0084903

SAF-RC-118
Columbia River Component of the RCBRA – Tissues
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 1/27/10
INITIAL/DATE

COMMENTS:

SDG SEQ080609 SAF-RC-118

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Sampling Location: **STURGEON 1 FILLET/CARCASS**
STURGEON 2 FILLET/CARCASS
STURGEON 3 FILLET/CARCASS
STURGEON 4 FILLET/CARCASS
STURGEON 5 FILLET/CARCASS

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Analytical Chemistry Data Package
Inorganics Analysis

Project: Washington Closures Hanford
As Speciation Analysis of Tissue

SDG 080609
SDG 081409
SDG 082009

PNNL Project No. 56166
MSL CF No. 2981

Pacific Northwest
NATIONAL LABORATORY

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
PM: Jill Brandenberger
(360) 681-4564

INORGANIC CHEMISTRY ANALYSIS DATA PACKAGE CONTENTS

As Speciation Analysis in Tissue

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Sample Custody Information

Laboratory Sample Log-In and Chain of Custody Forms for:
SDG080609 10
SDG081409 22
SDG082009 40

BATTELLE MARINE SCIENCES LABORATORY
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Washington Closure Hanford
Arsenic Speciation Study
SDG 080609, SDG081409, and SDG082009

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	Percent Dry Wt	AsB µg/g dry wt.	DMA µg/g dry wt.	MMA µg/g dry wt.	As^{3+5} µg/g dry wt.	*Total As* µg/g dry wt.
Method Detection Limit (MDL)								*0.002* [1]	*0.005*	*0.007*	*0.01*	*Cal.*
2981-113	J19266	SDG080609	08/06/09	07/28/09	09/17/09	091709-LCDRC	32.7	0.0510	0.005 U	0.007 U	0.01 U	*0.0730*
2981-114	J19265	SDG080609	08/06/09	07/28/09	09/17/09	091709-LCDRC	27.4	0.197	0.005 U	0.007 U	0.01 U	*0.219*
2981-115	J19268	SDG080609	08/06/09	07/29/09	09/17/09	091709-LCDRC	26.3	0.0369	0.00666	0.007 U	0.0101	*0.0606*
2981-116	J19267	SDG080609	08/06/09	07/29/09	09/17/09	091709-LCDRC	23.4	0.110	0.005 U	0.007 U	0.01 U	*0.132*
2981-117 R1	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	33.7	0.0727	0.0141	0.007 U	0.01 U	*0.104*
2981-117 R2	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	33.7	0.0661	0.0157	0.007 U	0.01 U	*0.0989*
2981-118	J19291	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	27.6	0.201	0.0101	0.007 U	0.01 U	*0.228*
2981-119	J192B2	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	25.7	0.134	0.0142	0.007 U	0.01 U	*0.165*
2981-120	J192B1	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	22.1	0.439	0.005 U	0.007 U	0.01 U	*0.461*
2981-121	J192C2	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	29.5	0.0526	0.00828	0.007 U	0.01 U	*0.0779*
2981-122	J192C1	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	25.0	0.146	0.005 U	0.007 U	0.01 U	*0.168*
2981-123	J192F1	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	22.3	0.402	0.005 U	0.007 U	0.01 U	*0.424*
2981-124	J192F2	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	25.3	0.153	0.005 U	0.007 U	0.01 U	*0.175*
2981-125	J192H2	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	27.0	0.0391	0.005 U	0.007 U	0.01 U	*0.0611*
2981-126	J192H3	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	33.6	0.0172	0.0170	0.007 U	0.01 U	*0.0512*
2981-127	J19304	SDG081409	08/14/09	08/05/09	09/17/09	091709-LCDRC	23.8	0.104	0.005 U	0.007 U	0.01 U	*0.126*
2981-128	J19305	SDG081409	08/14/09	08/05/09	09/17/09	091709-LCDRC	27.3	0.0339	0.005 U	0.007 U	0.01 U	*0.0559*
2981-129 R1	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	20.8	0.327	0.005 U	0.007 U	0.01 U	*0.349*
2981-129 R2	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	20.8	0.120	0.005 U	0.007 U	0.01 U	*0.142*
2981-130	J19315	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	26.7	0.0883	0.005 U	0.007 U	0.01 U	*0.110*
2981-131	J19325	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	24.5	0.0631	0.005 U	0.007 U	0.01 U	*0.0851*
2981-132	J19326	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	33.2	0.0184	0.00862	0.007 U	0.01 U	*0.0441*
2981-133	J193L2	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	22.4	0.218	0.005 U	0.007 U	0.01 U	*0.240*
2981-134	J193L3	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	26.1	0.0840	0.005 U	0.007 U	0.01 U	*0.106*
2981-135	J193M2	SDG081409	08/14/09	08/10/09	09/18/09	091809-LCDRC	28.6	0.0107	0.00942	0.007 U	0.01 U	*0.0371*
2981-136	J193M3	SDG081409	08/14/09	08/10/09	09/18/09	091809-LCDRC	32.0	0.0134	0.00549	0.007 U	0.01 U	*0.0359*
2981-137	J193N4	SDG081409	08/14/09	08/11/09	09/18/09	091809-LCDRC	22.3	0.620	0.005 U	0.007 U	0.01 U	*0.642*
2981-138	J193N5	SDG081409	08/14/09	08/11/09	09/18/09	091809-LCDRC	25.6	0.219	0.0177	0.007 U	0.01 U	*0.254*
2981-139	J19446	SDG082009	08/20/09	08/12/09	09/18/09	091809-LCDRC	39.4	0.0196	0.005 U	0.007 U	0.01 U	*0.0416*
2981-140	J19447	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	40.9	0.0131	0.005 U	0.007 U	0.0121	*0.0372*
2981-141	J19456	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	22.9	0.230	0.005 U	0.007 U	0.01 U	*0.252*
2981-142	J19457	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	26.2	0.0842	0.005 U	0.007 U	0.01 U	*0.106*
2981-143	J19466	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	24.1	0.133	0.005 U	0.007 U	0.01 U	*0.155*
2981-144	J19467	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	29.1	0.0341	0.00596	0.007 U	0.01 U	*0.0571*
QUALITY CONTROL SAMPLE RESULTS						*Average*	*27.4*					
Method Blank												
Blank R1					09/17/09	091709-LCDRC		0.002 U	0.005 U	0.007 U	0.01 U	*NA*
Blank R2					09/18/09	091809-LCDRC		0.002 U	0.005 U	0.007 U	0.01 U	*NA*
Standard Reference Material												
DORM-2 r1					09/17/09	091709-LCDRC		14.1	0.312	0.007 U	0.01 U	*14.4*
DORM-2 r2					09/18/09	091809-LCDRC		14.3	0.353	0.007 U	0.01 U	*14.6*
Certified Value								**16.4**	NA	NA	NA	**18.0**
% Recovery								**86%**				**80%**
% Recovery								**87%**				**81%**
Blank Spike Results												
LCS R1					09/17/09	091709-LCDRC		2.00	2.04	2.00	4.04	*10.1*
LCS R2					09/18/09	091809-LCDRC		2.00	1.94	1.86	3.79	*9.59*
Spike								2.00	2.00	2.00	4.00	10.0
% Rec								**100%**	**102%**	**100%**	**101%**	**101%**
% Rec								**100%**	**97%**	**93%**	**95%**	**96%**

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Arsenic Speciation Study
SDG 080609, SDG081409, and SDG082009

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	Percent Dry Wt	AsB µg/g dry wt.	DMA µg/g dry wt.	MMA µg/g dry wt.	As^{3-5} µg/g dry wt.	*Total As* µg/g dry wt.
Method Detection Limit (MDL)								*0.002* [1]	*0.005*	*0.007*	*0.01*	*Cal.*
Replicate Analysis Results												
2981-117 R1	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	33.7	0.0727	0.0141	0.007 U	0.01 U	*0.104*
2981-117 R2	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	33.7	0.0661	0.0157	0.007 U	0.01 U	*0.0989*
	RPD							NA	NA	NA	NA	NA
2981-129 R1	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	20.8	0.327	0.005 U	0.007 U	0.01 U	*0.349*
2981-129 R2	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	20.8	0.120	0.005 U	0.007 U	0.01 U	*0.142*
	RPD							NA	NA	NA	NA	NA
Matrix Spike Accuracy												
2981-120	J192B1	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	22.1	0.439	0.005 U	0.007 U	0.01 U	*0.461*
2981- 120MS					09/17/09	091709-LCDRC	22.1	2.37	0.989	1.01	2.99	*7.37*
2981- 120MSD					09/17/09	091709-LCDRC	22.1	2.45	1.14	1.21	2.96	*7.76*
Spike Amount, MS								NA	NA	NA	3.86	NA
Spike Amount, MSD								NA	NA	NA	3.97	NA
% Recovery, MS								NA	NA	NA	**77%**	NA
% Recovery, MSD								NA	NA	NA	**76%**	NA
RPD								NA	NA	NA	**1%**	NA
2981-137	J193N4	SDG081409	08/14/09	08/11/09	09/18/09	091809-LCDRC	22.3	0.620	0.005 U	0.007 U	0.01 U	*0.642*
2981- 137MS					09/18/09	091809-LCDRC	22.3	2.64	1.01	1.07	3.31	*8.03*
2981- 137MSD					09/18/09	091809-LCDRC	22.3	2.72	0.987	1.16	3.33	*8.20*
Spike Amount, MS								NA	NA	NA	3.90	NA
Spike Amount, MSD								NA	NA	NA	3.95	NA
% Recovery, MS								NA	NA	NA	**85%**	NA
% Recovery, MSD								NA	NA	NA	**85%**	NA
RPD								NA	NA	NA	**1%**	NA

NOTES: Arsenobetaine (AsB)
Dimethylarsinic acid (DMA)
Monomethyarsonic acid (MMA)
Arsenate (V or As^{5-})
Arsenite (III or As^{3-})
Total Inorganic Arsenic = As^{3-5}
Total As = Sum of AsB, DMA, MMA, and As^{3-5}
Cal = Calculated Value

[1] Method detection limit (MDL) for AsB calculated from instrument detection limit converted to µg/g using the average sample mass and volume for this project.
U Not detected at or above MDL shown
NS Not spiked
N Outside Method DQOs for Blank Spikes (≤ 15%), MS/MSD (≤ 25%), SRM (≤ 25%) results
* Outside Method DQOs for Duplicates (≤ 25%)

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Arsenic Speciation Study
Wet Weight Conversion Table

