FB5	2981-345	SDG012810	78.8	020310AVS	0.870	3.92	0.280	0.00249	55.3	3.95	0.0622
J19FJ7	2981-346	SDG012810	79.2	020310AVS	0.148	1.37	0.125	0.00111	23.6	2.15	0.0338
J19FB8	2981-347 R1	SDG020410	70.5	020910AVS	4.61	2.81	0.389	0.00346	24.4	3.37	0.0531
J19FB8DUP	2981-347 R2	SDG020410	70.5	020910AVS	5.66	2.27	0.380	0.00338	17.2	2.88	0.0453
J19HV7	2981-348	SDG020410	85.0	020910AVS	0.00744	0.670	0.0504	0.000448	35.2	2.65	0.0417
J19JL8	2981-349	SDG020410	96.6	020910AVS	0.0116	0.575	0.0301	0.000268	111	5.81	0.0915
J19JL9	2981-350	SDG020410	79.3	020910AVS	0.0352	1.07	0.0704	0.000626	50.3	3.31	0.0521
Detection Limit (mean used for AVS)					0.0145	0.0530	0.00539	0.0000480	0.364	0.0370	0.000583

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Project: **Project:** Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: **File #:** 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID	Ni µg/L	SEM Ni µg/g	SEM Ni µmole/g	SEM Pb µg/L	SEM Pb µg/g	SEM Pb µmole/g	SEM Zn µg/L	SEM Zn µg/g	SEM Zn µmole/g
J19FB6	2981-331 R1	SDG011510	79.6	012210AVS	18.0	0.689	0.0117	68.4	2.66	0.0128	528	20.2	0.309
J19FB6DUP	2981-331 R2	SDG011510	79.0	012210AVS	15.0	0.795	0.0135	59.0	3.19	0.0154	429	22.7	0.348
J19F71	2981-332 R1	SDG012110	43.3	012710AVS	12.7	5.59	0.0952	46.1	20.7	0.100	743	331	5.06
J19F71DUP	2981-332 R2	SDG012110	43.3	012710AVS	7.77	2.90	0.0493	29.9	11.6	0.0559	470	179	2.74
J19H15	2981-334	SDG012110	86.2	012510AVS	9.84	1.17	0.0199	85.3	10.4	0.0504	233	27.5	0.420
J19H16	2981-338	SDG012810	83.6	020110AVS	10.5	1.66	0.0283	30.1	4.90	0.0237	122	18.5	0.283
J19H31	2981-339 R1	SDG012810	64.8	020310AVS	8.84	1.51	0.0257	37.5	6.62	0.0319	190	32.1	0.491
J19H31DUP	2981-339 R2	SDG012810	64.8	020310AVS	8.02	1.46	0.0248	35.9	6.77	0.0327	180	32.4	0.495
J19FD3	2981-340	SDG012810	66.1	020310AVS	10.8	1.88	0.0321	42.6	7.63	0.0368	210	36.1	0.553
J19HV9	2981-341	SDG012810	73.7	020110AVS	15.2	1.97	0.0336	106	14.0	0.0676	1360	179	2.73
J19HW0	2981-342	SDG012810	86.8	020110AVS	6.67	0.873	0.0149	16.6	2.27	0.0109	49.0	5.55	0.0850
J19HV8	2981-343	SDG012810	77.2	020110AVS	28.6	3.32	0.0565	61.6	7.22	0.0348	184	20.6	0.315
J19FJ6	2981-344 R1	SDG012810	77.2	020310AVS	20.8	3.19	0.0544	43.5	6.77	0.0327	202	30.1	0.461
J19FJ6DUP	2981-344 R2	SDG012810	77.2	020310AVS	32.5	2.93	0.0499	77.0	7.00	0.0338	233	20.4	0.312
J19FB5	2981-345	SDG012810	78.8	020310AVS	22.3	1.57	0.0268	82.5	5.89	0.0284	385	26.9	0.411
J19FJ7	2981-346	SDG012810	79.2	020310AVS	11.4	1.01	0.0172	45.6	4.14	0.0200	201	17.5	0.268
J19FB8	2981-347 R1	SDG020410	70.5	020910AVS	12.5	1.69	0.0287	55.5	7.67	0.0370	416	56.4	0.862
J19FB8DUP	2981-347 R2	SDG020410	70.5	020910AVS	9.61	1.56	0.0265	43.5	7.27	0.0351	332	54.1	0.828
J19HV7	2981-348	SDG020410	85.0	020910AVS	11.5	0.842	0.0143	34.0	2.55	0.0123	102	7.03	0.108
J19JL8	2981-349	SDG020410	96.6	020910AVS	29.7	1.54	0.0262	31.7	1.66	0.00800	96.9	4.63	0.0708
J19JL9	2981-350	SDG020410	79.3	020910AVS	16.8	1.09	0.0185	63.5	4.17	0.0202	203	12.8	0.196
Detection Limit (mean used for AVS)					0.0630	0.0100	0.000170	0.0260	0.00264	0.0000128	0.323	0.0329	0.000503

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Molar Ratios of AVS to Total SEM Metals

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File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID	AVS µmole/g	ΣSEM Metals µmole/g	Excess Metals Present (Y or N)
J19FB6	2981-331 R1	SDG011510	79.6	012210AVS	0.0245	0.355	Y
J19FB6DUP	2981-331 R2	SDG011510	79.0	012210AVS	0.0221	0.402	Y
J19F71	2981-332 R1	SDG012110	43.3	012710AVS	14.9	5.47	N
J19F71DUP	2981-332 R2	SDG012110	43.3	012710AVS	14.2	2.95	N
J19H15	2981-334	SDG012110	86.2	012510AVS	0.107	0.543	Y
J19H16	2981-338	SDG012810	83.6	020110AVS	0.0237	0.383	Y
J19H31	2981-339 R1	SDG012810	64.8	020310AVS	0.0175	0.619	Y
J19H31DUP	2981-339 R2	SDG012810	64.8	020310AVS	0.0187	0.625	Y
J19FD3	2981-340	SDG012810	66.1	020310AVS	0.0178	0.702	Y
J19HV9	2981-341	SDG012810	73.7	020110AVS	0.978	2.954	Y
J19HW0	2981-342	SDG012810	86.8	020110AVS	0.0382	0.149	Y
J19HV8	2981-343	SDG012810	77.2	020110AVS	0.296	0.476	Y
J19FJ6	2981-344 R1	SDG012810	77.2	020310AVS	1.84	0.627	N
J19FJ6DUP	2981-344 R2	SDG012810	77.2	020310AVS	0.648	0.476	N
J19FB5	2981-345	SDG012810	78.8	020310AVS	0.870	0.531	N
J19FJ7	2981-346	SDG012810	79.2	020310AVS	0.148	0.340	Y
J19FB8	2981-347 R1	SDG020410	70.5	020910AVS	4.61	0.985	N
J19FB8DUP	2981-347 R2	SDG020410	70.5	020910AVS	5.66	0.938	N
J19HV7	2981-348	SDG020410	85.0	020910AVS	0.00744	0.176	Y
J19JL8	2981-349	SDG020410	96.6	020910AVS	0.0116	0.197	Y
J19JL9	2981-350	SDG020410	79.3	020910AVS	0.0352	0.287	Y

Detection Limit (mean used for AVS)

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File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID[1]	AVS µmole/g	SEM Cd µg/L	SEM Cd µg/g	SEM Cd µmole/g	SEM Cu µg/L	SEM Cu µg/g	SEM Cu µmole/g
Detection Limit (batch mean used for AVS)					0.0145	0.0530	0.00539	0.0000480	0.364	0.0370	0.000583
SEM Analytical Blanks											
ICB				020910-6100		0.0530 U			0.364 U		
CCB1				020910-6100		0.0530 U			0.364 U		
CCB2				020910-6100		0.0530 U			0.364 U		
CCB3				020910-6100		0.0530 U			0.364 U		
CCB4				020910-6100		0.0530 U			0.364 U		
CCB5				020910-6100		0.0530 U			0.364 U		
CCB6				020910-6100		0.0530 U			0.364 U		
AVS Blanks											
Blank 012110				012210AVS	0.0132						
Blank 012510				012510AVS	0.0337						
Blank 020110				020110AVS	0.0134 U						
Blank 020310				020310AVS	0.0124 U						
Blank 020910 r1				020910AVS	0.00815 U	0.0530 U			0.364 U		
Blank 020910 r2				020910AVS	0.00815 U	0.0530 U			0.364 U		
Blank 020910 r3				020910AVS	0.00815 U	0.0530 U			0.364 U		
Blank 020910 r4				020910AVS	0.00815 U	0.0530 U			0.364 U		
Blank 020910 r5				020910AVS	0.00815 U	0.0530 U			0.364 U		
Replicate Analysis Results											
J19FB6	2981-331 R1	SDG011510	79.6	012210AVS	0.0245	4.58	0.178	0.00159	31.6	1.23	0.0193
J19FB6DUP	2981-331 R2	SDG011510	79.0	012210AVS	0.0221	3.57	0.194	0.00172	27.3	1.48	0.0233
	RPD				**10%**			**8%**			**19%**
J19F71	2981-332 R1	SDG012110	43.3	012710AVS	14.9	7.64	3.44	0.0306	25.9	11.6	0.183
J19F71DUP	2981-332 R2	SDG012110	43.3	012710AVS	14.2	5.13	1.99	0.0177	15.0	5.81	0.0914
	RPD				**5%**			**53% ***			**67% ***
J19H31	2981-339 R1	SDG012810	64.8	020310AVS	0.0175	1.69	0.299	0.00266	24.5	4.33	0.0682
J19H31DUP	2981-339 R2	SDG012810	64.8	020310AVS	0.0187	1.68	0.317	0.00282	23.3	4.40	0.0692
	RPD				**7%**			**6%**			**1%**
J19FJ6	2981-344 R1	SDG012810	77.2	020310AVS	1.84	1.75	0.272	0.00242	31.0	4.83	0.0759
J19FJ6DUP	2981-344 R2	SDG012810	77.2	020310AVS	0.648	2.94	0.268	0.00239	54.5	4.97	0.0783
	RPD				**96% ***			**1%**			**3%**
J19FB8	2981-347 R1	SDG020410	70.5	020910AVS	4.61	2.81	0.389	0.00346	24.4	3.37	0.0531
J19FB8DUP	2981-347 R2	SDG020410	70.5	020910AVS	5.66	2.27	0.380	0.00338	17.2	2.88	0.0453
	RPD				**20%**			**2%**			**16%**

QC Summary
Washington Closure Hanford, AVS-SEM Chemistry Data Package, SDGs 011510, 012110, 012810, and 020410