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	AsB µg/g wet wt.	DMA µg/g wet wt.	MMA µg/g wet wt.	As[1,5] µg/g wet wt.	*Total As* µg/g wet wt.
Method Detection Limit (MDL)							*0.00055* [1]	*0.001*	*0.002*	*0.003*	*Cal.*
2981-113	J19266	SDG080609	08/06/09	07/28/09	09/17/09	091709-LCDRC	0.0167	0.001 U	0.002 U	0.003 U	*0.0227*
2981-114	J19265	SDG080609	08/06/09	07/28/09	09/17/09	091709-LCDRC	0.0541	0.001 U	0.002 U	0.003 U	*0.0601*
2981-115	J19268	SDG080609	08/06/09	07/29/09	09/17/09	091709-LCDRC	0.00970	0.00175	0.002 U	0.003 U	*0.0165*
2981-116	J19267	SDG080609	08/06/09	07/29/09	09/17/09	091709-LCDRC	0.0258	0.001 U	0.002 U	0.003 U	*0.0318*
2981-117 R1	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	0.0245	0.00476	0.002 U	0.003 U	*0.0342*
2981-117 R2	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	0.0223	0.00529	0.002 U	0.003 U	*0.0326*
2981-118	J19291	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	0.0556	0.00278	0.002 U	0.003 U	*0.0633*
2981-119	J192B2	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	0.0343	0.00363	0.002 U	0.003 U	*0.0430*
2981-120	J192B1	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	0.0972	0.001 U	0.002 U	0.003 U	*0.103*
2981-121	J192C2	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	0.0155	0.00244	0.002 U	0.003 U	*0.0230*
2981-122	J192C1	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC	0.0363	0.001 U	0.002 U	0.003 U	*0.0423*
2981-123	J192F1	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	0.0896	0.001 U	0.002 U	0.003 U	*0.0956*
2981-124	J192F2	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	0.0387	0.001 U	0.002 U	0.003 U	*0.0447*
2981-125	J192H2	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	0.0106	0.001 U	0.002 U	0.003 U	*0.0166*
2981-126	J192H3	SDG081409	08/14/09	08/04/09	09/17/09	091709-LCDRC	0.00577	0.00570	0.002 U	0.003 U	*0.0165*
2981-127	J19304	SDG081409	08/14/09	08/05/09	09/17/09	091709-LCDRC	0.0247	0.001 U	0.002 U	0.003 U	*0.0307*
2981-128	J19305	SDG081409	08/14/09	08/05/09	09/17/09	091709-LCDRC	0.00924	0.001 U	0.002 U	0.003 U	*0.0152*
2981-129 R1	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	0.0681	0.001 U	0.002 U	0.003 U	*0.0741*
2981-129 R2	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	0.0251	0.001 U	0.002 U	0.003 U	*0.0311*
2981-130	J19315	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	0.0236	0.001 U	0.002 U	0.003 U	*0.0296*
2981-131	J19325	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	0.0155	0.001 U	0.002 U	0.003 U	*0.0215*
2981-132	J19326	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	0.00612	0.00286	0.002 U	0.003 U	*0.0140*
2981-133	J193L2	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	0.0489	0.001 U	0.002 U	0.003 U	*0.0549*
2981-134	J193L3	SDG081409	08/14/09	08/06/09	09/18/09	091809-LCDRC	0.0219	0.001 U	0.002 U	0.003 U	*0.0279*
2981-135	J193M2	SDG081409	08/14/09	08/10/09	09/18/09	091809-LCDRC	0.00306	0.00269	0.002 U	0.003 U	*0.0108*
2981-136	J193M3	SDG081409	08/14/09	08/10/09	09/18/09	091809-LCDRC	0.00429	0.00176	0.002 U	0.003 U	*0.0110*
2981-137	J193N4	SDG081409	08/14/09	08/11/09	09/18/09	091809-LCDRC	0.138	0.001 U	0.002 U	0.003 U	*0.144*
2981-138	J193N5	SDG081409	08/14/09	08/11/09	09/18/09	091809-LCDRC	0.0559	0.00453	0.002 U	0.003 U	*0.0655*
2981-139	J19446	SDG082009	08/20/09	08/12/09	09/18/09	091809-LCDRC	0.00774	0.001 U	0.002 U	0.003 U	*0.0137*
2981-140	J19447	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	0.00538	0.001 U	0.002 U	######	*0.0133*
2981-141	J19456	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	0.0526	0.001 U	0.002 U	0.003 U	*0.0586*
2981-142	J19457	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	0.0221	0.001 U	0.002 U	0.003 U	*0.0281*
2981-143	J19466	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	0.0321	0.001 U	0.002 U	0.003 U	*0.0381*
2981-144	J19467	SDG082009	08/20/09	08/17/09	09/18/09	091809-LCDRC	0.00993	0.00174	0.002 U	0.003 U	*0.0167*
QUALITY CONTROL SAMPLE RESULTS						*Average*					
Method Blank											
Blank R1					09/17/09	091709-LCDRC	0.0006 U	0.0014 U	0.002 U	0.003 U	*NA*
Blank R2					09/18/09	091809-LCDRC	0.0006 U	0.0014 U	0.002 U	0.003 U	*NA*
Standard Reference Material											
DORM-2 r1					09/17/09	091709-LCDRC					
DORM-2 r2					09/18/09	091809-LCDRC					
Certified Value											
% Recovery											
% Recovery											
Blank Spike Results											
LCS R1					09/17/09	091709-LCDRC					
LCS R2					09/18/09	091809-LCDRC					
Spike											
% Rec											
% Rec											

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Arsenic Speciation Study
Wet Weight Conversion Table

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	AsB µg/g wet wt.	DMA µg/g wet wt.	MMA µg/g wet wt.	As^{3-5} µg/g wet wt.	*Total As* µg/g wet wt.
Method Detection Limit (MDL)							*0.00055* [1]	*0.001*	*0.002*	*0.003*	*Cal.*
Replicate Analysis Results											
2981-117 R1	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	0.0245	0.00476	0.002 U	0.003 U	*0.0342*
2981-117 R2	J19292	SDG080609	08/06/09	07/30/09	09/17/09	091709-LCDRC	0.0223	0.00529	0.002 U	0.003 U	*0.0326*
	RPD						NA	NA	NA	NA	NA
2981-129 R1	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	0.0681	0.001 U	0.002 U	0.003 U	*0.0741*
2981-129 R2	J19314	SDG081409	08/14/09	08/05/09	09/18/09	091809-LCDRC	0.0251	0.001 U	0.002 U	0.003 U	*0.0311*
	RPD						NA	NA	NA	NA	NA
Matrix Spike Accuracy											
2981-120	J192B1	SDG080609	08/06/09	08/03/09	09/17/09	091709-LCDRC					
2981- 120MS					09/17/09	091709-LCDRC					
2981- 120MSD					09/17/09	091709-LCDRC					
Spike Amount, MS											
Spike Amount, MSD											
% Recovery, MS											
% Recovery, MSD											
RPD											
2981-137	J193N4	SDG081409	08/14/09	08/11/09	09/18/09	091809-LCDRC					
2981- 137MS					09/18/09	091809-LCDRC					
2981- 137MSD					09/18/09	091809-LCDRC					
Spike Amount, MS											
Spike Amount, MSD											
% Recovery, MS											
% Recovery, MSD											
RPD											

NOTES: Arsenobetaine (AsB)
Dimethylarsinic acid (DMA)
Monomethyarsonic acid (MMA)
Arsenate (V or As^{5-})
Arsenite (III or As^{3-})
Total Inorganic Arsenic = As^{3-5}
Total As = Sum of AsB, DMA, MMA, and As^{3-5}
Cal = Calculated Value

[1] Method detection limit (MDL) for AsB calculated from instrument detection l converted to µg/g using the average sample mass and volume for this proje

U Not detected at or above MDL shown
NS Not spiked
N Outside Method DQOs for Blank Spikes (≤ 15%), MS/MSD (≤ 25%), SRM (:
* Outside Method DQOs for Duplicates (≤ 25%)

QA/QC NARRATIVE

PROJECT:	Washington Closures Hanford
PARAMETER:	Arsenic Speciation – Total Inorganic Arsenic (TIA)
LABORATORY:	Pacific Northwest National Laboratory (PNNL) operated by Battelle, Marine Sciences Laboratory (MSL), Sequim, Washington
MATRIX:	Tissue Homogenate
SAMPLE CUSTODY AND PROCESSING:	A total of 32 tissue samples were received at MSL in three shipments: 08/06/09, 08/14/09, and 08/20/09. All samples were received in good condition (i.e., no sample containers were broken or leaking). 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:	**SDG080609: 2981*113-122** **SDG081409: 2981*123-138** **SDG082009: 2981*139-144**
Description:	Freshwater Fish Homogenate
Collection dates	July and August 2009
Laboratory arrival date	08/06/09, 08/14/09, 08/20/09
Cooler temperature on arrival	2.1, 2.5, and 1.2°C, respectively
Extraction Dates:	09/17/09 and 09/18/09
Analyses Dates:	09/17/09 and 09/18/09

METHODS:

The tissue homogenate was processed and analyzed for total inorganic arsenic defined as the sum of arsenate (V or As5+) and arsenite (III or As3+) following MSL standard operating procedure MSL-I-037 ARSENIC SPECIATION USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY - INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (HPLC-ICP-MS) IN AQUEOUS, SEDIMENT, AND TISSUE SAMPLES. This method was developed from guidance in EPA Method 1632 for the speciation of arsenic in waters. This method is applicable to the determination of total inorganic arsenic (As) and arsenic species in drinking, surface, groundwater, seawater, tissue and sediment extracts. The anionic or cationic arsenic species are separated by an anion ion exchange column on high-performance liquid chromatography (HPLC) followed by detection and quantification using inductively coupled plasma – mass spectrometry with a dynamic reaction cell accessory (ICP-DRC-MS). This method quantitatively determines organic species of arsenic including arsenobetaine (AsB), dimethylarsinic acid (DMA), monomethyarsonic acid (MMA), and can be set up to separate the inorganic oxidation states of 3+ and 5+. This allows risk assessment to be conducted on a chemical species of interest rather than just the total arsenic. This is particularly significant for arsenic as the toxicity is highly dependent on the chemical species, with the most toxic being the As3+ oxidation state. The data for the organic arsenic species were included along with the total inorganic arsenic determined as the sum of the inorganic oxidation states of 3+ and 5+. The quality control evaluated was conducted only on the total inorganic arsenic concentration identified in the table as As^{3+5}.

Upon arrival at MSL, the wet tissue samples were stored at <-18°C until samples were lyophilized. Approximately 500 mg of dried, homogenized tissue was extracting using deionized water and tetramethyl ammonium hydroxide (TMAOH). An aliquot of the supernatant is subsequently analyzed for arsenic species using the HPLC coupled with the ICP-DRC-MS. Analytical results are reported in µg/g dry weight. These concentrations are then converted back to a wet weight concentration using the

following formula: wet weight concentration = dry weight concentration * % dry weight / 100.

HOLDING TIMES: Wet tissue samples were stored at either 4 °C, frozen, or at ≤ -18 °C from time of collection to analysis. Holding times are 28 days at 4 ± 2 °C and 180 days at ≤ -18 °C. Dry samples in plastic or glass jars may be stored at room temperature for 180 days. The samples were received 3-10 days after collection and stored at ≤ -18 °C and then lypholized. With these storage requirements the samples were analyzed within the 180 days from collection.

DATA QUALITY CRITERIA (DQC):

Analyte	Analytical Method	Range of Blank Spike Recovery	Range of MS/MSD Spike Recovery	SRM Percent Recovery	Replicate Precisions (RPD)	Achieved MDL (µg/g dry wt.)	Achieved MDL (µg/g wet wt.)
AsB	HPLC/ICP-DRC-MS	NA	NA	NA	NA	0.002 µg/g	0.0005 µg/g
DMA	HPLC/ICP-DRC-MS	NA	NA	NA	NA	0.005 µg/g	0.001 µg/g
MMA	HPLC/ICP-DRC-MS	NA	NA	NA	NA	0.007 µg/g	0.002 µg/g
As3+5	HPLC/ICP-DRC-MS	85-115%	75-125%	±25%	≤25%	0.01 µg/g	0.003 µg/g

NA = Data quality not applicable to the organic arsenic species for this project.

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 only exception is the MDL determined for the AsB, which was the instrument detection limit converted from µg/L to µg/g using the average sample mass and volume for these samples. 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: Method blanks were prepared and analyzed with the samples at a frequency of one each per analytical batch. Two analytical batches are reported for this data set. None of the arsenic species were detected in the method blanks.

LABORATORY CONTROL SAMPLE (LCS) ACCURACY: Laboratory control samples (LCS) were prepared and analyzed at a frequency of one each per analytical batch. The LCS consists of reagents spiked with the arsenic species of interest that are processed and analyzed with the samples. The LCS samples were within the QC criterion of 85-115% recovery.

REPLICATE PRECISION: Laboratory duplicates were analyzed at a frequency of one each per 20 field samples or analytical batch. The samples did not contain detectable As^{3+5}; therefore, precision was assessed using the matrix spike duplicates.

MATRIX SPIKE ACCURACY: The analytical method calls for matrix spikes at a frequency of one each per 20 samples or analytical batch. A matrix spike duplicate was also added to provide a measure of precision. The matrix spikes were within the QC acceptance criterion of 75-125% for all total inorganic arsenic spikes.

Analytical precision was assessed using the matrix spike duplicates and were within the QC acceptance criterion of ≤25% RPD.