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Project: Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID[1]	Ni µg/L	SEM Ni µg/g	SEM Ni µmole/g	SEM Pb µg/L	SEM Pb µg/g	SEM Pb µmole/g	SEM Zn µg/L	SEM Zn µg/g	SEM Zn µmole/g
Detection Limit (batch mean used for AVS)					0.0630	0.0100	0.000170	0.0260	0.00264	0.0000128	0.323	0.0329	0.000503
SEM Analytical Blanks													
ICB				020910-6100	0.0630 U			0.0260 U			0.323 U		
CCB1				020910-6100	0.0630 U			0.0260 U			0.323 U		
CCB2				020910-6100	0.0630 U			0.0260 U			0.323 U		
CCB3				020910-6100	0.0630 U			0.0260 U			0.323 U		
CCB4				020910-6100	0.0630 U			0.0260 U			0.323 U		
CCB5				020910-6100	0.0630 U			0.0260 U			0.323 U		
CCB6				020910-6100	0.0630 U			0.0260 U			0.323 U		
AVS Blanks													
Blank 012110				012210AVS									
Blank 012510				012510AVS									
Blank 020110				020110AVS									
Blank 020310				020310AVS									
Blank 020910 r1				020910AVS	0.235			0.0419			6.60		
Blank 020910 r2				020910AVS	0.214			0.0321			5.70		
Blank 020910 r3				020910AVS	0.110			0.0260 U			4.52		
Blank 020910 r4				020910AVS	0.714			0.0285			15.4		
Blank 020910 r5				020910AVS	0.217			0.0594			6.12		
Replicate Analysis Results													
J19FB6	2981-331 R1	SDG011510	79.6	012210AVS	18.0	0.701	0.0119	68.4	2.66	0.0128	528	20.5	0.314
J19FB6DUP	2981-331 R2	SDG011510	79.0	012210AVS	15.0	0.814	0.0139	59.0	3.20	0.0154	429	23.2	0.355
	RPD						**16%**			**18%**			**12%**
J19F71	2981-332 R1	SDG012110	43.3	012710AVS	12.69	5.72	0.0974	46.1	20.7	0.100	743	335	5.12
J19F71DUP	2981-332 R2	SDG012110	43.3	012710AVS	7.77	3.01	0.0513	29.9	11.6	0.0560	470	182	2.78
	RPD						**62% ***			**56% ***			**59% ***
J19H31	2981-339 R1	SDG012810	64.8	020310AVS	8.84	1.56	0.0266	37.5	6.62	0.0320	190	33.5	0.513
J19H31DUP	2981-339 R2	SDG012810	64.8	020310AVS	8.02	1.51	0.0258	35.9	6.77	0.0327	180	34.0	0.521
	RPD						**3%**			**2%**			**2%**
J19FJ6	2981-344 R1	SDG012810	77.2	020310AVS	20.8	3.24	0.0551	43.5	6.78	0.0327	202	31.4	0.48
J19FJ6DUP	2981-344 R2	SDG012810	77.2	020310AVS	32.5	2.97	0.0506	77.0	7.03	0.0339	233	21.3	0.33
	RPD						**9%**			**4%**			**37% ***
J19FB8	2981-347 R1	SDG020410	70.5	020910AVS	12.5	1.73	0.0295	55.5	7.67	0.0370	416	57.6	0.881
J19FB8DUP	2981-347 R2	SDG020410	70.5	020910AVS	9.61	1.61	0.0273	43.5	7.27	0.0351	332	55.6	0.850
	RPD						**8%**			**5%**			**4%**

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File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID[1]	AVS µmole/g	SEM Cd µg/L	SEM Cd µg/g	SEM Cd µmole/g	SEM Cu µg/L	SEM Cu µg/g	SEM Cu µmole/g
Laboratory Control Sample Results											
LCS r2				012210AVS	0.604						
LCS r3				012210AVS	0.795						
BLANK 1					0.0149						
	Spike Concentration				0.508						
	Percent Recovery				**116%**						
					154% N						
LCS r1				012710AVS	0.626						
LCS r2				012710AVS	0.552						
BLANK 1					NA						
	Spike Concentration				0.508						
	Percent Recovery				**123%**						
	Percent Recovery				**109%**						
LCS r1				020110AVS	0.374						
LCS r2				020110AVS	0.509						
LCS r3				020110AVS	0.473						
BLANK 1					0.0134 U						
	Spike Concentration				0.508						
	Percent Recovery				**74% N**						
	Percent Recovery				**100%**						
	Percent Recovery				**93%**						
LCS r1				020310AVS	0.375						
LCS r2				020310AVS	0.522						
LCS r3				020310AVS	0.501						
LCS r4				020310AVS	0.474						
BLANK 1					0.0124 U						
	Spike Concentration				0.508						
	Percent Recovery				**74% N**						
	Percent Recovery				**103%**						
	Percent Recovery				**99%**						
	Percent Recovery				**93%**						
LCS r1				020910AVS	0.450						
LCS r2				020910AVS	0.415						
BLANK 1					0.00815 U						
	Spike Concentration				0.508						
	Percent Recovery				**89%**						
	Percent Recovery				**82%**						

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File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID[1]	Ni µg/L	SEM Ni µg/g	SEM Ni µmole/g	SEM Pb µg/L	SEM Pb µg/g	SEM Pb µmole/g	SEM Zn µg/L	SEM Zn µg/g	SEM Zn µmole/g
Laboratory Control Sample Results													
LCS r2				012210AVS									
LCS r3				012210AVS									
BLANK 1													
	Spike Concentration												
	Percent Recovery												
LCS r1				012710AVS									
LCS r2				012710AVS									
BLANK 1													
	Spike Concentration												
	Percent Recovery												
	Percent Recovery												
LCS r1				020110AVS									
LCS r2				020110AVS									
LCS r3				020110AVS									
BLANK 1													
	Spike Concentration												
	Percent Recovery												
	Percent Recovery												
	Percent Recovery												
LCS r1				020310AVS									
LCS r2				020310AVS									
LCS r3				020310AVS									
LCS r4				020310AVS									
BLANK 1													
	Spike Concentration												
	Percent Recovery												
	Percent Recovery												
	Percent Recovery												
	Percent Recovery												
LCS r1				020910AVS									
LCS r2				020910AVS									
BLANK 1													
	Spike Concentration												
	Percent Recovery												
	Percent Recovery												

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BATTELLE MARINE SCIENCES LABORATORY
1529 W. Sequim Bay Road
Sequim, WA 98382
(360) 681-4564

Project: Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID[1]	AVS µmole/g	SEM Cd µg/L	SEM Cd µg/g	SEM Cd µmole/g	SEM Cu µg/L	SEM Cu µg/g	SEM Cu µmole/g
LCS r1				020910-6100		10.4			10.8		
LCS r2				020910-6100		10.5			10.5		
LCS r3				020910-6100		10.6			9.96		
BLANK 1						0.0530 U			0.364 U		
	Spike Concentration					10			10		
	Percent Recovery					**104%**			**108%**		
	Percent Recovery					**105%**			**105%**		
	Percent Recovery					**106%**			**100%**		
Standard Reference Material Data											
1640 Direct				020910-6100		23.6			89.17		
	Certified/Reference Value					22.79			85.2		
	Range					±0.96			±1.2		
	Percent Recovery					**104%**			**105%**		
SEM Matrix Spike Recovery											
J19FB6	2981- 331 R2			020910-6100		3.57			27.3		
J19FB6MS	2981- 331 R2 MS			020910-6100		24.4			48.2		
J19FB6MSD	2981- 331 R2 MSD			020910-6100		24.3			48.0		
Amount Spiked						20			20		
% Recovery, MS						**104%**			**105%**		
% Recovery, MSD						**104%**			**104%**		
RPD						**0%**			**1%**		
J19H16	2981- 338			020910-6100		1.07			17.9		
J19H16MS	2981- 338 MS			020910-6100		21.5			37.2		
J19H16MSD	2981- 338 MSD			020910-6100		22.0			36.9		
Amount Spiked						20			20		
% Recovery, MS						**102%**			**97%**		
% Recovery, MSD						**105%**			**95%**		
RPD						**2%**			**2%**		
J19HV7	2981- 348			020910-6100		0.670			35.2		
J19HV7MS	2981- 348 MS			020910-6100		11.0			75.1		
J19HV7MSD	2981- 348 MSD			020910-6100		11.3			75.8		
Amount Spiked						10			40		
% Recovery, MS						**103%**			**100%**		
% Recovery, MSD						**106%**			**102%**		
RPD						**3%**			**2%**		

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Sequim, WA 98382
(360) 681-4564

Project: Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: 2981

SAMPLE ID SPONSOR	SAMPLE ID BATTELLE	SDG	% Dry Weight	Batch ID[1]	Ni µg/L	SEM Ni µg/g	SEM Ni µmole/g	SEM Pb µg/L	SEM Pb µg/g	SEM Pb µmole/g	SEM Zn µg/L	SEM Zn µg/g	SEM Zn µmole/g
LCS r1				020910-6100	10.6			10.9			55.9		
LCS r2				020910-6100	10.4			10.8			55.2		
LCS r3				020910-6100	9.49			11.1			56.2		
BLANK 1					0.298			0.0376			7.67		
	Spike Concentration				10			10			50		
	Percent Recovery				**103%**			**109%**			**96%**		
	Percent Recovery				**101%**			**108%**			**95%**		
	Percent Recovery				**92%**			**111%**			**97%**		
Standard Reference Material Data													
1640 Direct				020910-6100	27.9			28.4			56.4		
	Certified/Reference Value				27.4			27.89			53.2		
	Range				±0.8			±0.14			±1.1		
	Percent Recovery				**102%**			**102%**			**106%**		
SEM Matrix Spike Recovery													
J19FB6	2981- 331 R2			020910-6100	15.0			59.0			429		
J19FB6MS	2981- 331 R2 MS			020910-6100	35.0			468			834		
J19FB6MSD	2981- 331 R2 MSD			020910-6100	36.0			477			837		
Amount Spiked					20			400			400		
% Recovery, MS					**100%**			**102%**			**101%**		
% Recovery, MSD					**105%**			**105%**			**102%**		
RPD					**5%**			**2%**			**1%**		
J19H16	2981- 338			020910-6100	10.5			30.1			122		
J19H16MS	2981- 338 MS			020910-6100	28.6			448			519		
J19H16MSD	2981- 338 MSD			020910-6100	28.8			448			520		
Amount Spiked					20			400			400		
% Recovery, MS					**91%**			**104%**			**99%**		
% Recovery, MSD					**92%**			**104%**			**100%**		
RPD					**1%**			**0%**			**0%**		
J19HV7	2981- 348			020910-6100	11.5			34.0			102		
J19HV7MS	2981- 348 MS			020910-6100	21.6			74.5			145		
J19HV7MSD	2981- 348 MSD			020910-6100	21.7			73.7			144		
Amount Spiked					10			40			40		
% Recovery, MS					**101%**			**101%**			**108%**		
% Recovery, MSD					**102%**			**99%**			**105%**		
RPD					**1%**			**2%**			**2%**		