STANDARD REFERENCE MATERIAL: The standard reference material (SRM) Dorm-2 Dogfish Mussel was prepared and analyzed with each analytical batch. The SRM is not certified for total inorganic arsenic, but certified values are provided for AsB and total As. The concentrations for these two species were within the QC criterion of ±25% difference.

REFERENCES:

Francesconi, K.A. and Kuehnelt, D., 2004. Determination of arsenic species: A critical review of methods and application, 2000-2003. Analyst, 129: 373-395.

Gong, Z., Lu, X., Ma, M., Watt, C., Le, C., 2002. Arsenic speciation analysis. Talanta, 58: 77-96

Mandal, B.K., Ogra, Y., Suzuki, K.T., 2003. Speciation of arsenic in human nail and hair from arsenic-affected area by HPLC-inductively coupled argon plasma mass spectrometry. Toxicol. Appl. Pharmacol., 189: 73-83.

U.S. EPA, 2000. Method 1632, Revision A (1632A), Chemical Speciation of Arsenic in Water and Tissue by Hydride Generation Quartz Furnace atomic Absorption Spectrometry.

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Project Manager: Brandenberger
Date Received: 8/6/2009
Batch: 10
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
J19266	na	2981-113	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/28/09
J19265	na	2981-114	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/28/09
J19268	na	2981-115	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/29/09
J19267	na	2981-116	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/29/09
J19292	na	2981-117	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/30/09
J19291	na	2981-118	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/30/09
J192B2	na	2981-119	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09
J192B1	na	2981-120	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09
J192C2	na	2981-121	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09
J192C1	na	2981-122	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-619	Page 1 of 1

Collector: Wendy West	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: STURGEON 1 CARCASS		SAF No.: RC-118
Ice Chest No.: GDS-052	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.: FDX # 797823511495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			1	0							
Volume			60mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J19266 2981-113	OTHER SOLID	7/28/09	1100	X	X						

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West Wendy West	1100 7/28/09	EAS LOCKED STORAGE Wendy West Wendy West	1100 7/28/09
EAS LOCKED STORAGE	8/5/09 1130	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX # 797823511495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time 8/06/09 1432
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-618	Page 1 of 1

Collector Wendy West	**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** STURGEON 1 FILLET	**SAF No.** RC-118	AD 71909
Ice Chest No. GWS-052	**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.** FDX# 797823511495	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	1	0									
Volume	60mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time									
J19265 2281.114	OTHER SOLID	7/28/09	1100	X	X							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West Wendy West	1100 7/28/09	Wendy West Wendy West EAS LOCKED STORAGE	1100 7/28/09
EAS LOCKED STORAGE	1130 8/5/09	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX# 797823511495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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 [signature]	Title	Date/Time 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

As Speciation Data Package for SDGs 080609, 081409, and 082009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-629	Page 1 of 1

Collector: Wendy West	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: STURGEON 2 CARCASS		SAF No.: RC-118
Ice Chest No.: GLOS-052	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.: FDX# 797823511495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			1	0							
Volume			60mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J19268 2981.115	OTHER SOLID	7/29/09	1500	X	X						

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Wendy West	Date/Time: 1500 7/29/09	Received By/Stored In: EAS LOCKED STORAGE Wendy West	Date/Time: 1500 7/29/09
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1130 28/5/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/5/09 1130	Received By/Stored In: FDX# 797823511495	Date/Time:
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 8/6/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-628	Page 1 of 1

Collector: Wendy West	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: STURGEON 2 FILLET		SAF No.: RC-118
Ice Chest No.: GWS-052	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.: FDX# 797823511495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze								
Type of Container	P/G	G/P								
No. of Container(s)	1	0								
Volume	60mL	60mL								

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
J19267 2981.116	OTHER SOLID	7/29/09	1500	X	X							

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	1500 7/29/09	EAS LOCKED STORAGE 2	1500 7/29/09
EAS LOCKED STORAGE 2	8/5/09 1130	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX# 797823511495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. Custodian removed samples for shipping on 8/5/09

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
			05/04/09 1430

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-639	Page 1 of 1

Collector: Wendy West	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: STURGEON 3 CARCASS		SAF No.: RC-118
Ice Chest No.: GLDS-052	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.: FDX 7978235 11495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	10	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19292 2981.117 / OTHER SOLID / 7/30/09 / 1400	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West; Date/Time: 1400 7/30/09	Received By/Stored In: EAS LOCKED STORAGE; Date/Time: 1400 7/30/09		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
Relinquished By/Removed From: EAS LOCKED STORAGE; Date/Time: 8/5/09 1120	Received By/Stored In: SHANNAN JOHNSON; Date/Time: 8/5/09 1120		
Relinquished By/Removed From: SHANNAN JOHNSON; Date/Time: 8/5/09 1120	Received By/Stored In: FDX# 7978235 11495; Date/Time:		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

LABORATORY SECTION	Received By: [signature]	Title	Date/Time: 8/6/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-638	Page 1 of 1
Collector: Wendy West	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: STURGEON 3 FILLET	SAF No.: RC-118	
Ice Chest No.: 6605-052	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.: FDX# 7978235 114 95	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	10	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inorganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19291 2981-118 / OTHER SOLID / 7/30/09 / 1400	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West; Date/Time: 7/30/09 1400	Received By/Stored In: EAS LOCKED STORAGE 2; Date/Time: 7/30/09 1400		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
Relinquished By/Removed From: EAS LOCKED STORAGE 2; Date/Time: 8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON; Date/Time: 8/5/09 1130		
Relinquished By/Removed From: SHANNAN JOHNSON; Date/Time: 8/5/09 1130	Received By/Stored In: FDX# 7978235 114 95; Date/Time:		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09.

LABORATORY SECTION	Received By: [signature]	Title	Date/Time: 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-118-649	Page 1 of 1
Collector: Mason 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: STURGEON 4 CARCASS		SAF No.: RC-118	72709
Ice Chest No.: GWS-052	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.: FDX# 7978235 11495	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time										
J192B2 2981.119	OTHER SOLID	8/3/09	1100	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: M. Fidino	Date/Time: 8-3-09 1100hrs	Received By/Stored In: EAS LOCKED STORAGE #4 M. Fidino	Date/Time: 1100hrs 8-3-09
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/5/09 1130	Received By/Stored In: FDX# 7978235 11495	Date/Time:
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

As Speciation Data Package for SDGs 080609, 081409, and 082009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-648	Page 1 of 1

Collector: Wendy West	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: STURGEON 4 FILLET		SAF No.: RC-118
Ice Chest No.: GWS-052	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.: FDX 7978235 11495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192B1 2981-120 / OTHER SOLID / 8/3/09 / 1000	X	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	8/3/09 1000	EAS LOCKED STORAGE Wendy West	1000 8/3/09
EAS LOCKED STORAGE	8/5/09 1120	SHANNAN JOHNSON	8/5/09 1120
SHANNAN JOHNSON	8/7/09 1130	FDX 7978235 11495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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
	[illegible]		08/04/09 1430

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-659	Page 1 of 1

Collector: Mason 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: STURGEON 5 CARCASS		SAF No.: RC-118
Ice Chest No.: 6WS-052	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.: FDA 7978235 11495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192C2 2981.121 / OTHER SOLID / 8-3-09 / 1500	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: M. Fidino	8-3-09 1500	Received By/Stored In: EAS LOCKED STORAGE M. Fidino	8-3-09 1500
Relinquished By/Removed From: EAS LOCKED STORAGE	8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	8/5/09 1130	Received By/Stored In: FDA 7978235 11495	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian received samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/08/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-658	Page 1 of 1

Collector: Mason 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: STURGEON 5 FILLET		SAF No.: RC-118
Ice Chest No.: GWS-052	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.: FDX# 7978235 11495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192C1 2981.122 / OTHER SOLID / 8-3-09 / 1400	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: M. Fidino	8-3-09 1400	Received By/Stored In: EAS LOCKED STORAGE #2	8-3-09 1400
Relinquished By/Removed From: EAS LOCKED STORAGE	8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	8/5/09 1130	Received By/Stored In: FDX# 7978235 11495	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2981 Sample No(s): 123-138 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)
		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: _____

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Was a custody seal present?
		✓	Was the custody seal intact?
✓			Was cooler(s) temperature(s) within acceptable range of 4±2°C or frozen? (if multiple coolers, note temp. of each) 2.5 °C _____ °C
		✓	Was 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:) Plastic

Notes: _____

Completed By: [signature] Date/Time: 08/14/09 1300

SAMPLE PRESERVATION

- [x] Sample(s) were preserved at MSL
- [ ] 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)

If preservation necessary, record Acid Lot#

Type:
- [ ] 0.2% HNO3 Notes: _____
- [ ] 0.5% HCl (Hg samples) Notes: _____
- [x] Refrigerate/Freeze Notes: Deep freeze C-2
- [ ] Other Notes: _____

Completed By: [signature] Date/Time: 08/14/09 1300

Storage Shelf: Deep freeze C-2

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SAMPLE LOGIN

Project Manager: Brandenberger
Date Received: 8/14/2009
Batch: 11
Login Designee: Mcgahan
Project: **Washington Closure Hanford**

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

Sponsor ID	Site Description	Battelle Code	Matrix	Storage Location	Requested Parameters	Collection Date
J192F1	na	2981-123	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J192F2	na	2981-124	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J192H2	na	2981-125	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J192H3	na	2981-126	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J19304	na	2981-127	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19305	na	2981-128	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19314	na	2981-129	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19315	na	2981-130	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19325	na	2981-131	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J19326	na	2981-132	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J193L2	na	2981-133	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J193L3	na	2981-134	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J193M2	na	2981-135	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/10/09
J193M3	na	2981-136	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/10/09
J193N4	na	2981-137	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/11/09
J193N5	na	2981-138	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/11/09

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-118-668	Page 1 of 1
Collector: Wendy West	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: STURGEON 6 FILLET		SAF No.: RC-118	AJA 72709
Ice Chest No.: EAS 8/8/09 GWS628	Field Logbook No.: EL-1638	COA: BESCRC6520	Method of Shipment: FED EX	FDX# 796850726969
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation				Cool 4C	Freeze							
Type of Container				P/G	G/P							
No. of Container(s)				0	1							
Volume				15mL	60mL							
SAMPLE ANALYSIS				Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time									
J192F1 2381.123	OTHER SOLID	8/4/09	1000	X	X							

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Wendy West	Date/Time: 1000 8/4/09	Received By/Stored In: EAS Lock Storage #2 Wendy West	Date/Time: 1000 8/4/09
Relinquished By/Removed From: EAS LOCKED STORAGE #2	Date/Time: 8/5/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/5/09
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/5/09	Received By/Stored In: FDX	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time: 08/24/09 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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-669	Page 1 of 1

Collector: Wendy West	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: STURGEON 6 CARCASS		SAF No.: RC-118
SAP 72709			
Ice Chest No.: GLOS 028	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.: FDX# 796859726969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time										
J192F2 2581.124	OTHER SOLID	8/4/09	1145	X	X								

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	1145 8/4/09	EAS LOCKED STORAGE 2 Wendy West	1145 8/4/09
EAS LOCKED STORAGE 2	1000 8/13/09	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000	EDS	
			07/24/09 1360

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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-118-678	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K N 8309	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 7 FILLET		SAF No.: RC-118
Ice Chest No.: GVOS 028	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.: FDX# 796859726969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time										
J192H2 2981.125	OTHER SOLID	8/4/09	1500	X	X								

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	1500 8/4/09	EAS LOCKED STORAGE Wendy West	1500 8/4/09
EAS LOCKED STORAGE	1000 8/13/09	SHANNAN JOHNSON	1000 8/13/09
SHANNAN JOHNSON	8/13/09 1000	EAS	
			1305

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-679	Page 1 of 1

Collector Wendy West	**Company Contact** JOAN KESSNER **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** 9K N 1A 9309 **Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 7 CARCASS	**SAF No.** RC-118	
Ice Chest No. G WS 028	**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.** FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J192H3 2981.126	OTHER SOLID	8/4/09	1510	X	X						

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West Date/Time 1510 8/4/09	Received By/Stored In: EAS LOCKED STORAGE Date/Time 1510 8/4/09		S=Soil SE=Sediment SO=Solid Sl=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wl=Wipe L=Liquid V=Vegetation X=Other
Relinquished By/Removed From: EAS LOCKED STORAGE Date/Time 8/13/09 1000	Received By/Stored In: SHANNAN JOHNSON Date/Time 8/13/09 1000		
Relinquished By/Removed From: SHANNAN JOHNSON Date/Time 8/13/09 1000	Received By/Stored In: FDX Date/Time		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time 8/14/09 1300		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		
Relinquished By/Removed From: Date/Time	Received By/Stored In: Date/Time		

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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

WCH-EE-011

As Speciation Data Package for SDGs 080609, 081409, and 082009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-688	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 8 FILLET		SAF No.: RC-118
Ice Chest No.: GW08028	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.: FDX# 7968597269 69

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19304 2381.127 / OTHER SOLID / 8/5/09 / 0930	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: Wendy West — Date/Time: 0930 8/5/09	Received By/Stored In: EAS LOCKED STORAGE2 Wendy West — Date/Time: 0930 8/5/09	
Relinquished By/Removed From: EAS LOCKED STORAGE2 — Date/Time: 1000 8/13/09	Received By/Stored In: SHANNAN JOHNSON — Date/Time: 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON — Date/Time: 8/13/09 1000	Received By/Stored In: FDX — Date/Time:	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time: 8/14/09 1360	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:	

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-689	Page 1 of 1

Collector: Wendy West	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: STURGEON 8 CARCASS	SAF No.: RC-118	
Ice Chest No.: GLOS 028	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.: FDX 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J19305 2981.128	OTHER SOLID	8/5/09	1000	X	X						

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: Wendy West; Date/Time: 1000 8/5/09	Received By/Stored In: EAS LOCKED STORAGE 2 Wendy West; Date/Time: 1000 8/5/09	
Relinquished By/Removed From: EAS LOCKED STORAGE 2; Date/Time: 1000 8/13/09	Received By/Stored In: SHANNAN JOHNSON; Date/Time: 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON; Date/Time: 8/13/09 1000	Received By/Stored In: FDX; Date/Time:	
Relinquished By/Removed From: [signature]; Date/Time:	Received By/Stored In: [signature]; Date/Time: 08/14/09 1300	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-698	Page 1 of 1
Collector: Wendy West	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: STURGEON 9 FILLET	SAF No.: RC-118	AD 8309
Ice Chest No.: GVOS 028	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.: FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J19314 2281-129	OTHER SOLID	8/5/09	1300	X	X						

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: wendy west	8/5/09 1300	Received By/Stored In: wendy west EAS LOCKED STORAGE 2	8/5/09 1300
Relinquished By/Removed From: EAS LOCKED STORAGE	8/13/09 1000	Received By/Stored In: SHANNAN JOHNSON	8/13/09 1000
Relinquished By/Removed From: SHANNAN JOHNSON	8/13/09 1000	Received By/Stored In: FDX	
Relinquished By/Removed From		Received By/Stored In: [illegible]	08/14/09 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-699	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K D	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 9 CARCASS		SAF No.: RC-118
SW 8309			
Ice Chest No.: G105 028	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.: FD 7968597269 69

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19315 2281-130 / OTHER SOLID / 8/5/09 / 1400	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Wendy West	8/5/09 1400	EAS LOCKED STORAGE 2 Wendy West	8/5/09 1400
Relinquished By/Removed From: EAS LOCKED STORAGE 2	8/12/09 1000	SHANNAN JOHNSON	8/12/09 1000
Relinquished By/Removed From: SHANNAN JOHNSON	8/13/09 1000	FDX	
Relinquished By/Removed From:		Received By/Stored In: [signature]	8/14/09 1300
Relinquished By/Removed From:		Received By/Stored In:	
Relinquished By/Removed From:		Received By/Stored In:	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09.

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-708	Page 1 of 1

Collector Wendy West	**Company Contact** JOAN KESSNER **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** ~~9K~~ N 8309 **Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 10 FILLET	**SAF No.** RC-118	
Ice Chest No. GLOS 028	**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.** FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19325 2981·131 / OTHER SOLID / 8/6/09 / 0900	X	X									

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Wendy West, Date/Time 0900 8/6/09	Received By/Stored In: EAS LOCKED STORAGE 2, Date/Time 0900 8/6/09	
Relinquished By/Removed From: EAS LOCKED STORAGE 2, Date/Time 8/13/09 1000	Received By/Stored In: SHANNAN JOHNSON, Date/Time 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON, Date/Time 8/13/09 1000	Received By/Stored In: [illegible], Date/Time	
Relinquished By/Removed From: [illegible], Date/Time	Received By/Stored In: [illegible], Date/Time 08/14/09 1300	
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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09.

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-709	Page 1 of 1
Collector: Wendy West	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: STURGEON 10 CARCASS	SAF No.: RC-118	
Ice Chest No.: GVOS 028	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.: FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J19326 2981-132	OTHER SOLID	8/6/09	1030	X	X						

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Wendy West; Date/Time: 1030 8/6/09	Received By/Stored In: EAS LOCKED STORAGE 2; Date/Time: 1030 8/6/09	
Relinquished By/Removed From: EAS LOCKED STORAGE 2; Date/Time: 8/13/09 1000	Received By/Stored In: SHANNAN JOHNSON; Date/Time: 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON; Date/Time: 8/13/09 1000	Received By/Stored In: [illegible]; Date/Time:	
Relinquished By/Removed From: [illegible]; Date/Time:	Received By/Stored In: [illegible] 8/14/09 1300; Date/Time:	
Relinquished By/Removed From; Date/Time:	Received By/Stored In; Date/Time:	
Relinquished By/Removed From; Date/Time:	Received By/Stored In; Date/Time:	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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-118-718	Page 1 of 1
Collector: Wendy West	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: STURGEON 11 FILLET	SAF No.: RC-118	
Ice Chest No.: GWS 028	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.: FD 7968597269 69	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193L2 2981-133 / OTHER SOLID / 8/6/09 / 1420	X	X									

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: wendy West; Date/Time: 1420 8/6/09	Received By/Stored In: EAS LOCKED STORAGE 2 wendy West; Date/Time: 1420 8/6/09	
Relinquished By/Removed From: EAS LOCKED STORAGE 2; Date/Time: 1000 8/13/09	Received By/Stored In: SHANNAN JOHNSON; Date/Time: 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON; Date/Time: 8/13/09 1000	Received By/Stored In: [illegible]; Date/Time:	
Relinquished By/Removed From: [illegible]; Date/Time:	Received By/Stored In: [illegible] 8/14/09; Date/Time: 1320	
Relinquished By/Removed From:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-719	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9K N MD 8/6/09	Data Turnaround: 45 Days
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 11 CARCASS		SAF No.: RC-118		
Ice Chest No.: GWS 028	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/Airbill No.: PDX # 7968597269 69		

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193L3 2781.134 / OTHER SOLID / 8/6/09 / 1430	X	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time 1430	Received By/Stored In	Date/Time 1430
Wendy West	8/6/09	EAS LOCKED STORAGE2 Wendy West	8/6/09
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
EAS LOCKED STORAGE2	8/8/09 1000	SHANNAN JOHNSON	8/8/09 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
SHANNAN JOHNSON	8/8/09 1000	FDX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
			08/11/09 1300
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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/8/09.

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-118-728	Page 1 of 1
Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9~~K~~ N; Data Turnaround: 45 Days
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 12 FILLET		SAF No.: RC-118	0P1 9609
Ice Chest No.: GWS 028	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.: FDX 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time									
J193M2 2981.135	OTHER SOLID	8/10/09	1130	X	X							

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Wendy West	Date/Time: 1130 8/10/09	Received By/Stored In: EAS LOCKED STORAGE 2 Wendy West	Date/Time: 1130 8/10/09
Relinquished By/Removed From: EAS LOCKED STORAGE 2	Date/Time: 1000 8/13/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/13/09 1000
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/13/09 1000	Received By/Stored In: FDX	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In: [signature]	Date/Time: 08/14/09 1300
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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-729	Page 1 of 1
Collector: Wendy West	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9K N 408609
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 12 CARCASS	SAF No.: RC-118	Data Turnaround: 45 Days
Ice Chest No.: GWS 028	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.: PDX 7968597269 69	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193M3 8981.136 / OTHER SOLID / 8/10/09 / 1200	X	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	8/10/09 1200	EAS LOCKED STORAGE 2 Wendy West	8/10/09 1200
EAS LOCKED STORAGE 2	8/10/09 1200	SHANNAN JOHNSON	8/10/09 1200
SHANNAN JOHNSON	8/10/09 1200	FDX	
		[illegible]	08/14/09 1300

SPECIAL INSTRUCTIONS

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; 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

As Speciation Data Package for SDGs 080609, 081409, and 082009

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-738	Page 1 of 1

Collector Wendy Wait	**Company Contact** JOAN KESSNER	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** 9K	**Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 13 FILLET		**SAF No.** RC-118	MDec09	
Ice Chest No. GWS 028	**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.** FDX# 796859726969		

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193N4 298.137 / OTHER SOLID / 8/11/09 / 0900	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: Wendy Wait — Date/Time: 8/11/09 0900	Received By/Stored In: EAS LOCKED STORAGE 2 — Date/Time: 8/11/09 0900	Sampler unavailable to remove samples from controlled storage. Shipper removed samples from storage location taking custody of samples for shipment to lab
Relinquished By/Removed From: EAS LOCKED STORAGE 2 — Date/Time: 8/13/09 1000	Received By/Stored In: SHANNAN JOHNSON — Date/Time: 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON — Date/Time: 8/13/09 1000	Received By/Stored In: FDX — Date/Time:	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: [signature] — Date/Time: 08/14/09 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:	

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-739	Page 1 of 1

Collector Wendy West	**Company Contact** JOAN KESSNER **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** 9K N MP 8609 **Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 13 CARCASS	**SAF No.** RC-118	
Ice Chest No. GWS D28	**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.** FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193N5 2281.138 / OTHER SOLID / 8/11/09 / 1030	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West — Date/Time 1030 8/11/09	Received By/Stored In: EAS LOCKED STORAGE2 Wendy West — Date/Time 1030 8/11/09		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
Relinquished By/Removed From: EAS LOCKED STORAGE2 — Date/Time 1000 8/12/09	Received By/Stored In: SHANNAN JOHNSON — Date/Time 8/12/09 1000		
Relinquished By/Removed From: SHANNAN JOHNSON — Date/Time 8/12/09 1000	Received By/Stored In: FDX — Date/Time		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		
Relinquished By/Removed From — Date/Time	Received By/Stored In — Date/Time		

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

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

WCH-EE-011

As Speciation Data Package for SDGs 080609, 081409, and 082009

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2981 Sample No(s): 113 - 122 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)
		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:

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Was a custody seal present?
		✓	Was the custody seal intact? Each sample has a custody seal that was intact. JMK 8/6/09
✓			Was cooler(s) temperature(s) within acceptable range of 4±2°C or frozen? 2.1 °C (if multiple coolers, note temp. of each) °C
		✓	Was 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:) Plastic jars

Notes:

Completed By: [signature] Date/Time: 08/06/09 1430

SAMPLE PRESERVATION

- [✓] Sample(s) were preserved at MSL
- [ ] 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)

If preservation necessary, record Acid Lot#

Type:
- [ ] 0.2% HNO3 Notes:
- [ ] 0.5% HCl (Hg samples) Notes:
- [✓] Refrigerate/Freeze Notes:
- [ ] Other Notes:

Completed By: [signature] Date/Time: 08/06/09 1430

Storage Shelf:

Revsed 121608

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Project Manager: Brandenberger
Date Received: 8/20/2009
Batch: 12
Login Designee: Csuslick