BATTELLE MARINE SCIENCES LABORATORY
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Sequim, WA 98382
(360) 681-4564

Project: Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: 2981

MSL SOP-C-001-04 Quality Control Criteria

Lab Qualifier	Description	Criterion
N	Spikes (Blank spikes AVS/matrix spikes SEM)	75-125%
*	Duplicates	<25% RPD
NA	Not Applicable/Available (note: precision on SEM data is only calculated after SEM ratio is applied)	
U	Not detected at or above MDL; MDL reported	
1	Batch ID for ICP-MS data reported in Replicate section is 020910-6100	

BATTELLE MARINE SCIENCES LABORATORY
1529 W. Sequim Bay Road
Sequim, WA 98382
(360) 681-3650

Project: Washington Closures Hanford AVS/SEM SDG011510, 012110, 012810, and 020410
File #: 2981

SPONSOR ID	MSL ID	Batch ID	Receipt Date	Collection Date	Extraction Date	AVS Analysis Date	SEM Analysis Date	Suggested 14 day Holding Time Expired	HT Exceeded by x Days
Blank 012110					01/21/2010	1/26/2010			
Blank 012510					01/25/2010	1/26/2010			
Blank 020110					02/01/2010	02/01/2010			
Blank 020310					02/03/2010	02/04/2010			
Blank 020910 r1					02/09/2010	02/10/2010	02/09/2010		
Blank 020910 r2					02/09/2010	02/10/2010	02/09/2010		
Blank 020910 r3					02/09/2010	02/10/2010	02/09/2010		
Blank 020910 r4					02/09/2010	02/10/2010	02/09/2010		
Blank 020910 r5					02/09/2010	02/10/2010	02/09/2010		
J19FB6	2981-331 R1	SDG011510	1/15/2010	01/11/2010	01/21/2010	1/26/2010	02/09/2010	01/25/2010	-4
J19FB6	2981-331 R2	SDG011510	1/15/2010	01/11/2010	01/21/2010	1/26/2010	02/09/2010	01/25/2010	-4
J19F71	2981-332 R1	SDG012110	1/21/2010	01/15/2010	01/27/2010	1/28/2010	02/09/2010	01/29/2010	-2
J19F71	2981-332 R2	SDG012110	1/21/2010	01/15/2010	01/27/2010	1/28/2010	02/09/2010	01/29/2010	-2
J19H15	2981-334	SDG012110	1/21/2010	01/17/2010	01/25/2010	1/26/2010	02/09/2010	01/31/2010	-6
J19H16	2981-338	SDG012810	1/28/2010	01/18/2010	02/01/2010	02/01/2010	02/09/2010	02/01/2010	0
J19H31	2981-339 R1	SDG012810	1/28/2010	01/25/2010	02/03/2010	02/04/2010	02/09/2010	02/08/2010	-5
J19H31	2981-339 R2	SDG012810	1/28/2010	01/25/2010	02/03/2010	02/04/2010	02/09/2010	02/08/2010	-5
J19FD3	2981-340	SDG012810	1/28/2010	01/25/2010	02/03/2010	02/04/2010	02/09/2010	02/08/2010	-5
J19HV9	2981-341	SDG012810	1/28/2010	01/22/2010	02/01/2010	02/01/2010	02/09/2010	02/05/2010	-4
J19HW0	2981-342	SDG012810	1/28/2010	01/23/2010	02/01/2010	02/01/2010	02/09/2010	02/06/2010	-5
J19HV8	2981-343	SDG012810	1/28/2010	01/24/2010	02/01/2010	02/01/2010	02/09/2010	02/07/2010	-6
J19FJ6	2981-344 R1	SDG012810	1/28/2010	01/24/2010	02/03/2010	02/04/2010	02/09/2010	02/07/2010	-4
J19FJ6	2981-344 R2	SDG012810	1/28/2010	01/24/2010	02/03/2010	02/04/2010	02/09/2010	02/07/2010	-4
J19FB5	2981-345	SDG012810	1/28/2010	01/25/2010	02/03/2010	02/04/2010	02/09/2010	02/08/2010	-5
J19FJ7	2981-346	SDG012810	1/28/2010	01/24/2010	02/03/2010	02/04/2010	02/09/2010	02/07/2010	-4
J19FB8	2981-347 R1	SDG020410	2/4/2010	02/01/2010	02/09/2010	02/10/2010	02/09/2010	02/15/2010	-6
J19FB8	2981-347 R2	SDG020410	2/4/2010	02/01/2010	02/09/2010	02/10/2010	02/09/2010	02/15/2010	-6
J19HV7	2981-348	SDG020410	2/4/2010	01/31/2010	02/09/2010	02/10/2010	02/09/2010	02/14/2010	-5
J19JL8	2981-349	SDG020410	2/4/2010	01/30/2010	02/09/2010	02/10/2010	02/09/2010	02/13/2010	-4
J19JL9	2981-350	SDG020410	2/4/2010	01/29/2010	02/09/2010	02/10/2010	02/09/2010	02/12/2010	-3

Summary Dates

QA/QC NARRATIVE

PROJECT:	Washington Closures Hanford AVS/SEM SDG011510, SDG012110, SDG012810, and SDG020410
PARAMETER:	Acid Volatile Sulfide (AVS) and Simultaneously Extracted Metals (SEM)
LABORATORY:	Pacific Northwest National Laboratory (PNNL) operated by Battelle, Marine Sciences Laboratory (MSL), Sequim, Washington
MATRIX:	Sediment
SAMPLE CUSTODY AND PROCESSING:	A total of 18 sediment samples were received at MSL between 01/15/10 and 2/4/10. All but one sample were received in good condition. One sample container (2981-332) was cracked in transit, but the sample was successfully transferred to a new jar and there was sufficient mass to remove the outer, potentially oxidized sediment, and only analyze sediment not in contact with the cracked container walls. In addition,two of the samples had insufficient masses to be used for AVS analysis and the analysis request was canceled per WCH project manager instructions. Samples were assigned a Battelle Central File (CF) identification number (2981) and were entered into the MSL sample tracking and project management system.

SAMPLE PROCESSING INFORMATION:

MSL Code:	**2981* 331-350**
Description:	Sediment
Collection dates	01/11/10 through 01/29/10
Laboratory arrival date	01/15/10 through 02/04/10
Cooler temperature on arrival	2.9 to 5.7°C
AVS Extraction Dates:	01/21/10 and 02/09/10
AVS Analyses Dates:	01/22/10 to 02/09/10
SEM Analyses Dates:	02/09/10

METHODS:

Acid volatile sulfide (AVS) has been used to predict the sediment toxicity of copper (Cu), cadmium (Cd), nickel (Ni), lead (Pb) and zinc (Zn) (Ankley et al. 1996; Berry et al. 1996). This relationship results from the volatilization of AVS present in sediment and simultaneous release of previously sulfide bound metals (SEM). As a metal sulfide complex, early research indicates that metals are not available for uptake by benthic organisms. Under this assumption, the amount of AVS present in sediment limits the metal bioavailability and subsequent toxicity in sediments. Sulfide is an important binding component in modeling metal sorption in sediments (Morse et al. 1987). In the presence of excess sulfide, most of the reactive metal will form insoluble metal sulfides. The AVS becomes an indicator of the ratio of available sulfide to the SEM metals and allows the partitioning of free aqueous phase metal and solid phase metal in sediments. The five divalent metals (Cd, Ni, Cu, Pb and Zn) form metal sulfide complexes. If the molar ratios of the SEMs are greater than that of the AVS, the excess fraction of the metals may be considered to have a high potential for bioavailability. For divalent metals, one mole of SEM will react with one mole of AVS.

Sediment samples were extracted and analyzed for AVS in accordance with Battelle SOP MSL-C-001. This procedure is based on a peer-reviewed, published procedure for the analysis of AVS in sediment and dissolved sulfide in aqueous samples, adopted from a draft EPA method (Allen et al. 1991.). In this method, sulfide in the sample is converted to hydrogen sulfide by the addition of hydrochloric acid at room temperature. The hydrogen sulfide (H_2S) is purged from the sample by an inert gas and trapped in a sodium hydroxide (NaOH) solution. With the addition of a mixed-diamine reagent (MDR), the sulfide is converted to methylene blue and measured on a spectrometer. AVS results were reported in units of µmole/g on a dry-weight basis.

The SEM extracts were analyzed for all other metals by Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) in accordance with Battelle SOP MSL-I-022, Determination of Elements in Aqueous and Digestate Samples by ICP/MS. The analysis

guidelines for this procedure are adapted from USEPA Method 1638 Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-Mass Spectrometry. The SEM metal solution concentrations are determined in units of µg/L and then converted to µg SEM/g of sediment extracted for AVS. These data are further converted to µmole/g for each SEM metal.

HOLDING TIMES: The suggested holding time for AVS in sediment is 14 days per Battelle SOP MSL-C-001. The holding time may be extended if the samples are frozen and the oxidized layer is removed prior to analyses. The suggested holding time is calculated from day of collection to day of extraction (preservation of the sulfide). All samples were analyzed within the suggested holding time. All samples were stored frozen from time of receipt to analysis.

DATA QUALITY CRITERIA (DQC):

Analyte	Analytical Method	Method Range of Spike Recovery	Replicate Precisions (RPD)	Achieved MDL[1]
AVS	Spectrometer	75-125%	≤25%	0.0145 µmole/g
SEM Cd	ICP-MS	75-125%	≤25%	0.053 µg/L
SEM Cu	ICP-MS	75-125%	≤25%	0.364 µg/L
SEM Ni	ICP-MS	75-125%	≤25%	0.0630 µg/L
SEM Pb	ICP-MS	75-125%	≤25%	0.026 µg/L
SEM Zn	ICP-MS	75-125%	≤25%	0.323 µg/L

[1] Batch average is reported for AVS

DETECTION LIMITS: Analytical results were reported to the laboratory achieved method detection limits (MDL) as determined from the Annual MDL study. The MDLs were determined according to EPA's "Definition and Procedure for the Determination of the Method Detection Limit - revision 1.11" 40 CFR Part 136, Appendix B. The achieved MDLs for ICP-MS are an order of magnitude lower, however, the matrix of the SEM requires a 10x dilution of the SEM solution and the achieved MDLs are adjusted for this dilution factor. Data were evaluated and flagged in accordance with the following criteria:

U Undetected at the MDL, MDL reported.