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
J19446	--	2981-139	TISS	Deep Freezer, Walkin	Total Inorganic As, Hexachrome	12-Aug-09
J19447	--	2981-140	TISS	Deep Freezer, Walkin	Total Inorganic As, Hexachrome	17-Aug-09
J19456	--	2981-141	TISS	Deep Freezer, Walkin	Total Inorganic As, Hexachrome	17-Aug-09
J19457	--	2981-142	TISS	Deep Freezer, Walkin	Total Inorganic As, Hexachrome	17-Aug-09
J19466	--	2981-143	TISS	Deep Freezer, Walkin	Total Inorganic As, Hexachrome	17-Aug-09
J19467	--	2981-144	TISS	Deep Freezer, Walkin	Total Inorganic As, Hexachrome	17-Aug-09

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-748	Page 1 of 1

Collector Wendy West	**Company Contact** JOAN KESSNER	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 14 FILLET		**SAF No.** RC-118
Ice Chest No. WCH-08-062	**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.** FDX# 797863010890

Price Code ~~9K~~ N

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze								
Type of Container			P/G	G/P								
No. of Container(s)			0	1								
Volume			15mL	60mL								
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M								
Sample No.	Matrix *	Sample Date	Sample Time									
J19446 2981-139	OTHER SOLID	8-12-09	0930	X	X							

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Wendy West	Date/Time 0930 8-12-09	Received By/Stored In: Wendy West EAS LOCKED STORAGE 2	Date/Time 0930 8-12-09
Relinquished By/Removed From: EAS LOCKED STORAGE 2	Date/Time 1245 8/19/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time 1245 8/19/09
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time 1245 8/19/09	Received By/Stored In: FDX	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In: [signature] Battelle MSL	Date/Time 8/20/09 1450
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

...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
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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-749	Page 1 of 1

Collector: Wendy West	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: STURGEON 14 CARCASS		SAF No.: RC-118
Ice Chest No.: WCH-08-062	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.: FDX# 797863010890

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19447 2981-140 / OTHER SOLID / 8/17/09 / 1010	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Wendy West	1010 8/17/09	EAS LOCKED STORAGE Wendy West	1010 8/17/09
EAS LOCKED STORAGE	1245 8/19/09	SHANNAN JOHNSON	1245 8/19/09
SHANNAN JOHNSON	1245 8/19/09	FDX	
Relinquished By/Removed From	Date/Time	Received By/Stored In: Anon Battelle MSL	Date/Time 8/20/09 1450
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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-758	Page 1 of 1

Collector: Mason Fidino	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K N 4/A 81009	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 15 FILLET		SAF No.: RC-118
Ice Chest No.: WCH-08-062	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.: FDX 797863010890

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze
Type of Container	P/G	G/P
No. of Container(s)	0	1
Volume	15mL	60mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M
J19456 2981-141	OTHER SOLID	8-17-09	1145	X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Mason Fidino	Date/Time: 8-17-09 1145	Received By/Stored In: EAS LOCKED STORAGE 2	Date/Time: 8-17-09 1145
Relinquished By/Removed From: EAS LOCKED STORAGE 2	Date/Time: 8/19/09 1245	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/19/09 1245
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/19/09 1245	Received By/Stored In: FDX	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time: 8/20/09 1450
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

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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-759	Page 1 of 1

Collector Mason Fidino	**Company Contact** JOAN KESSNER	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** 9K N MD 81009	**Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 15 CARCASS		**SAF No.** RC-118		
Ice Chest No. WCH-08-062	**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.** FDX 797863010890		

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19457 2981-142 / OTHER SOLID / 8-17-09 / 1200	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: Mason Fidino	8-17-09 1200	Received By/Stored In: EAS LOCKED STORAGE 2	8-17-09 1200
Relinquished By/Removed From: EAS LOCKED STORAGE 2	1245 8/19/09	Received By/Stored In: SHANNAN JOHNSON	1245 8/19/09
Relinquished By/Removed From: SHANNAN JOHNSON	1245 8/19/09	Received By/Stored In: FDX	
Relinquished By/Removed From		Received By/Stored In: Battelle MSL	8/20/09 1450
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-768	Page 1 of 1

Collector: M. Fidino	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K N MD48009	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 16 FILLET		SAF No.: RC-118
Ice Chest No.: WCH-08-062	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.: FDX 797863010090

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time										
J19466 2981-143	OTHER SOLID	8-17-09	1435	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: M. Fidino 62	Date/Time: 8-17-09 1435	Received By/Stored In: EAS LOCKED STORAGE 2 8-17-09	Date/Time: 8-17-09 1435
Relinquished By/Removed From: EAS LOCKED STORAGE 2	Date/Time: 1245 8/19/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 1245 8/19/09
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 1245 8/19/09	Received By/Stored In: FDX	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In: Shannon Battelle MSL	Date/Time: 8/21/09 1450
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

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

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-769	Page 1 of 1
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: STURGEON 16 CARCASS	SAF No.: RC-118	SAS 81009
Ice Chest No.: WCH-08-062	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.: FDX # 797863010890	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									

Sample No.	Matrix *	Sample Date	Sample Time										
J19467 2981744	OTHER SOLID	8-17-09	1500	X	X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: M. Fidino	Date/Time: 8-17-09 1500	Received By/Stored In: EAS LOCKED STORAGE 2	Date/Time: 8-17-09 1500
Relinquished By/Removed From: EAS LOCKED STORAGE 2	Date/Time: 8/19/09 1245	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/19/09 1245
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/19/09 1245	Received By/Stored In: FDX	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In: Battelle MSL	Date/Time: 8/20/09 1450
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

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

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2981 Sample No(s): 139 - 144 Project Manager: JB

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

Matrix: _____ WP# _____

Yes	No	
		Navy-type Project (requires high-level sample tracking procedures)
		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:

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	✓		Was a custody seal present? - each jar had intact custody seal - ICE intact
		✓	Was the custody seal intact?
✓			Was cooler(s) temperature(s) within acceptable range of 4±2°C or frozen? (if multiple coolers, note temp. of each) 1.2 °C _____ °C
		✓	Was 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: temp on - Should be frozen

Completed By: [signature] Date/Time: 8/20/09 1450

SAMPLE PRESERVATION

- [✓] Sample(s) were preserved at MSL freeze
- [ ] 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)

If preservation necessary, record Acid Lot#

Type:
- [ ] 0.2% HNO3 Notes: _____
- [ ] 0.5% HCl (Hg samples) Notes: _____
- [✓] Refrigerate/Freeze Notes: delivered to KYC for splitting; both frozen
- [ ] Other Notes: _____

Completed By: [signature] Date/Time: 8/20/09 1500

Storage Shelf: Clep fzr / Walkin

Analytical Chemistry Data Package
Inorganics Analysis

Project: Washington Closures Hanford
Chromium VI Analysis of Tissue

SDG 080609
SDG 081409 (a)

PNNL Project No. 56166
MSL CF No. 2981

Pacific Northwest
NATIONAL LABORATORY

Marine Sciences Laboratory
1529 West Sequim Bay Road
Sequim, WA 98382
PM: Jill Brandenberger
(360) 681-4564

SEQ080609

INORGANIC CHEMISTRY ANALYSIS DATA PACKAGE CONTENTS

Chromium VI Analysis in Tissue

Summary Table 3
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MDL Summary 6

Sample Custody Information

Laboratory Sample Log-In and Chain of Custody Forms for:
SDG080609 7
SDG081409 19

BATTELLE MARINE SCIENCES LABORATORY
1529 West Sequim Bay Road
Sequim, Washington 98382
(360) 681-4564

Washington Closure Hanford
Chromium VI Study
SDG 080609 and SDG081409(a)

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	Percent Dry Wt	Cr VI µg/g dry wt.	Cr VI µg/g wet wt.[1]
Method Detection Limit (MDL)								*0.471*	*0.127*
2981-113	J19266	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	32.7	0.471 U	0.127 U
2981-114	J19265	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.471 U	0.127 U
2981-114DUP	J19265DUP	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.792	0.217
2981-115	J19268	SDG080609	08/06/09	07/29/09	01/20/10	012010-LCDRC	26.3	0.471 U	0.127 U
2981-116	J19267	SDG080609	08/06/09	07/29/09	01/20/10	012010-LCDRC	23.4	0.471 U	0.127 U
2981-117	J19292	SDG080609	08/06/09	07/30/09	01/20/10	012010-LCDRC	33.7	0.471 U	0.127 U
2981-118	J19291	SDG080609	08/06/09	07/30/09	01/20/10	012010-LCDRC	27.6	0.471 U	0.127 U
2981-119	J192B2	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	25.7	0.471 U	0.127 U
2981-120	J192B1	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	22.1	0.580	0.128
2981-121	J192C2	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	29.5	0.471 U	0.127 U
2981-122	J192C1	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	25.0	0.864	0.216
2981-123	J192F1	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	22.3	0.735	0.164
2981-124	J192F2	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	25.3	0.471 U	0.127 U
2981-125	J192H2	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	27.0	0.471 U	0.127 U
2981-126	J192H3	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	33.6	0.471 U	0.127 U
2981-127	J19304	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	23.8	0.652	0.155
2981-128	J19305	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	27.3	0.471 U	0.127 U
2981-129	J19314	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	20.8	0.471 U	0.127 U
2981-130	J19315	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	26.7	0.471 U	0.127 U
2981-131	J19325	SDG081409	08/14/09	08/06/09	01/20/10	012010-LCDRC	24.5	1.14	0.279
2981-132	J19326	SDG081409	08/14/09	08/06/09	01/20/10	012010-LCDRC	33.2	0.471 U	0.127 U
QUALITY CONTROL SAMPLE RESULTS						*Average*	*26.9*		
Method Blank									
Blank R1					01/20/10	012010-LCDRC		0.471 U	0.127 U
Laboratory Control Sample									
LCS Cr+6					01/20/10	012010-LCDRC		3.12	--
Spike Concentration								3.00	--
% Recovery								**104%**	--
Replicate Analysis Results									
2981-114	J19265	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.471 U	0.127 U
2981-114DUP	J19265DUP	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.792	0.217
RPD								NA	NA
Matrix Spike Accuracy									
2981-116	J19267	SDG080609	08/06/09	07/29/09	01/20/10	012010-LCDRC	23.4	0.471 U	0.127 U
2981-116 MS (Cr+6)								3.07	--
2981-116 MSD (Cr+6)								2.65	--
Spike Amount, MS								2.96	--
Spike Amount, MSD								3.03	--
% Recovery, MS								**104%**	--
% Recovery, MSD								**88%**	--
RPD								**17%**	--

Qualifiers:

[1] Wet weight detection limit calculated using the average sample percent dry weight (26.9%).
NA Not applicable/appropriate. Sample concentration less than detection limit or reporting limt = 3*MDL.
U Not detected at or above MDL, MDL reported in value field
N Outside Method DQOs for Blank Spikes (≤ 15%) and MS/MSD (≤ 25%) results
* Outside Method DQOs for Duplicates (≤ 25%)

QA/QC NARRATIVE

PROJECT: Washington Closures Hanford SDG080609 and SDG081409a (partial batch)
PARAMETER: Chromium Speciation – Hexavalent Chromium (Cr VI)
LABORATORY: Pacific Northwest National Laboratory (PNNL) operated by Battelle, Marine Sciences Laboratory (MSL), Sequim, Washington
MATRIX: Tissue Homogenate
SAMPLE CUSTODY AND PROCESSING: The samples reported with SDG080609 and 081409a were received in two shipments. A total of 26 tissue samples were received at MSL in two shipments: 08/06/09 and 08/14/09. All samples were received in good condition (i.e., no sample containers were broken or leaking). Samples were assigned a Battelle Central File (CF) identification number (2981) and were entered into the MSL sample tracking and project management system. This narrative addressed only part of the SDG081409 samples due to an analytical batch size of 20 samples. See note below for sample numbers addressed in this narrative.

SAMPLE PROCESSING INFORMATION:

	SDG080609	SDG081409a (partial)
MSL Sample IDs :	2981*113-122	2981*123-132
Description :	Fish Homogenate	Fish Homogenate
Laboratory Arrival Date :	08/06/09	08/14/09
Cooler Temperature upon Arrival:	2.1°C	2.5°C
Extraction Dates:	01/20/10	
Analysis Dates:	01/20/10	

METHODS: The tissue homogenate was processed and analyzed for CrVI following a modification from the Environmental Protection Agency (EPA) Method 6800 Elemental and Speciated Isotope Dilution Mass Spectrometery. The modification occurs in the preparation method for the tissue matrix. The tissues were extracted for CrVI following adaptations from Wolf et al. (2007). The extracts were then analyzed following MSL standard operating procedure MSL-I-039 CHROMIUM SPECIATION USING HIGH-PERFORMANCE LIQUID CHROMATOGRAPHY - INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY (HPLC-ICP-MS) IN AQUEOUS, SEDIMENT, AND TISSUE SAMPLES. The operation manual for chromium explicit SIDMS was provided by Applied Isotope Technologies and is briefly discussed in EPA Method 6800. Peaks are manually integrated for peak area and concentration is entered into the SIDMS software to conduct the isotopic dilution calculations.

Upon arrival at MSL, the wet tissue samples were stored at <-80°C until samples were lyophilized. Approximately 200 mg of dried, homogenized tissue was spiked with enriched isotopes of ^{52}Cr and ^{53}Cr to correct for interferences and potential interconversion between the oxidation states of Cr^{3+} and Cr^{6+}. The tissues were extracted using a Na_2CO_3 and $NaHCO_3$ buffer, ultrasonication, and centrifugation. The extracts were then filtered through a 0.45µm Teflon syringe to removal particulates and analyzed by HPLC coupled with the ICP-DRC-MS. Analytical results are reported in µg/g dry weight. These concentrations are then converted back to a wet weight concentration using the following formula: wet weight concentration = dry weight concentration * % dry weight / 100.

HOLDING TIMES: Wet tissue samples were stored at ≤ -80°C upon arrival at MSL. Method 6800 does not provide a holding time for CrVI; however, it states that samples collected for speciation analysis must be isotopically spiked as soon as possible. Due to the lipid interference that occurred in the original method, the samples were isotopically spiked several months after collection. However, the storage of sample at ≤ -80°C sufficiently inhibits

interconversion of the oxidation states over this period of time. The samples are not considered significantly impacted by delay in isotopically spiking the samples.

DATA QUALITY CRITERIA (DQC):

Analyte	Analytical Method	Range of Blank Spike Recovery	Range of MS/MSD Spike Recovery	SRM Percent Recovery	Replicate Precisions (RPD)	Achieved MDL (µg/g dry wt.)	Achieved MDL (µg/g wet wt.)
CrVI	HPLC/ICP-DRC-MS	85-115%	75-125%	NA	≤25%	0.471 µg/g	0.127 µg/g

NA = Tissue standard reference materials certified for CrVI are not presently available.

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. Seven replicates of a fish tissue were used to generate the MDL for the dry weight concentration. The dry weight is then converted to a wet weight concentration using the average sample percent dry weight as discussed above. 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: Method blanks were prepared and analyzed with the samples at a frequency of one each per analytical batch. The data reported include one analytical batch with no detectable CrVI in the method blank.

LABORATORY CONTROL SAMPLE (LCS) ACCURACY: Laboratory control samples (LCS) were prepared and analyzed at a frequency of one each per analytical batch. The LCS consists of reagents spiked with the isotopically enriched standards for ^{52}Cr and ^{53}Cr. The LCS sample was within the QC criterion of 85-115% recovery.

REPLICATE PRECISION: Laboratory duplicates were analyzed at a frequency of one each per 20 field samples or analytical batch. The sample selected for duplicate was less than three times the MDL and not appropriate for evaluation of the data set precision. Precision was assessed using the matrix spike duplicate.

MATRIX SPIKE ACCURACY: A set of matrix spike duplicates was prepared at a frequency of one each per 20 samples or analytical batch. The matrix spikes were within the QC acceptance criterion of 75-125%. Analytical precision was assessed using the matrix spike duplicates and was within the QC acceptance criterion of ≤25% RPD.

REFERENCES:

U.S. EPA, 2007. Method 6800, Revision 0 (February 2007), ELEMENTAL AND SPECIATED ISOTOPE DILUTION MASS SPECTROMETRY, Environmental Protection Agency.

Wolf, Ruth E., J.M. Morrison, and M.B. Goldhaber. (2007). Simultaneous determination of Cr(III) and Cr(VI) using reversed-phased ion-pairing liquid chromatography with dynamic reaction cell inductively coupled plasma mass spectrometry. J. Anal. At. Spectrom., 22: 1051-1060. DOI: 10.1039/b704597b

Hexavalent Chromium Worksheet

Dataset: 011510-LCDRC

Date of Preparation	Date of Analysis	Sample	52Cr	53Cr	Ratio 52Cr/53Cr	Fraction of 52Cr in sample (%)	Fraction of 53Cr in sample (%)	Fraction of Cr52 in enriched standard (%)	Fraction of Cr53 in enriched standard (%)	Sample (g)	Enriched standard used (g)	Cr Conc in enriched standard (ug/g)	Cr conc. In sample (ug/g)
1/15/10	1/15/10	Blank	2230	24634	0.0905	83.79	9.502	1.800	98.04	0.250	0.100	1.0958	0.037
1/15/10	1/15/10	LCS	110714	134161	0.8252	83.79	9.502	1.800	98.04	0.250	0.050	10.958	2.283
1/15/10	1/15/10	2981-112	3283	3870	0.8483	83.79	9.502	1.800	98.04	0.276	0.100	1.0958	0.427
1/15/10	1/15/10	2981-112 MS	21812	21872	0.9973	83.79	9.502	1.800	98.04	0.253	0.050	10.958	2.797
1/15/10	1/15/10	MDL R1	4769	3860	1.2355	83.79	9.502	1.800	98.04	0.252	0.100	1.0958	0.720
1/15/10	1/15/10	MDL R2	4415	4006	1.1021	83.79	9.502	1.800	98.04	0.255	0.100	1.0958	0.623
1/15/10	1/15/10	MDL R3	7363	5250	1.4025	83.79	9.502	1.800	98.04	0.250	0.100	1.0958	0.844
1/15/10	1/15/10	MDL R4	6913	4512	1.5321	83.79	9.502	1.800	98.04	0.250	0.100	1.0958	0.940
1/15/10	1/15/10	MDL R5	5411	3848	1.4062	83.79	9.502	1.800	98.04	0.250	0.100	1.0958	0.847
1/15/10	1/15/10	MDL R6	6962	4107	1.6952	83.79	9.502	1.800	98.04	0.249	0.100	1.0958	1.069
1/15/10	1/15/10	MDL R7	5851	4690	1.2475	83.79	9.502	1.800	98.04	0.252	0.100	1.0958	0.728

MDL

MDL Average =	0.824	
MDL Std. Dev. =	0.150	
MDL(3.143xSD) =	0.471	dry wet
MDL wet wt. using avg. sample % dry wt 29%	0.137	wet wt.

Spike Recovery

1/15/10	1/15/10	Blank	2230	24634	0.0905	83.79	9.502	1.800	98.04	0.250	0.100	1.0958	0.037
1/15/10	1/15/10	LCS	110714	134161	0.8252	83.79	9.502	1.800	98.04	0.250	0.050	10.958	2.283
													2.00
													112.3%
1/15/10	1/15/10	2981-112	3283	3870	0.8483	83.79	9.502	1.800	98.04	0.276	0.100	1.0958	0.427
1/15/10	1/15/10	2981-112 MS	21812	21872	0.9973	83.79	9.502	1.800	98.04	0.253	0.050	10.958	2.797
													1.98
													119.9%

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Project Manager: Brandenberger
Date Received: 8/6/2009
Batch: 10
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
J19266	na	2981-113	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/28/09
J19265	na	2981-114	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/28/09
J19268	na	2981-115	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/29/09
J19267	na	2981-116	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/29/09
J19292	na	2981-117	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/30/09
J19291	na	2981-118	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	07/30/09
J192B2	na	2981-119	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09
J192B1	na	2981-120	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09
J192C2	na	2981-121	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09
J192C1	na	2981-122	other solid	Deep Freezer	Total Inorganic Arsenic, Cr	08/03/09

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-619	Page 1 of 1

Collector: Wendy West	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: STURGEON 1 CARCASS		SAF No.: RC-118
Ice Chest No.: GLOS-052	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.: FDX # 797823511495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	1	0									
Volume	60mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19266 2981-113 / OTHER SOLID / 7/28/09 / 1100	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West Wendy West, Date/Time 7/28/09 1100	Received By/Stored In: EAS LOCKED STORAGE Wendy West Wendy West, Date/Time 7/28/09 1100		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
Relinquished By/Removed From: EAS LOCKED STORAGE, Date/Time 8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON, Date/Time 8/5/09		
Relinquished By/Removed From: SHANNAN JOHNSON, Date/Time 8/5/09 1130	Received By/Stored In: FDX # 797823511495, Date/Time		
Relinquished By/Removed From, Date/Time	Received By/Stored In, Date/Time		
Relinquished By/Removed From, Date/Time	Received By/Stored In, Date/Time		
Relinquished By/Removed From, Date/Time	Received By/Stored In, Date/Time		

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

LABORATORY SECTION	Received By: [signature]	Title	Date/Time 08/06/09 1450
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-618	Page 1 of 1
Collector: Wendy West	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: STURGEON 1 FILLET	SAF No.: RC-118	
Ice Chest No.: GWS-052	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.: FDX# 7978235 114 95	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	1	0									
Volume	60mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19265 2281.114 / OTHER SOLID / 7/28/09 / 1100	X	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West Wendy West	1100 7/28/09	Wendy West Wendy West EAS LOCKED STORAGE	1100 7/28/09
EAS LOCKED STORAGE	8/5/09	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX# 7978235 114 95	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/06/09 1432
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-629	Page 1 of 1
Collector: Wendy West	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: STURGEON 2 CARCASS	SAF No.: RC-118	
Ice Chest No.: GLOS-052	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.: FDX# 797823511495	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	1	0									
Volume	60mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19268 2981.115 / OTHER SOLID / 7/29/09 / 1500	X	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West Wendy West	1500 7/29/09	EAS LOCKED STORAGE Wendy West Wendy West	1500 7/29/09
EAS LOCKED STORAGE	1130 8/5/09	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX# 797823511495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 8/02/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-628	Page 1 of 1

Collector: Wendy West	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: STURGEON 2 FILLET		SAF No.: RC-118
Ice Chest No.: GWS-052	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.: FDX# 797823511495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	1	0									
Volume	60mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19267 2981.116 / OTHER SOLID / 7/29/09 / 1500	X	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West Wendy West	1500 7/29/09	EAS LOCKED STORAGE wendy West Wendy West	1500 7/29/09
EAS LOCKED STORAGE	8/5/09 1130	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX# 797823511495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-118-639	Page 1 of 1
Collector: Wendy West	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: STURGEON 3 CARCASS		SAF No.: RC-118	AH 72309
Ice Chest No.: GWS-052	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.: FDX# 7978235 114 95	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze										
Type of Container	P/G	G/P										
No. of Container(s)	~~1~~ 0 AH 72309	1										
Volume	15mL	60mL										
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M										

Sample No.	Matrix *	Sample Date	Sample Time										
J19292 2981.117	OTHER SOLID	7/30/09	1400	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Wendy West	Date/Time: 1400 7/30/09	Received By/Stored In: EAS LOCKED STORAGE	Date/Time: 1400 7/30/09
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 1130 8/5/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 1130 8/5/09
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/5/09 1130	Received By/Stored In: FDX# 7978235 114 95	Date/Time:
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-638	Page 1 of 1
Collector: Wendy West	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: STURGEON 3 FILLET	SAF No.: RC-118	
Ice Chest No.: 6W5-052	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.: FDX# 7978235 114 95	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	10	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19291 2981-118 / OTHER SOLID / 7/30/09 / 1400	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Wendy West	7/30/09 1400	Received By/Stored In: EAS LOCKED STORAGE 2	7/30/09 1400
Relinquished By/Removed From: EAS LOCKED STORAGE	8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	8/5/09 1130	Received By/Stored In: FDX# 7978235 114 95	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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
	[illegible]		08/06/09 1430