* Duplicates outside the QC sample criterion.

N Spikes outside the QC sample criterion.

METHOD BLANKS: Nine AVS Blanks were prepared with this group of samples. Two of the blanks had detectable AVS (just above the achieved MDL but the mean blank was less than the MDL). The AVS/SEM blank is created during the AVS analysis and the creation of the SEM sample. It consists of deionized water added to the bubblers along with hydrochloric acid used to oxidize the AVS from the sediment matrix. NI, Pb, and Zn were detected above the ICP-MS MDL due to the presence of metals in the reagents used for the AVS. Therefore, the AVS/SEM blank was subtracted from the SEM concentrations reported in µg/L. In all cases, the blank concentrations were trivial relative to the sample concentrations. The SEM Analytical blanks for the ICP-MS indicate there was no laboratory contamination.

LABORATORY CONTROL SAMPLE (LCS) ACCURACY: Duplicate laboratory control samples (LCS) samples are prepared and analyzed with the each analytical batch of AVS samples. With the exception of three LCS samples, all recoveries for the AVS LCS were within the QC criterion of 75-125% recovery. Two of the three were very close to the QC criteria (74% recovery). In all cases, an alternate LCS met the criteria. Since only AVS is spiked in the AVS LCS samples, the SEM collected from the AVS blank was post spiked with the SEM metals to generate an LCS for the SEM quantification. The SEM blank spikes or LCSs were within the QC criterion of 75-125% recovery.

QA/QC NARRATIVE

A riverine water standard reference material (SRM) identified as SRM 1640 was analyzed with the SEM extract by ICP-MS to provide a measure of instrument accuracy. The percent recoveries between the measured and certified or reference values were within the method QC criterion for all metals.

REPLICATE PRECISION:

Five laboratory duplicates were analyzed with this sample set. The duplicate analyses for AVS consist of the extraction of two different aliquots of sediment from the same sample container. The SEM precision is calculated once the SEM metal concentrations (µg/L) determined from the ICP-MS are converted to a mass basis (µg/g) to account for differences in sample mass extracted. Analytical precision was also assessed by the analyses of matrix spikes in duplicate. Precision of duplicate analyses was expressed as the relative percent difference (RPD) of replicate results. The RPD values were within the QC criterion of ≤25% for all parameters except one replicate pair for AVS (RPD=96%) and one pair for SEM metals (two for Zn). The samples were very gravelly, making it difficult to weigh out a consistent sample between the two replicates. SEM analytical precision between MS/MSDs were all well within the 75% to 125% guidelines.

MATRIX SPIKE ACCURACY:

The analyses of the SEM extracts included the preparation of matrix spike samples in duplicate. An aliquot of the SEM extract was spiked with all SEM metals and analyzed with the batch. The matrix spike recoveries were within the QC acceptance criterion.

REFERENCES:

Allen, H.E., F. Gongmin, W. Boothman, D. DiToro, and J. Mahoney. 1991. Determination of Acid Volatile Sulfides (AVS) and Simultaneously Extracted Metals in Sediment. Draft Analytical Method for Determination of Acid Volatile Sulfide in Sediment. USEPA Office of Science and Technology, Washington, DC. April, 1991.

Ankley, G. T., Di Toro, D. M., Hansen, D. J., and Berry W. J. 1996. Technical basis and proposal for deriving sediment quality criteria for metals. Environmental Toxicology and Chemistry. 15:2056-2066.

Berry, W. J., Hansen, D. J., Mahony, J. D., Robson, D. L., Di Toro, D. M., Shipley, B. P., Corbin, J. M. and Boothman, W. S. 1996. Predicting the toxicity of metals-spiked laboratory sediments using acid-volatile sulfide and interstitial water normalization. Environmental Toxicology and Chemistry. 15:2067-2079.

Morse, J. W., Millero, F. J., Cornwell, J. C. and Rickard, D. 1987. The chemistry of the hydrogen sulfide and iron sulfide systems in natural waters. Earth Science Review. 24:1-42.

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SAMPLE LOGIN

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 681-4565

Project Manager: Brandenberger
Date Received: 01/15/10
Batch: 23
Login Designee: Mcgahan

Project: **Washington Closure Hanford**

Sponsor ID	Site Description	Battelle Code	Matrix	Storage Location	Requested Parameters	Collection Date
J19FB6	na	2981-331	other solid	Deep Freezer B-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zink)	~~01/11/09~~

wrong date
1/11/10
JMS

SOP#: MSL-A-001

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2033	Page 1 of 1
Collector R. Curet	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7C	Data Turnaround 15 Days
Project Designation Columbia River Component of the RCBRA - Sediment	Sampling Location 300A-- J30016		SAF No. RC-116	
Ice Chest No. 009-001	Field Logbook No. EL-1645 -01	COA BESCRC6520	Method of Shipment FED EX	
Shipped To Battelle Marine Sciences	Offsite Property No. N/A		Bill of Lading/Air Bill No. 7931 8295 2516	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
J19FB6 2981 331	OTHER SOLID	01-11-10	1530	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From R. Curet R. Curet	01-11-10 1747	Received By/Stored In R. Curet R. Curet EAS REF D	01-11-10 1747
Relinquished By/Removed From EAS REF D SJ	1/14/10 1415	Received By/Stored In SHANNAN JOHNSON	1/14/10 1415
Relinquished By/Removed From SHANNAN JOHNSON	1/14/10 1415	Received By/Stored In FDX 7931 8295 2516	1/14/10
Relinquished By/Removed From	Date/Time	Received By/Stored In [signature]	01/15/10 1330
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

of samples for shipment to lab.
Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody

Matrix *
S-Soil
SE-Sediment
SO-Solid
SL-Sludge
W-Water
O-Oil
A-Air
DS-Drum Solids
DL-Drum Liquids
T-Tissue
WI-Wipe
L-Liquid
V-Vegetation
X-Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Reference SOP# MSL-A-001

LOG-IN CHECKLIST

Central File #: 2981 Sample No(s): 331 Batch: 23

Project Name: CA Closure Hanford Project Manager: Brandenberger

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Yes	No	
		Navy-type Project (requires high-level sample tracking procedures)
		USDA Samples (see Compliance Agreement Checklist)

PM Verification:

		Filter Samples: Amount: Entire sample Half of sample
		Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Login Lab)
		Special instructions:

Sample Preservation Instructions:

See LIMS for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Custody seal present — Seal intact? YES NO
✓			Cooler temperature (acceptable range: 4±2°C or solids:frozen) (if multiple coolers, note temp. of each) — 3.1 °C, °C
		✓	Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc) Comment/Remedy:
✓			Were all chain of custody forms signed and dated?
	✓		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Cap. Vial Other:

Notes:

Completed By: [signature] Date/Time: 01/15/10 1330

SAMPLE PRESERVATION

- [ ] Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
- [ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs:
- [ ] Complete pH check required for project (use pH meter and record on pH Record form)
- [✓] Sample(s) were preserved at MSL

Type:
- [ ] 0.2% HNO3 Notes: Lot#
- [ ] 0.5% HCl (Hg samples) Notes: Lot#
- [✓] Refrigerate/Freeze Notes: deep freeze B-1
- [ ] Other Notes:

Completed By: [signature] Date/Time: 01/15/10 1330

Storage Shelf: B-1

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Project Manager: Brandenberger
Date Received: 01/21/10
Batch: 24
Login Designee: Mcgahan

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 681-4565

Project: **Washington Closure Hanford**

Sponsor ID	Site Description	Battelle Code	Matrix	Storage Location	Requested Parameters	Collection Date
J19F71	na	2981-332	other solid	Counter- Lab 130	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/15/10
J19F72	na	2981-333	other solid	Counter- Lab 130	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/16/10
J19H15	na	2981-334	other solid	Counter- Lab 130	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/17/10
J19H39	na	2981-335	other solid	Counter- Lab 130	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/18/10

V'd 1/21/10

NOTE: Analysis of 2981*333 and 2981*335 was cancelled per client request.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2022 | Page 1 of 1

Washington Closure Hanford

Collector: R. Curet	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7C	Data Turnaround: 15 Days		
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100-BC 7100BC1J5		SAF No.: RC-116
Ice Chest No.	Field Logbook No.: EL-1645 - 01	COA: BESCRC6520	Method of Shipment: FED EX
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7931 9790 2227

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19F71 2981.332	OTHER SOLID	01-15-10	1351	X		Jar broke in cooler					

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Curet R. Curet	01-15-10 1745	R. Curet EAS REF E	01-15-10 1745
EAS REF E	1/20/10 1335	SHANNAN JOHNSON	1/20/10 1335
SHANNAN JOHNSON	1/20/10 1335	FDX	
		[signature]	01/21/10 1205

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Samples for shipment to lab:
Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody

Matrix *
S-Soil
SE-Sediment
SO-Solid
SL-Sludge
W-Water
O-Oil
A-Air
DS-Drum Solids
DL-Drum Liquids
T-Tissue
WI-Wipe
L-Liquid
V-Vegetation
X-Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23495

J19F63 SAF-RC-116 RDD/100BC T100BCIJ5 RCBRA RIVER

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23495
Sample Description	: J19F63 SAF-RC-116 RDD/100BC T100BCIJ5 RCBRA RIVER
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.305E+03 grams
Facility	: Default
Sample Taken On	: 1/15/2010 1:51:00PM
Acquisition Started	: 1/19/2010 1:21:01PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.5 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33778

Qualitative Only

Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.935	1.36E+00	1.79E-01	
PB-212	0.710	8.00E-02	1.03E-02	
RA-226d	0.611	7.19E-02	9.94E-03	
TH-232d	0.980	7.30E-02	9.06E-03	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2023 | Page 1 of 1

Washington Closure Hanford

Collector: Rylie Barron

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: 009-003

Company Contact: JOAN KESSNER | Telephone No.: 375-4688

Sampling Location: 100-BC J100BC23

Field Logbook No.: EL-1645 | COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C | Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7931 9790 2227

Shipped To: Battelle Marine Sciences

POSSIBLE SAMPLE HAZARDS/REMARKS: N/A

Special Handling and/or Storage: N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No. / Matrix * / Sample Date / Sample Time												
J19F72 2981.335 / OTHER SOLID / 1-16-10 / 1600	X											

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Barron RB	1-16-10 2025	EAS Ref D R. Barron RB	1-16-10 2025
EAS REF D	1/20/10 1335	SHANNAN JOHNSON	1/20/10 1335
SHANNAN JOHNSON	1/20/10 1335	EAS	
			01/21/10 1205

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23494
J19FL1 SAF-RC-116 RDD/100BC-J100BC23

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23494
Sample Description	: J19FL1 SAF-RC-116 RDD/100BC-J100BC23
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 4.500E+01 grams
Facility	: Default
Sample Taken On	: 1/16/2010 4:00:15PM
Acquisition Started	: 1/19/2010 4:27:35PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.4 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33786

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	1.000	1.68E+01	3.50E+00	
RA-226d	0.619	6.42E-01	1.91E-01	
TH-232d	0.853	8.21E-01	1.84E-01	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2069

Washington Closure Hanford

Collector: Kevin Cranna

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 7C

Data Turnaround: 15 Days

Project Designation: Columbia River Component of the RCBRA - Sediment

Sampling Location: 100 BC J100BC47

SAF No.: RC-116

Ice Chest No.: 009-003

Field Logbook No.: EL-1645

COA: BESCRC6520

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7931 9790 2227

Shipped To: Battelle Marine Sciences

Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
J19H15 2981-334	OTHER SOLID	01-17-10	1800	X								

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Kevin Cranna	01-17-10 1930	EAS Locked Storage	01-17-10 1930
EAS LOCKED STORAGE	1/20/10 1333	SHANNAN JOHNSON	1/20/10 1335
SHANNAN JOHNSON	1/20/10 1335	FDX	
		MLFM Sahar	01/21/10 1205

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23493
J19FV0 SAF-RC-116 RDD-100BC/J100BC47

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23493
Sample Description	: J19FV0 SAF-RC-116 RDD-100BC/J100BC47
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 5.900E+01 grams
Facility	: Default
Sample Taken On	: 1/17/2010 6:00:00PM
Acquisition Started	: 1/19/2010 3:25:47PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.8 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33783

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.975	1.27E+01	3.01E+00	
PB-212	0.710	8.55E-01	1.43E-01	
RA-226d	0.617	7.89E-01	1.56E-01	
TH-232d	0.352	4.76E-01	1.82E-01	
U-238d	0.336	7.21E-01	7.45E-01	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2083 | Page 1 of 1

Washington Closure Hanford

Collector: Rylie Burron

Company Contact: JOAN KESSNER | Telephone No.: 375-4688

Project Coordinator: KESSNER, JH

Price Code: 7C | Data Turnaround: 15 Days

Project Designation: Columbia River Component of the RCBRA - Sediment

Sampling Location: 100BC T100BC 4A

SAF No.: RC-116

Ice Chest No.: 009-003

Field Logbook No.: FL-1645 | COA: BESCRC6520

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7931 9790 2227

Shipped To: Battelle Marine Sciences

Offsite Property No.: N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19H39 2981.335	OTHER SOLID	1-18-10	1530	X							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Burron	1-18-10 1900	R. Burron EAS freezer \ RR	1-18-10 1900
EAS Fr2H \	1/20/10 1335	SHANNAN JOHNSON	1/20/10 1335
SHANNAN JOHNSON	1/20/10 1335	FDX	
		04/21/10 1205	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Wi=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23492
J19H35 SAF-RC-116 RDD/100BC/T100BC4A

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23492
Sample Description	: J19H35 SAF-RC-116 RDD/100BC/T100BC4A
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 5.200E+01 grams
Facility	: Default
Sample Taken On	: 1/18/2010 3:30:00PM
Acquisition Started	: 1/19/2010 2:22:01PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.4 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33780

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.985	1.60E+01	3.34E+00	
PB-212	0.711	8.47E-01	1.69E-01	
RA-226d	0.672	7.25E-01	1.70E-01	
TH-232d	0.434	5.43E-01	1.90E-01	
U-235	0.547	1.36E-01	1.20E-01	

Reference SOP# MSL-A-001

LOG-IN CHECKLIST

Central File #: 2981 Sample No(s): 332 - 335 Batch: 24

Project Name: WA Closure Hanford Project Manager: Brandenberger

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Yes	No	
		Navy-type Project (requires high-level sample tracking procedures)
		USDA Samples (see Compliance Agreement Checklist)

PM Verification:

		Filter Samples: Amount: Entire sample Half of sample
		Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Login Lab)
		Special instructions:

Sample Preservation Instructions:

See LIMS for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Custody seal present — Seal intact? YES NO
✓			Cooler temperature (acceptable range: 4±2°C or solids:frozen) — 5.7 °C; °C (if multiple coolers, note temp. of each)
✓		✓	Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc) — Comment/Remedy: Sample # 332, jar broke in cooler
✓			Were all chain of custody forms signed and dated?
	✓		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Cap. Vial Other:

Notes:

Completed By: [signature] Date/Time: 01/21/10 1205

SAMPLE PRESERVATION

✓	Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
	Random pH checked for ~10% of samples (use dip paper) — Sample IDs:
	Complete pH check required for project (use pH meter and record on pH Record form)
	Sample(s) were preserved at MSL

Type:

	0.2% HNO3	Notes:	Lot#
	0.5% HCl (Hg samples)	Notes:	Lot#
✓	Refrigerate/Freeze	Notes:	~~Bag fam B-1~~ counter lab 130 (analyzed day arrival pm) PM — [illegible]
	Other	Notes:	

Completed By: [signature] Date/Time: 01/21/10 1230

Storage Shelf: B-1

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 681-4565

Project Manager: Brandenberger
Date Received: 01/28/10
Batch: 24
Login Designee: Mcgahan
Project: **Washington Closure Hanford**

Sponsor ID	Site Description	Battelle Code	Matrix	Storage Location	Requested Parameters	Collection Date
J19249	na	2981-336	other solid	Deep Freezer C-1	Total Inorganic As	01/21/10
J19680	na	2981-337	other solid	Deep Freezer C-1	Total Inorganic As	01/21/10
J19H16	na	2981-338	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/18/10
J19H31	na	2981-339	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/25/10
J19FD3	na	2981-340	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/25/10
J19HV9	na	2981-341	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/22/10
J19HW0	na	2981-342	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/23/10
J19HV8	na	2981-343	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/24/10
J19FJ6	na	2981-344	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/24/10
J19FB5	na	2981-345	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/25/10
J19FJ7	na	2981-346	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/24/10

SOP#: MSL-A-001

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-118-601 | Page 1 of 1

Washington Closure Hanford

Collector: M. Fidino	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: ~~9K~~ N	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: URSA-CARP 4 FILLET		SAF No.: RC-118
Ice Chest No.: WCH-08-0012	Field Logbook No.: EL-1638	COA: BESCRC6520	Method of Shipment: FED EX
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5056

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C
Type of Container	P/G
No. of Container(s)	1
Volume	15mL
SAMPLE ANALYSIS	Total Inorganic Arsenic

Sample No.	Matrix *	Sample Date	Sample Time	
J19249 2891, 336	OTHER SOLID	1/21/10	1130	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M. Fidino on 2 1/21/10	1130	EAS LOCKED STORAGE #2 1/21/10 on 2	1/21/10 1130
EAS LOCKED STORAGE #2 1/21/10 on 2	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
SHANNAN JOHNSON	1/27/10 1245	FOX	
		[illegible]	01/28/10 1300

SPECIAL INSTRUCTIONS

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-118-949

Washington Closure Hanford

Collector: M. Fidino

Project Designation: Columbia River Component of the RCBRA - Tissues

Ice Chest No.: 100H-08-001-2

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Sampling Location: URSA-CARP 4 CARCASS

Field Logbook No.: EL-1638-1

COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-118

Price Code: 9K N NL 4909

Data Turnaround: 45 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5056

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C										
Type of Container	P/G										
No. of Container(s)	1										
Volume	15mL										
SAMPLE ANALYSIS	Total Inoganic Arsenic										
Sample No.	Matrix *	Sample Date	Sample Time								
J19680 2981.337	OTHER SOLID	1/21/10	1330	X							

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M Fidino	1/21/10 1330	EAS LOCKED STORAGE#1	1/21/10 1330
EAS LOCKED STORAGE#1	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
[illegible]	1/27/10 1245	FDX	
		[illegible]	04/28/09 1300

SPECIAL INSTRUCTIONS

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23506

J19F62 SAF:RC-116 RDD/100BC T100BC3C 1000mL POLY BOTTLE

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23506
Sample Description	: J19F62 SAF:RC-116 RDD/100BC T100BC3C 1000mL POLY BOTTLE
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.270E+02 grams
Facility	: Default
Sample Taken On	: 1/18/2010 4:10:00PM
Acquisition Started	: 1/21/2010 11:34:09AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.5 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33891

Qualitative Only

Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.996	8.09E+00	1.46E+00	
RA-226d	0.617	3.67E-01	7.45E-02	
TH-232d	0.682	3.62E-01	7.36E-02	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2070

Washington Closure Hanford

Collector: R. Curet

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: WCH-EE-001-2 ~~FED-46-062~~ SJ 1/27/10

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Sampling Location: T100BC3C

Field Logbook No.: EL-1645 - 01

COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C

Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5056

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No. / Matrix * / Sample Date / Sample Time											
J19H16 2981 338 / OTHER SOLID / 01-18-10 / 1610	X										

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Curet R. Curet	01-18-10 1820	R. Curet R. Curet EAS REF #	01-18-10 1820
EAS Frzt #1 SJ	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
SHANNAN JOHNSON	1/27/10 1245	FDX	
		[illegible]	01/28/09 1300

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W = Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23554

J19H29 SAF:RC-116 RDD/300A--T3005J5 60mL aG

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23554
Sample Description	: J19H29 SAF:RC-116 RDD/300A--T3005J5 60mL aG
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.020E+02 grams
Facility	: Default
Sample Taken On	: 1/25/2010 3:00:00PM
Acquisition Started	: 1/26/2010 9:40:32AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.6 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV

Qualitative Only

Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238

Sample Number : 34017

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.997	1.00E+01	1.77E+00	
PB-212	0.711	6.50E-01	9.05E-02	
RA-226d	0.617	4.63E-01	9.07E-02	
TH-232d	0.854	3.84E-01	9.29E-02	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2076	Page 1 of 1
Collector Rylie Barron	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7C — Data Turnaround 15 Days
Project Designation Columbia River Component of the RCBRA - Sediment	Sampling Location 300A T300SJS		SAF No. RC-116	
Ice Chest No. WCH-08-001-2 EL-46-068 01/27/10	Field Logbook No. EL-1645	COA BESCRC6520	Method of Shipment GROUND TRANSPORT	
Shipped To Battelle Marine Sciences	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
J19H31 2981.339	OTHER SOLID	1-25-10	1500	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From R. Barron RR	1700 1-25-10	R. Barron EAS Reed D RR	1700 1-24-10
Relinquished By/Removed From EAS REED SJ	1/27/10 1245	Received By/Stored In SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From SHANNAN JOHNSON	1/27/10 1245	Received By/Stored In EDS	
Relinquished By/Removed From		Received By/Stored In 01/28/09	1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *
S-Soil
SE-Sediment
SO-Solid
SL-Sludge
W-Water
O-Oil
A-Air
DS-Drum Solids
DL-Drum Liquids
T-Tissue
WI-Wipe
L-Liquid
V-Vegetation
X-Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2039