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-649	Page 1 of 1
Collector: Mason F. Dino	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: STURGEON 4 CARCASS	SAF No.: RC-118	
Ice Chest No.: GWS-052	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.: FDX# 7978235 114 95	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192B2 2981.119 / OTHER SOLID / 8/3/09 / 1100	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: M. F. Dino	8-3-09 1100hrs	EAS LOCKED STORAGE M. F. Dino	1100hrs 8-3-09
Relinquished By/Removed From: EAS LOCKED STORAGE	8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	8/5/09 1130	Received By/Stored In: FDX# 7978235 114 95	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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
	[signature]		08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-648	Page 1 of 1

Collector: Wendy West	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: STURGEON 4 FILLET		SAF No.: RC-118
SAF 72709			
Ice Chest No.: GWS-052	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/Airbill No.: FDX: 7978235 114 95

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze								
Type of Container			P/G	G/P								
No. of Container(s)			0	1								
Volume			15mL	60mL								
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M								
Sample No.	Matrix *	Sample Date	Sample Time									
J192B1 2981-120	OTHER SOLID	8/3/09	1000	X	X							

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Wendy West	Date/Time: 8/3/09 1000	Received By/Stored In: EAS LOCKED STORAGE Wendy West	Date/Time: 1000 8/3/09
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/11/09 1130	Received By/Stored In: FDX: 7978235 114 95	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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: [signature]	Title	Date/Time: 8/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-659	Page 1 of 1

Collector: Mason 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: STURGEON 5 CARCASS		SAF No.: RC-118
Ice Chest No.: 6WS-052	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.: FDX 7978235 11495

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192C2 2981.121 / OTHER SOLID / 8-3-09 / 1500	X	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: M. Fidino	Date/Time: 8-3-09 1500	Received By/Stored In: EAS LOCKED STORAGE M. Fidino	Date/Time: 8-3-09 1500
Relinquished By/Removed From: EAS LOCKED STORAGE	Date/Time: 8/5/09 1130	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/5/09 1130
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/5/09 1130	Received By/Stored In: FDX 7978235 11495	Date/Time:
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 8/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-658	Page 1 of 1
Collector: Mason 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: STURGEON 5 FILLET	SAF No.: RC-118	MJ 72709
Ice Chest No.: GW5-052	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.: FDX# 797823511495	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192C1 2981.122 / OTHER SOLID / 8-3-09 / 1400	X	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
M. Fidino	8-3-09 1400	M. Fidino / EAS LOCKED STORAGE #2	8-3-09 1400
EAS LOCKED STORAGE	8/5/09 1130	SHANNAN JOHNSON	8/5/09 1130
SHANNAN JOHNSON	8/5/09 1130	FDX# 797823511495	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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: [signature]	Title	Date/Time: 08/06/09 1430
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2981 Sample No(s): 113 - 122 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)
		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:

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	NA		Was a custody seal present?
		NA	Was the custody seal intact? Each sample has a custody seal that was intact. JMK 8/6/09
NA			Was cooler(s) temperature(s) within acceptable range of 4±2°C or frozen? 2.1 °C (if multiple coolers, note temp. of each) °C
		NA	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy:
NA			Were all chain of custody forms signed and dated?
	NA		Were samples filtered at MSL?

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

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

Notes:

Completed By: [signature] Date/Time: 08/06/09 1430

SAMPLE PRESERVATION

NA	Sample(s) were preserved at MSL
	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)

If preservation necessary, record Acid Lot#

Type:			
		0.2% HNO3	Notes:
		0.5% HCl (Hg samples)	Notes:
	NA	Refrigerate/Freeze	Notes:
		Other	Notes:

Completed By: [signature] Date/Time: 08/06/09 1430

Storage Shelf:

Revsed 121608

SAMPLE LOGIN

Pacific Northwest NATIONAL LABORATORY | Battelle The Business of Innovation

Project Manager: Brandenberger
Date Received: 8/14/2009
Batch: 11
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
J192F1	na	2981-123	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J192F2	na	2981-124	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J192H2	na	2981-125	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J192H3	na	2981-126	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/04/09
J19304	na	2981-127	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19305	na	2981-128	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19314	na	2981-129	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19315	na	2981-130	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/05/09
J19325	na	2981-131	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J19326	na	2981-132	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J193L2	na	2981-133	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J193L3	na	2981-134	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/06/09
J193M2	na	2981-135	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/10/09
J193M3	na	2981-136	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/10/09
J193N4	na	2981-137	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/11/09
J193N5	na	2981-138	other solid	Deep Freezer C-2	Total Inorganic Arsenic, Cr	08/11/09

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-118-668	Page 1 of 1
Collector: Wendy West	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: STURGEON 6 FILLET		SAF No.: RC-118	AJB 72709
Ice Chest No.: EAS 8/4/09 GWS628	Field Logbook No.: EL-1638	COA: BESCRC6520	Method of Shipment: FED EX	FDX# 796850726969
Shipped To: Battelle Marine Sciences	Offsite Property No.: N/A		Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze										
Type of Container	P/G	G/P										
No. of Container(s)	0	1										
Volume	15mL	60mL										
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M										

Sample No.	Matrix *	Sample Date	Sample Time										
J192F1 2381.123	OTHER SOLID	8/4/09	1000	X	X								

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Wendy West	Date/Time: 1000 8/4/09	Received By/Stored In: EAS Lock Storage #2 Wendy West	Date/Time: 1000 8/4/09
Relinquished By/Removed From: EAS LOCKED STORAGE #2	Date/Time: 8/5/09	Received By/Stored In: SHANNAN JOHNSON	Date/Time: 8/5/09
Relinquished By/Removed From: SHANNAN JOHNSON	Date/Time: 8/5/09 1000	Received By/Stored In: FDX	Date/Time:
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time: 08/24/09 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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/8/09

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-118-669	Page 1 of 1

Collector Wendy West	**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** STURGEON 6 CARCASS	**SAF No.** RC-118	SAF 72709
Ice Chest No. GLOS 028	**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.** FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192F2 2981.124 / OTHER SOLID / 8/4/09 / 1145	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By/Removed From: Wendy West — Date/Time 1145 8/4/09	Received By/Stored In: EAS LOCKED STORAGE 2 — Date/Time 1145 8/4/09	Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09.
Relinquished By/Removed From: EAS LOCKED STORAGE 2 — Date/Time 8/13/09 1000	Received By/Stored In: SHANNAN JOHNSON — Date/Time 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON — Date/Time 8/13/09 1000	Received By/Stored In: FDX — Date/Time	
Relinquished By/Removed From: — Date/Time	Received By/Stored In: — Date/Time 08/14/09 1360	
Relinquished By/Removed From: — Date/Time	Received By/Stored In: — Date/Time	
Relinquished By/Removed From: — Date/Time	Received By/Stored In: — Date/Time	

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-118-678	Page 1 of 1
Collector: Wendy West	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: STURGEON 7 FILLET		SAF No.: RC-118	8309
Ice Chest No.: GWS 028	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.: FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze										
Type of Container	P/G	G/P										
No. of Container(s)	0	1										
Volume	15mL	60mL										
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M										

Sample No.	Matrix *	Sample Date	Sample Time										
J192H2 2981.125	OTHER SOLID	8/4/09	1500	X	X								

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West [signature]	1500 8/4/09	EAS LOCKED STORAGE 2 Wendy West [signature]	1500 8/4/09
EAS LOCKED STORAGE 2 [signature]	1000 8/13/09	SHANNAN JOHNSON [signature]	1000 8/13/09
SHANNAN JOHNSON [signature]	8/13/09 1000X	FDX	
		[signature]	08/14/09 1300

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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-118-679	Page 1 of 1
Collector: Wendy West	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: STURGEON 7 CARCASS	SAF No.: RC-118	
Ice Chest No.: GWS 028	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.: FDX 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J192H3 2981.126 / OTHER SOLID / 8/4/09 / 1510	X	X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	1510 8/4/09	EAS LOCKED STORAGE / Wendy West	1510 8/4/09
EAS LOCKED STORAGE	8/13/09 1000	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000	FDX	
			8/14/09 1300

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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-118-688	Page 1 of 1
Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9K 8309
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 8 FILLET		SAF No.: RC-118	Data Turnaround: 45 Days
Ice Chest No.: GW8028	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.: FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation				Cool 4C	Freeze							
Type of Container				P/G	G/P							
No. of Container(s)				0	1							
Volume				15mL	60mL							
SAMPLE ANALYSIS				Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time									
J19304 2981.127	OTHER SOLID	8/5/09	0930	X	X							

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By/Removed From: Wendy West — Date/Time: 0930 8/5/09	Received By/Stored In: EAS LOCKED STORAGE 2 — Date/Time: 0930 8/5/09	
Relinquished By/Removed From: EAS LOCKED STORAGE 2 — Date/Time: 1000 8/13/09	Received By/Stored In: SHANNAN JOHNSON — Date/Time: 8/13/09 1000	
Relinquished By/Removed From: SHANNAN JOHNSON — Date/Time: 8/13/09 1000	Received By/Stored In: FDX — Date/Time:	
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: [signature] — Date/Time: 08/14/09 1300	
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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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-118-689	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K N 8309	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 8 CARCASS		SAF No.: RC-118
Ice Chest No.: GWS 028	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.: FDX 796859726969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19305 8981.128 / OTHER SOLID / 8/5/09 / 1000	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Wendy West	1000 8/5/09	EAS LOCKED STORAGE 2 Wendy West	1000 8/5/09
Relinquished By/Removed From: EAS LOCKED STORAGE 2	1000 8/13/09	SHANNAN JOHNSON	8/13/09 1000
Relinquished By/Removed From: SHANNAN JOHNSON	8/13/09 1000	FDX	
Relinquished By/Removed From		Received By/Stored In: [illegible]	08/14/09 1300
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09.

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-118-698	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 9 FILLET		SAF No.: RC-118
Ice Chest No.: GWS 028	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.: FDX# 796859726969

Price Code: ~~9K~~ N

Data Turnaround: 45 Days

AD 8309

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze
Type of Container	P/G	G/P
No. of Container(s)	0	1
Volume	15mL	60mL
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M

Sample No.	Matrix *	Sample Date	Sample Time		
J19314 2981.129	OTHER SOLID	8/5/09	1300	X	X

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: wendy West Date/Time: 1300 8/5/09	Received By/Stored In: wendy West Date/Time: 1300 EAS LOCKED STORAGE 2 8/5/09		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
Relinquished By/Removed From: EAS LOCKED STORAGE 3 Date/Time: 1000 8/13/09	Received By/Stored In: SHANNAN JOHNSON Date/Time: 8/13/09 1000		
Relinquished By/Removed From: SHANNAN JOHNSON Date/Time: 8/13/09 1000	Received By/Stored In: FDX Date/Time:		
Relinquished By/Removed From: Date/Time:	Received By/Stored In: [signature] Date/Time: 08/14/09 1300		
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:	Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09	
Relinquished By/Removed From: Date/Time:	Received By/Stored In: Date/Time:		

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-699	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 9 CARCASS		SAF No.: RC-118
Ice Chest No.: 6125 028	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.: FD 7968597269 69

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19315 2281.130 / OTHER SOLID / 8/5/09 / 1400	X	X									

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West — Date/Time: 8/5/09 1400	Received By/Stored In: EAS LOCKED STORAGE 2 — Date/Time: 8/5/09 1400		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
Relinquished By/Removed From: EAS LOCKED STORAGE 2 — Date/Time: 8/8/09 1000	Received By/Stored In: SHANNAN JOHNSON — Date/Time: 8/12/09 1000		
Relinquished By/Removed From: SHANNAN JOHNSON — Date/Time: 8/12/09 1000	Received By/Stored In: FDX — Date/Time:		
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: [signature] 8/14/09 1300 — Date/Time:		
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:		
Relinquished By/Removed From: — Date/Time:	Received By/Stored In: — Date/Time:		

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/5/09

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-118-708	Page 1 of 1

Collector: Wendy West	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: STURGEON 10 FILLET		SAF No.: RC-118
Ice Chest No.: GLOS 028	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.: FDX# 796859726969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze
Type of Container	P/G	G/P
No. of Container(s)	0	1
Volume	15mL	60mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M
J193252981·131	OTHER SOLID	8/6/09	0900	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	8/6/09 0900	EAS LOCKED STORAGE Wendy West	8/6/09 0900
EAS LOCKED STORAGE	8/13/09 0900	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000	FDX	
		[illegible]	08/14/09 1300

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09.