Washington Closure Hanford

Collector: Rylie Barron

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: WH-08-001-2

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Sampling Location: 300A-- T300555 DUP

Field Logbook No.: EL-1645

Offsite Property No.: N/A

COA: BESCRC6520

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C

Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5056

Shipped To: Battelle Marine Sciences

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19FD3 2981-370	OTHER SOLID	1-25-10	1515	X							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Barron RB	1700 1-25-10	R. Barron EAS Ref D RB	1700 1-25-10
EAS REF D SJ	1-27-10 1215	SHANNAN JOHNSON	1-27-10 1215
SHANNAN JOHNSON	1-27-10 DIR FDX		
			01/28/10
			28/10

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W = Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
	Disposed By		Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method		

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23540
J19HV1 SAF:RC-116 RDD/100K KWIN TEST 1

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23540
Sample Description	: J19HV1 SAF:RC-116 RDD/100K KWIN TEST 1
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 9.500E+01 grams
Facility	: Default
Sample Taken On	: 1/22/2010 2:30:00PM
Acquisition Started	: 1/25/2010 10:54:34AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: PGTWHITE
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 1/17/2010
Efficiency Calibration Used Done On	: 1/17/2010
Efficiency Calibration Description	: PGTWhite NonSTD Geom EffCal 011310 80398-238
Sample Number	: 33953

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.995	7.31E+00	1.62E+00	
PB-212	0.709	3.21E-01	7.95E-02	
RA-226d	0.618	2.05E-01	8.05E-02	
TH-232d	0.677	3.00E-01	8.52E-02	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2099	Page 1 of 1
Collector: Kylie Barron	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C	Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100 K KUIN TEST 1		SAF No.: RC-116	
Ice Chest No.: CRC-96-069 WCH-08 EDI-2 1/27/10	Field Logbook No.: EL-1645	COA: BESCRC6520	Method of Shipment: FED EX	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5256	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											

Sample No.	Matrix *	Sample Date	Sample Time										
J19HV9 2981.341	OTHER SOLID	1-22-10	1430	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: K. Barron R.R.	1-22-10 1730	R.R. EAS REFD K. Barron	1-22-10 1730
Relinquished By/Removed From: EAS REFD	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From: SHANNAN JOHNSON	1/27/10 1245	FDY	
Relinquished By/Removed From		[illegible]	01/28/10 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford

Radiological Counting Facility

Analysis Report for RCF23541
J19HV2 SAF:RC-116 RDD/100K T100K3A

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23541
Sample Description	: J19HV2 SAF:RC-116 RDD/100K T100K3A
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 5.900E+01 grams
Facility	: Default
Sample Taken On	: 1/23/2010 4:30:00PM
Acquisition Started	: 1/25/2010 10:55:31AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.3 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33954

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.990	1.13E+01	2.72E+00	
PB-212	0.711	6.48E-01	1.35E-01	
RA-226d	0.615	5.02E-01	1.52E-01	
TH-232d	0.434	4.89E-01	1.43E-01	
U-238d	0.335	4.68E-01	5.76E-01	< MDA 9.66E-01

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2100	Page 1 of 1
Collector Rylio Barron	Company Contact JOAN KESSNER	Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7C	Data Turnaround 15 Days
Project Designation Columbia River Component of the RCBRA - Sediment	Sampling Location 100 K 1100K 3A		SAF No. RC-116	
Ice Chest No. LUCH-08-001-2 ~~CKL 96-069~~ 1/27/10	Field Logbook No. EL-1645	COA BESCRC6520	Method of Shipment FED EX	
Shipped To Battelle Marine Sciences	Offsite Property No. N/A		Bill of Lading/Air Bill No. 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
J19HW0 2981.342	OTHER SOLID	1-23-10	1630	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From R. Barron RB	1-23-10 1830	Received By/Stored In R. Barron EAS Ref D RB	1-23-10 1830
Relinquished By/Removed From EAS REFD SJ	1/27/10 1245	Received By/Stored In SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From SHANNAN JOHNSON	1/27/10 1245	Received By/Stored In FOX	
Relinquished By/Removed From		Received By/Stored In [signature]	01/28/10 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford

Radiological Counting Facility

Analysis Report for RCF23539
J19HV0 SAF:RC-116 RDD/100H T100H/E DUP

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23539
Sample Description	: J19HV0 SAF:RC-116 RDD/100H T100H/E DUP
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.140E+02 grams
Facility	: Default
Sample Taken On	: 1/24/2010 3:15:00PM
Acquisition Started	: 1/25/2010 9:38:17AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.4 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33949

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.988	9.41E+00	1.62E+00	
PB-212	0.710	6.71E-01	9.71E-02	
RA-226d	0.828	6.09E-01	8.47E-02	
TH-232d	0.827	5.27E-01	6.99E-02	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2098

Washington Closure Hanford

Collector: Rylie Barron

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: ~~WCH-EE-011~~ WCH-EE-011-2 1/27/10

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Sampling Location: ~~100K~~ 100H T100H1E Dup

Field Logbook No.: EL-1645 (RP 1-24-10)

COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C

Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5556

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19HV8 2981.343	OTHER SOLID	1-24-10	1515	X							

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Barron RB	1700 1-24-10	R. Barron EAS ref D RB	1700 1-24-10
EAS REF D	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
SHANNAN JOHNSON	1/27/10 1245	FDX	
		[signature]	01/28/10 1300

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford

Radiological Counting Facility

Analysis Report for RCF23542
J19FV4 SAF:RC-116 RDD/100H T100HIE J19FB0

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23542
Sample Description	: J19FV4 SAF:RC-116 RDD/100H T100HIE J19FB0
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 8.700E+01 grams
Facility	: Default
Sample Taken On	: 1/24/2010 3:00:00PM
Acquisition Started	: 1/25/2010 12:07:40PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.4 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 33957

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.998	9.75E+00	1.95E+00	
PB-212	0.711	7.12E-01	1.17E-01	
RA-226d	0.715	7.96E-01	1.19E-01	
TH-232d	0.827	4.48E-01	1.07E-01	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2070 | Page 1 of 1

Washington Closure Hanford

Collector: R. Curet

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: WCH-EE-001-2 EL-46-069 SJ 1/27/10

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER | Telephone No.: 375-4688

Sampling Location: T100BC3C

Field Logbook No.: EL-1645 - 01 | COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C | Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5056

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19H16 2981 338	OTHER SOLID	01-18-10	1610	X							

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R Curet R. Curet	01-18-10 1820	EAS Freezer # SJ 1/19/10	R. Curet R. Curet 01-18-10 1820
EAS Freezer # SJ	1/20/10 1248	SHANNAN JOHNSON	1/21/10 1245
SHANNAN JOHNSON	1/21/10 1245	ED	
		McNab	04/28/09 1300

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

Matrix *: S=Soil, SE=Sediment, SO=Solid, SI=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-116-2076	Page 1 of 1

Collector: Rylie Barron	Company Contact: JOAN KESSNER Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 300A T300SJS	SAF No.: RC-116	
Ice Chest No.: WCH-08-001-2 ~~EL-46-069~~ 01/27/10	Field Logbook No.: EL-1645 COA: BESCRC6520	Method of Shipment: GROUND TRANSPORT	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
J19H31 2981.339	OTHER SOLID	1-25-10	1500	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Barron RR	1700 1-25-10	R. Barron EAS REFD RR	1700 1-24-10
Relinquished By/Removed From: EAS REFD	01/27/10 1245	SHANNAN JOHNSON	01/27/10 1245
Relinquished By/Removed From: SHANNAN JOHNSON	01/27/10 1245	REFD	
Relinquished By/Removed From		Received By/Stored In: [illegible]	01/28/09 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2039	Page 1 of 1
Collector: Rylie Barron	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C	Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 300A-- T300SJ5 DUP		SAF No.: RC-116	
Ice Chest No.: WCH-08-001-2	Field Logbook No.: EL-1645	COA: BESCRC6520	Method of Shipment: FED EX	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions											
Sample No.	Matrix *	Sample Date	Sample Time									
J19FD3 2981-340	OTHER SOLID	1-25-10	1515	X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Barron RB	1700 1-25-10	R. Barron EAS Ref D RB	1700 1-25-10
EAS REF D SJ	1-27-10 1215	SHANNAN JOHNSON	1-27-10 1215
SHANNAN JOHNSON	1-27-10 1215	EAS	
			01/28/10
			28/10

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Wi=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2099	Page 1 of 1
Collector: Kylie Barron	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C	Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100 K KUIN TEST 1		SAF No.: RC-116	
Ice Chest No.: ERD-96-029 WCH-08 EDI-2 1/27/10	Field Logbook No.: EL-1645	COA: BESCRC6520	Method of Shipment: FED EX	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5256	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
J19HV9 2981.341	OTHER SOLID	1-22-10	1430	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: K. Barron R.R.	1-22-10 1730	R.R. EAS REFD R. Barron	1-22-10 1730
Relinquished By/Removed From: EAS REFD	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From: SHANNAN JOHNSON	1/27/10 1245	FD	
Relinquished By/Removed From		[illegible] 01/28/10	1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

Matrix *: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solids, DL=Drum Liquids, T=Tissue, WI=Wipe, L=Liquid, V=Vegetation, X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-116-2100	Page 1 of 1

Collector: Rylio Barron	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7C	Data Turnaround: 15 Days		
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100 K 100K 3A		SAF No.: RC-116
Ice Chest No.: LOCH-08-001-2 ~~CEL 96-0091~~ 1/27/10	Field Logbook No.: EL-1645	COA: BESCRC6520	Method of Shipment: FED EX
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5556

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19HW0 2981.342	OTHER SOLID	1-23-10	1630	X							

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Barron RB	1-23-10 1830	R. Barron EAS Ref D RB	1-23-10 1830
Relinquished By/Removed From: EAS REFD SJ	1/27/10 1245	Received By/Stored In: SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From: SHANNAN JOHNSON	1/27/10 1245	Received By/Stored In: FOX	
Relinquished By/Removed From		Received By/Stored In: [signature]	01/28/10 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2098

Washington Closure Hanford

Collector: Rylie Barron

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: ~~PEC-96-069~~ WCH-08-001-2

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Sampling Location: ~~100K~~ 100H T100H1E Dup

Field Logbook No.: EL-1645 (KD 1-24-10)

COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C

Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5556

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C
Type of Container	G
No. of Container(s)	1
Volume	125g

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.
J19HV8 2981.343	OTHER SOLID	1-24-10	1515	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Barron RB	1700 1-24-10	R. Barron EAS Ref D RB	1700 1-24-10
EAS REF D	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
SHANNAN JOHNSON	1/27/10 1245	FDX	
			01/28/10 1300

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2050

Washington Closure Hanford

Collector: Rylie Barron

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No.: ~~EL-Gte 06-45~~ WCH-08-001-2 1/27/10

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER

Telephone No.: 375-4683

Sampling Location: 100H TOOHALE

Field Logbook No.: EL-1645

COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C

Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: 7932 1884 5056

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

SAMPLE ANALYSIS

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
	See item (1) in Special Instructions											

Sample No.	Matrix *	Sample Date	Sample Time										
J19FJ6 2981.344	OTHER SOLID	1-24-10	1500	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Barron RR	1-24-10 1630	R. Barron EAS REF D RR	1-24-10 1630
EAS REF D SJ	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
SHANNAN JOHNSON	1/27/10 1245	FDX	
			04/28/10 1300

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2050	Page 1 of 1
Collector: Rylie Barron	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C	Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100H TOOHALE		SAF No.: RC-116	
Ice Chest No.: ~~EE-4b 06-4/5~~ WCH-08-001-2 1/27/10	Field Logbook No.: EL-1645	COA: BESCRC6520	Method of Shipment: FED EX	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											

Sample No.	Matrix *	Sample Date	Sample Time										
J19FJ6 2981.344	OTHER SOLID	1-24-10	1500	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R Barron	1-24-10 1630	Received By/Stored In: R. Barron EAS Ref D	1-24-10 1630
Relinquished By/Removed From: EAS REF D	1/27/10 1245	Received By/Stored In: SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From: SHANNAN JOHNSON	1/27/10 1245	Received By/Stored In: FDX	
Relinquished By/Removed From		Received By/Stored In: 04/28/10 1300	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23553

J19FB0 SAF:RC-116 RDD/300A--J3008 1000mL POLY

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23553
Sample Description	: J19FB0 SAF:RC-116 RDD/300A--J3008 1000mL POLY
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.270E+02 grams
Facility	: Default
Sample Taken On	: 1/25/2010 5:30:00PM
Acquisition Started	: 1/26/2010 9:40:25AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: PGTWHITE
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 1/17/2010
Efficiency Calibration Used Done On	: 1/17/2010
Efficiency Calibration Description	: PGTWhite NonSTD Geom EffCal 011310 80398-238
Sample Number	: 34016

Qualitative Only

Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	0.997	9.26E+00	1.54E+00	
X	EU-155	0.369			
	PB-212	0.998	5.06E-01	7.67E-02	
	RA-226d	0.671	3.81E-01	8.13E-02	
	TH-232d	0.847	4.65E-01	7.74E-02	
	U-235	0.544	7.64E-02 <MDA 7.15E-02	5.14E-02	
	U-238d	0.333	9.60E-01	2.96E-01	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-116-2032	Page 1 of 1
Collector R. Curet	Company Contact JOAN KESSNER / Telephone No. 375-4688	Project Coordinator KESSNER, JH	Price Code 7C / Data Turnaround 15 Days
Project Designation Columbia River Component of the RCBRA - Sediment	Sampling Location 300A-- J3008	SAF No. RC-116	
Ice Chest No. ~~EAS-9~~ WCH-08-001	Field Logbook No. EL-1645 EL-1645-01 / COA BESCRC6520	Method of Shipment FED EX	
Shipped To Battelle Marine Sciences 1/27/10	Offsite Property No. N/A	Bill of Lading/Air Bill No. 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special Instructions.										

Sample No.	Matrix *	Sample Date	Sample Time										
J19FB5 2981 345	OTHER SOLID	1-25-10	17:30	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From R. Curet R. Curet	01-25-10 1832	R. Curet R. Curet EAS REF D	01-25-10 1832
Relinquished By/Removed From EAS REF D	1/27/10 1245	Received By/Stored In SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From SHANNAN JOHNSON	1/27/10 1245	Received By/Stored In FDX	
Relinquished By/Removed From		Received By/Stored In	01/28/10 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab.

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford

Radiological Counting Facility

Analysis Report for RCF23538
J19FJ3 SAF:RC-116 RDD/100H T100H/A

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23538
Sample Description	: J19FJ3 SAF:RC-116 RDD/100H T100H/A
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.420E+02 grams
Facility	: Default
Sample Taken On	: 1/24/2010 3:50:00PM
Acquisition Started	: 1/25/2010 9:36:52AM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: PGTWHITE
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 1/17/2010
Efficiency Calibration Used Done On	: 1/17/2010
Efficiency Calibration Description	: PGTWhite NonSTD Geom EffCal 011310 80398-238
Sample Number	: 33948

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

	Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40	1.000	7.29E+00	1.28E+00	
X	EU-155	0.374	4.41E-01	6.57E-02	
	PB-212	0.999	4.12E-01	6.74E-02	
	RA-226d	0.618	3.55E-01	6.88E-02	
	TH-232d	0.822	7.23E-01	2.54E-01	
	U-238d	0.327			

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2051	Page 1 of 1
Collector: R. Curet	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C	Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100H 7100H1A		SAF No.: RC-116	
Ice Chest No.: EXC-96-069	Field Logbook No.: EL-1645-01	COA: BESCRC6520	Method of Shipment: FED EX	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7932 1884 5056	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C										
Type of Container	G										
No. of Container(s)	1										
Volume	125g										
SAMPLE ANALYSIS	See item (1) in Special instructions.										
Sample No.	Matrix *	Sample Date	Sample Time								
J19FJ7 2981.346	OTHER SOLID	01-24-10	1550	X							

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Curet R. Curet	01-24-10 1657	R. Curet R. Curet / EASREF D	01-24-10 1657
Relinquished By/Removed From: EAS REF D	1/27/10 1245	SHANNAN JOHNSON	1/27/10 1245
Relinquished By/Removed From: SHANNAN JOHNSON	1/27/10 1245	FOX	
Relinquished By/Removed From		[illegible]	01/28/10 1300
Relinquished By/Removed From			
Relinquished By/Removed From			

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples rom controlled storage. Shipper removed amples from storage location taking custody f samples for shipment to lab.

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Reference SOP# MSL-A-001

LOG-IN CHECKLIST

Central File #: 2981 Sample No(s): 336-346 Batch: 25

Project Name: WA Closure Hanford Project Manager: Brandenberger

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Yes	No	
		Navy-type Project (requires high-level sample tracking procedures)
		USDA Samples (see Compliance Agreement Checklist)

PM Verification:

		Filter Samples: Amount: Entire sample Half of sample
		Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Login Lab)
		Special Instructions:

Sample Preservation Instructions:

See LIMS for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	MA		Custody seal present — Seal intact? YES NO
MA			Cooler temperature (acceptable range: 4±2°C or solids:frozen) (if multiple coolers, note temp. of each) — 2.9 °C; °C
		MA	Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc) Comment/Remedy:
MA			Were all chain of custody forms signed and dated?
	MA		Were samples filtered at MSL?

Sample condition(s): Acceptable Other (explain):

Container type: Teflon Poly Glass Cap. Vial Other:

Notes:

Completed By: [signature] Date/Time: 01/28/08 1300

SAMPLE PRESERVATION

	Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)
	Random pH checked for ~10% of samples (use dip paper) — Sample IDs:
	Complete pH check required for project (use pH meter and record on pH Record form)
MA	Sample(s) were preserved at MSL

Type:

	0.2% HNO3	Notes:	Lot#
	0.5% HCl (Hg samples)	Notes:	Lot#
MA	Refrigerate/Freeze	Notes: deep freeze (-)	
	Other	Notes:	

Completed By: [signature] Date/Time: 01/28/08 1300

Storage Shelf:

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, Washington 98382
PH: (360) 681-4565

Project Manager: Brandenberger
Date Received: 02/04/10
Batch: 26
Login Designee: Mcgahan
Project: **Washington Closure Hanford**

Sponsor ID	Site Description	Battelle Code	Matrix	Storage Location	Requested Parameters	Collection Date
J19FB8	na	2981-347	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	02/01/10
J19HV7	na	2981-348	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/31/10
J19JL8	na	2981-349	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/30/10
J19JL9	na	2981-350	other solid	Deep Freezer C-1	AVS-SEM-SULFIDES; AVS-SEM-METALS (Cadmium, Copper,Lead,Nickel,Zinc)	01/29/10

VJB 2/4/10

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-116-2035	Page 1 of 1
Collector: Rylie Barron	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C; Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 300A-- T3001J3	SAF No.: RC-116	
Ice Chest No.: 009-001	Field Logbook No.: EL-1645; COA: BESCRC6520	Method of Shipment: FED EX 7983 6020 3213	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											

Sample No.	Matrix *	Sample Date	Sample Time										
J19FB8 2981.347	OTHER SOLID	2-1-10	1320	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Barron RB	1410 2-1-10	R. Barron EAS ref D RB	1410 2-1-10
Relinquished By/Removed From: EAS REF D	2/3/10 1215	Received By/Stored In: SHANNAN JOHNSON	2/3/10 1215
Relinquished By/Removed From: SHANNAN JOHNSON	2/3/10 1215	Received By/Stored In: FDX	
Relinquished By/Removed From		Received By/Stored In: [illegible]	02/04/10 1245
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23626
J19FL2 SAF:RC-116 RDD/300A T3001J3 60g aG

GAMMA SPECTRUM ANALYSIS

Sample Identification : RCF23626
Sample Description : J19FL2 SAF:RC-116 RDD/300A T3001J3 60g aG
Sample Type : Non Standard Geo
Unit :
Sample Point

Sample Size : 1.230E+02 grams
Facility : Default

Sample Taken On : 2/1/2010 1:20:00~~AM~~ PM 2-2-10 per COC
Acquisition Started : 2/2/2010 10:27:45AM

Procedure : Non Standard Geometry
Operator : RCT
Detector Name : REGIE02
Geometry : Non Standard Geo
Live Time : 3600.0 seconds
Real Time : 3600.7 seconds

Dead Time : 0.02 %

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 80 - 4096
Peak Area Range (in channels) : 80 - 4096
Identification Energy Tolerance : 1.300 keV

Energy Calibration Used Done On : 11/3/2009
Efficiency Calibration Used Done On : 11/22/2009
Efficiency Calibration Description : REGE02 NSTD 11/11/09 EffCalSN 80398-238