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-118-709	Page 1 of 1

Collector: Wendy West	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: STURGEON 10 CARCASS		SAF No.: RC-118
Ice Chest No.: GLOS 028	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.: FDX# 796859726969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J19326 2981-132 / OTHER SOLID / 8/6/09 / 1030	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Wendy West	8/6/09 1030	EAS LOCKED STORAGE 2 Wendy West	8/6/09 1030
EAS LOCKED STORAGE 2	8/13/09 1000	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000		
			8/14/09 1300
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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/18/09

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-118-718	Page 1 of 1

Collector: Wendy West	Company Contact: JOAN KESSNER	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 9K N 108609	Data Turnaround: 45 Days		
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 11 FILLET		SAF No.: RC-118
Ice Chest No.: GWS 028	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.: FD 796859726969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193L2 2981.133 / OTHER SOLID / 8/6/09 / 1420	X	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names: Received By/Stored In	Date/Time
Relinquished By/Removed From: Wendy West	8/6/09 1420	EAS LOCKED STORAGE 2 Wendy West	8/6/09 1420
Relinquished By/Removed From: EAS LOCKED STORAGE 2	8/12/09 1000	SHANNAN JOHNSON	8/12/09 1000
Relinquished By/Removed From: SHANNAN JOHNSON	8/12/09 1000	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time 8/14/09 1300
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

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/12/09

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-118-719	Page 1 of 1

Collector: Wendy West	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: STURGEON 11 CARCASS		SAF No.: RC-118
Ice Chest No.: GWS 028	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/Airbill No.: PDX 79685972 6969

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze
Type of Container	P/G	G/P
No. of Container(s)	0	1
Volume	15mL	60mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M
J193L3 2781.134	OTHER SOLID	8/6/09	1430	X	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	8/6/09 1430	EAS LOCKED STORAGE2 Wendy West	8/6/09 1430
EAS LOCKED STORAGE2	8/13/09 1000	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000	FDX	
			08/14/09 1300

SPECIAL INSTRUCTIONS

Sampler unavailable to relinquish samples from EAS Refrigerator. EAS Custodian removed samples for shipping on 8/13/09

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-118-728	Page 1 of 1
Collector: wendy west	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: STURGEON 12 FILLET	SAF No.: RC-118	
Ice Chest No.: GWS 028	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.: FDX 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J193M2 2981.135	OTHER SOLID	8/10/09	1130	X	X						

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
wendy west	1130 8/10/09	EAS LOCKED STORAGE 2 wendy west	1130 8/10/09
EAS LOCKED STORAGE 2	8/13/09	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000	FDX	
		[illegible]	08/14/09 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
SJ=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-118-729	Page 1 of 1

Collector Wendy West	**Company Contact** JOAN KESSNER **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** 9K N 408609 **Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 12 CARCASS	**SAF No.** RC-118	
Ice Chest No. G-625 028	**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.** PDX 7968597269 69	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J193M3 8981.136	OTHER SOLID	8/10/09	1200	X	X						

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From Wendy West Date/Time 1200 8/10/09	Received By/Stored In EAS LOCKED STORAGE 2 Wendy West Date/Time 1200 8/10/09		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
Relinquished By/Removed From EAS LOCKED STORAGE 2 Date/Time 1000 8/13/09	Received By/Stored In SHANNAN JOHNSON Date/Time 8/13/09 1000		
Relinquished By/Removed From SHANNAN JOHNSON Date/Time 8/13/09 1000	Received By/Stored In FDX Date/Time		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time 08/14/09 1300	Sampler unavailable to remove samples rom controlled storage. Shipper removed amples from storage location taking custody f samples for shipment to lab.	
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		

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

WCH-EE-011

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	RC-118-738	Page 1 of 1
Collector: Wendy West	Company Contact: JOAN KESSNER; Telephone No.: 375-4688	Project Coordinator: KESSNER, JH	Price Code: 9K; Data Turnaround: 45 Days
Project Designation: Columbia River Component of the RCBRA - Tissues	Sampling Location: STURGEON 13 FILLET	SAF No.: RC-118	
Ice Chest No.: GWS 028	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.: FDX 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation	Cool 4C	Freeze									
Type of Container	P/G	G/P									
No. of Container(s)	0	1									
Volume	15mL	60mL									
SAMPLE ANALYSIS	Total Inoganic Arsenic	Chromium Hex in Solids - 1636M									
Sample No. / Matrix * / Sample Date / Sample Time											
J193N4 298.137 / OTHER SOLID / 8/11/09 / 0900	X	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Wendy West	8/11/09 0900	EAS LOCKED STORAGE 2	8/11/09 0900
EAS LOCKED STORAGE 2	8/13/09 1000	SHANNAN JOHNSON	8/13/09 1000
SHANNAN JOHNSON	8/13/09 1000	FDX	
		[illegible]	08/14/09 1330

SPECIAL INSTRUCTIONS

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
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-118-739	Page 1 of 1

Collector Wendy West	**Company Contact** JOAN KESSNER **Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH	**Price Code** 9K N MP 8609 **Data Turnaround** 45 Days
Project Designation Columbia River Component of the RCBRA - Tissues	**Sampling Location** STURGEON 13 CARCASS	**SAF No.** RC-118	
Ice Chest No. GWS 028	**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.** FDX# 796859726969	

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

FREEZE "MATRIX COMPOSED OF FISH"

Preservation			Cool 4C	Freeze							
Type of Container			P/G	G/P							
No. of Container(s)			0	1							
Volume			15mL	60mL							
SAMPLE ANALYSIS			Total Inoganic Arsenic	Chromium Hex in Solids - 1636M							
Sample No.	Matrix *	Sample Date	Sample Time								
J193N5 2281.138	OTHER SOLID	8/11/09	1030	X	X						

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By/Removed From: Wendy West Date/Time 1030 8/11/09	Received By/Stored In: EAS LOCKED STORAGE2 Wendy West Date/Time 1030 8/11/09		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
Relinquished By/Removed From: EAS LOCKED STORAGE2 Date/Time 1000 8/12/09	Received By/Stored In: SHANNAN JOHNSON Date/Time 8/13/09 1000		
Relinquished By/Removed From: SHANNAN JOHNSON Date/Time 8/13/09 1000	Received By/Stored In: FDX Date/Time		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		
Relinquished By/Removed From Date/Time	Received By/Stored In Date/Time		

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

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

WCH-EE-011

LOG-IN CHECKLIST

Reference SOP# MSL-A-001

Central File #: 2981 Sample No(s): 123-138 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)
		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: _____

Date To Archive: _____ Date To Dispose: _____

TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN

Yes	No	N/A	Indicate in Appropriate Box
	MK		Was a custody seal present?
		MK	Was the custody seal intact?
MK			Was cooler(s) temperature(s) within acceptable range of 4±2°C or frozen? (if multiple coolers, note temp. of each) 2.5 °C _____ °C
		MK	Was Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)? Comment/Remedy: _____
MK			Were all chain of custody forms signed and dated?
	MK		Were samples filtered at MSL?

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

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

Notes: _____

Completed By: [signature] Date/Time: 08/14/09 1300

SAMPLE PRESERVATION

- [MK] Sample(s) were preserved at MSL
- [ ] 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)

If preservation necessary, record Acid Lot#

Type:
- [ ] 0.2% HNO3 Notes: _____
- [ ] 0.5% HCl (Hg samples) Notes: _____
- [MK] Refrigerate/Freeze Notes: Deep freeze C-2
- [ ] Other Notes: _____

Completed By: [signature] Date/Time: 08/14/09 1300

Storage Shelf: Deep freezer C-2

Battelle Marine Sciences Labs, 1529 West Sequim Bay Rd, Sequim, Washington 98362 PH: (360) 681-4565

BATTELLE MARINE SCIENCES LABORATORY
1529 West Sequim Bay Road
Sequim, Washington 98382
(360) 681-4564

Washington Closure Hanford
Chromium VI Study
SDG 080609 and SDG081409(a)

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	Percent Dry Wt	Cr VI µg/g dry wt.	Cr VI µg/g wet wt.[1]
Method Detection Limit (MDL)								*0.471*	*0.127*
2981-113	J19266	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	32.7	0.471 U	0.127 U
2981-114	J19265	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.471 U	0.127 U
2981-114DUP	J19265DUP	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.792	0.217
2981-115	J19268	SDG080609	08/06/09	07/29/09	01/20/10	012010-LCDRC	26.3	0.471 U	0.127 U
2981-116	J19267	SDG080609	08/06/09	07/29/09	01/20/10	012010-LCDRC	23.4	0.471 U	0.127 U
2981-117	J19292	SDG080609	08/06/09	07/30/09	01/20/10	012010-LCDRC	33.7	0.471 U	0.127 U
2981-118	J19291	SDG080609	08/06/09	07/30/09	01/20/10	012010-LCDRC	27.6	0.471 U	0.127 U
2981-119	J192B2	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	25.7	0.471 U	0.127 U
2981-120	J192B1	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	22.1	0.580	0.128
2981-121	J192C2	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	29.5	0.471 U	0.127 U
2981-122	J192C1	SDG080609	08/06/09	08/03/09	01/20/10	012010-LCDRC	25.0	0.864	0.216
2981-123	J192F1	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	22.3	0.735	0.164
2981-124	J192F2	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	25.3	0.471 U	0.127 U
2981-125	J192H2	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	27.0	0.471 U	0.127 U
2981-126	J192H3	SDG081409	08/14/09	08/04/09	01/20/10	012010-LCDRC	33.6	0.471 U	0.127 U
2981-127	J19304	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	23.8	0.652	0.155
2981-128	J19305	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	27.3	0.471 U	0.127 U
2981-129	J19314	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	20.8	0.471 U	0.127 U
2981-130	J19315	SDG081409	08/14/09	08/05/09	01/20/10	012010-LCDRC	26.7	0.471 U	0.127 U
2981-131	J19325	SDG081409	08/14/09	08/06/09	01/20/10	012010-LCDRC	24.5	1.14	0.279
2981-132	J19326	SDG081409	08/14/09	08/06/09	01/20/10	012010-LCDRC	33.2	0.471 U	0.127 U
QUALITY CONTROL SAMPLE RESULTS						*Average*	*26.9*		
Method Blank									
Blank R1					01/20/10	012010-LCDRC		0.471 U	0.127 U
Laboratory Control Sample									
LCS Cr+6					01/20/10	012010-LCDRC		3.12	--
Spike Concentration								3.00	--
% Recovery								**104%**	--
Replicate Analysis Results									
2981-114	J19265	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.471 U	0.127 U
2981-114DUP	J19265DUP	SDG080609	08/06/09	07/28/09	01/20/10	012010-LCDRC	27.4	0.792	0.217
	RPD							NA	NA
Matrix Spike Accuracy									
2981-116	J19267	SDG080609	08/06/09	07/29/09	01/20/10	012010-LCDRC	23.4	0.471 U	0.127 U
2981-116 MS (Cr+6)								3.07	--
2981-116 MSD (Cr+6)								2.65	--
Spike Amount, MS								2.96	--
Spike Amount, MSD								3.03	--
% Recovery, MS								**104%**	--
% Recovery, MSD								**88%**	--
RPD								**17%**	--

Qualifiers:

[1] Wet weight detection limit calculated using the average sample percent dry weight (26.9%).
NA Not applicable/appropriate. Sample concentration less than detection limit or reporting limt = 3*MDL.
U Not detected at or above MDL, MDL reported in value field
N Outside Method DQOs for Blank Spikes (≤ 15%) and MS/MSD (≤ 25%) results
* Outside Method DQOs for Duplicates (≤ 25%)