Sample Number : 34255

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	1.000	1.10E+01	1.66E+00	
PB-212	0.710	4.67E-01	7.05E-02	
RA-226d	0.347	2.45E-01	7.74E-02	
TH-232d	0.854	2.59E-01	7.31E-02	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-116-2097	Page 1 of 1
Collector: R. Curet	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 7C — Data Turnaround: 15 Days
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100 K ~~J100H24~~ J100K24		SAF No.: RC-116	
Ice Chest No.: 009-001	Field Logbook No.: EL-1645-01	COA: BESCRC6520	Method of Shipment: FED EX	
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7983 6020 3213	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C											
Type of Container	G											
No. of Container(s)	1											
Volume	125g											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											
Sample No.	Matrix *	Sample Date	Sample Time									
J19HV7 2981.348	OTHER SOLID	01-31-10	1920	X								

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Curet R. Curet	01-31-10 2023	Received By/Stored In: EASREFD R. Curet R. Curet	01-31-10 2023
Relinquished By/Removed From: EASREFD	2/3/10 1215	Received By/Stored In: SHANNAN JOHNSON	2/3/10 1215
Relinquished By/Removed From: SHANNAN JOHNSON	2/3/10 1215	Received By/Stored In: FDX	
Relinquished By/Removed From		Received By/Stored In: [signature]	02/04/10 1245
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

of samples for shipment to lab.
Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford

Radiological Counting Facility

Analysis Report for RCF23614
J19HT9 SAF:RC-116 RDD 100K J100K24 RCBRA sediment

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23614
Sample Description	: J19HT9 SAF:RC-116 RDD 100K J100K24 RCBRA sediment
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 6.300E+01 grams
Facility	: Default
Sample Taken On	: 1/31/2010 7:20:00PM
Acquisition Started	: 2/1/2010 2:56:22PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: PGTWHITE
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.7 seconds
Dead Time	: 0.02 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 1/17/2010
Efficiency Calibration Used Done On	: 1/17/2010
Efficiency Calibration Description	: PGTWhite NonSTD Geom EffCal 011310 80398-238
Sample Number	: 34227

Qualitative Only

Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

	Nuclide Name		Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
	K-40		1.000	1.49E+01	2.87E+00	
X	EU-155		0.361			
	PB-212		0.998	1.42E+00	1.73E-01	
	RA-226d		0.615	1.24E+00	1.91E-01	
	TH-232d		0.995	1.01E+00	1.59E-01	
	U-238d	@	0.997	1.41E+00 <MDA 1.45E+00	1.66E+00	

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-116-2145	Page 1 of 1

Collector: R. Curet	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 7C	Data Turnaround: 15 Days		
Project Designation: Columbia River Component of the RCBRA - Sediment	Sampling Location: 100 H J100H43		SAF No.: RC-116
Ice Chest No.: 009-001	Field Logbook No.: EL-1645 - 01	COA: BESCRC6520	Method of Shipment: FED EX
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: 7983 6020 3013

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C
Type of Container	G
No. of Container(s)	1
Volume	125g

SAMPLE ANALYSIS

See item (1) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time	
J19JL8 2981.349	OTHER SOLID	01-30-10	1800	X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: R. Curet R. Curet	01-30-10 1916	EAS REF D R. Curet R. Curet	01-30-10 1916
Relinquished By/Removed From: EAS REF D	1/31/10 1215	Received By/Stored In: SHANNAN JOHNSON	1/31/10 1215
Relinquished By/Removed From: SHANNAN JOHNSON	1/31/10 1215	Received By/Stored In: FOX	
Relinquished By/Removed From:		Received By/Stored In: [signature]	02/04/10 1245
Relinquished By/Removed From:		Received By/Stored In:	
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS {Cadmium, Copper, Lead, Nickel, Zinc}

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23615
J19JL0 SAF:RC-116 RDD 100H J100H43 RCBRA sediment

GAMMA SPECTRUM ANALYSIS

Sample Identification	: RCF23615
Sample Description	: J19JL0 SAF:RC-116 RDD 100H J100H43 RCBRA sediment
Sample Type	: Non Standard Geo
Unit	:
Sample Point	
Sample Size	: 1.010E+02 grams
Facility	: Default
Sample Taken On	: 1/30/2010 6:00:00PM
Acquisition Started	: 2/1/2010 3:57:56PM
Procedure	: Non Standard Geometry
Operator	: RCT
Detector Name	: REGIE02
Geometry	: Non Standard Geo
Live Time	: 3600.0 seconds
Real Time	: 3600.5 seconds
Dead Time	: 0.01 %
Peak Locate Threshold	: 3.00
Peak Locate Range (in channels)	: 80 - 4096
Peak Area Range (in channels)	: 80 - 4096
Identification Energy Tolerance	: 1.300 keV
Energy Calibration Used Done On	: 11/3/2009
Efficiency Calibration Used Done On	: 11/22/2009
Efficiency Calibration Description	: REGE02 NSTD 11/11/09 EffCalSN 80398-238
Sample Number	: 34225

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	0.997	8.90E+00	1.73E+00	
RA-226d	0.618	3.98E-01	8.86E-02	
TH-232d	0.433	2.50E-01	8.23E-02	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-116-2146

Washington Closure Hanford

Collector: R. Curet

Project Designation: Columbia River Component of the RCBRA - Sediment

Ice Chest No: 009-001

Shipped To: Battelle Marine Sciences

Company Contact: JOAN KESSNER

Telephone No.: 375-4688

Sampling Location: 100 H J100H44

Field Logbook No.: EL-1645-01

COA: BESCRC6520

Offsite Property No.: N/A

Project Coordinator: KESSNER, JH

SAF No.: RC-116

Price Code: 7C

Data Turnaround: 15 Days

Method of Shipment: FED EX

Bill of Lading/Air Bill No.: M 983 6020 325

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

N/A

Preservation	Cool to 4C
Type of Container	G
No. of Container(s)	1
Volume	125g
SAMPLE ANALYSIS	See item (1) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time	
J19JL9 2981-350	OTHER SOLID	01-29-10	1630	X

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Curet R. Curet	01-29-10 1800	R. Curet R. Curet EAS REF D	01-29-10 1800
EAS REF D	1815	SHANNON JOHNSON	1815
SHANNON JOHNSON	1215	FDX	
			02/04/10 1245

SPECIAL INSTRUCTIONS

(1) AVS - SEM - SULFIDES; AVS - SEM - METALS (Cadmium, Copper, Lead, Nickel, Zinc)

Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody

Matrix *: S=Soil; SE=Sediment; SO=Solid; SL=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title / Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By / Date/Time

WCH-EE-011

Radiological Counting Facility

Analysis Report for RCF23616
J19JL1 SAF:RC-116 RDD 100H J100H44 RCBRA sediment

GAMMA SPECTRUM ANALYSIS

Sample Identification : RCF23616
Sample Description : J19JL1 SAF:RC-116 RDD 100H J100H44 RCBRA sediment
Sample Type : Non Standard Geo
Unit :
Sample Point

Sample Size : 1.010E+02 grams
Facility : Default

Sample Taken On : 1/29/2010 4:30:00PM
Acquisition Started : 2/1/2010 3:58:05PM

Procedure : Non Standard Geometry
Operator : RCT
Detector Name : PGTWHITE
Geometry : Non Standard Geo
Live Time : 3600.0 seconds
Real Time : 3600.7 seconds

Dead Time : 0.02 %

Qualitative Only
Non-Standard Geometry

Calibrations for determining sample activity are geometry-specific. This sample does not conform to one of the currently calibrated geometries. Reported activities may differ from the acutal sample activity for this reason.

Peak Locate Threshold : 3.00
Peak Locate Range (in channels) : 80 - 4096
Peak Area Range (in channels) : 80 - 4096
Identification Energy Tolerance : 1.300 keV

Energy Calibration Used Done On : 1/17/2010
Efficiency Calibration Used Done On : 1/17/2010
Efficiency Calibration Description : PGTWhite NonSTD Geom EffCal 011310 80398-238

Sample Number : 34226

INTERFERENCE CORRECTED REPORT

Nuclide Name	Nuclide Id Confidence	Wt mean Activity (pCi/grams)	Wt mean Activity Uncertainty	Comments
K-40	1.000	9.55E+00	1.80E+00	
PB-212	0.711	7.55E-01	1.10E-01	
RA-226d	0.618	5.20E-01	9.89E-02	
TH-232d	0.994	6.68E-01	1.05E-01	

Reference SOP# MSL-A-001

LOG-IN CHECKLIST

Central File #: 2981 Sample No(s): 347 - 350 Batch: 26

Project Name: WA Closure Hanford Project Manager: Brandenbergen

TO BE COMPLETED BY PROJECT MANAGER (prior to arrival when possible)

Matrix: _____ WP# _____

Yes	No	
[ ]	[ ]	Navy-type Project (requires high-level sample tracking procedures)
[ ]	[ ]	USDA Samples (see Compliance Agreement Checklist)
[ ]	[ ]	Filter Samples: Amount: Entire sample / Half of sample
[ ]	[ ]	Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Login Lab)
[ ]	[ ]	Special instructions:

PM Verification:

Sample Preservation Instructions: _____

See LIMS for archive/disposal information

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Indicate in Appropriate Box

Yes	No	N/A	
[ ]	[✓]	[ ]	Custody seal present — Seal intact? YES NO
[✓]	[ ]	[ ]	Cooler temperature (acceptable range: 4±2°C or solids:frozen) (if multiple coolers, note temp. of each) — 3.5 °C, °C
[ ]	[ ]	[✓]	Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc) Comment/Remedy:
[✓]	[ ]	[ ]	Were all chain of custody forms signed and dated?
[ ]	[✓]	[ ]	Were samples filtered at MSL?

Sample condition(s): (Acceptable) Other (explain):

Container type: Teflon Poly. (Glass) Cap. Vial Other:

Notes: _____

Completed By: [signature] Date/Time: 02/04/10 1242

SAMPLE PRESERVATION

[✓] Sample(s) were preserved prior to arrival at MSL (noted on CoC / Sample / per PM Instruction)

[ ] Random pH checked for ~10% of samples (use dip paper) Sample IDs: _____

[ ] Complete pH check required for project (use pH meter and record on pH Record form)

[ ] Sample(s) were preserved at MSL

Type:

[ ]	0.2% HNO3	Notes:	Lot#
[ ]	0.5% HCl (Hg samples)	Notes:	Lot#
[✓]	Refrigerate/Freeze	Notes:	deep freezer C-1
[ ]	Other	Notes:	

Completed By: [signature] Date/Time: 02/04/10 1300

Storage Shelf: C-1