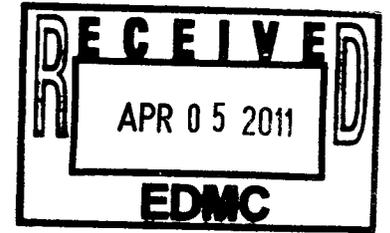


0095184

**SAF-RC-200**  
**Special Hexavalent Chromium Testing**  
**FINAL DATA PACKAGE**

**COMPLETE COPY OF DATA PACKAGE TO:**

No Distribution Required



**COMMENTS:**

**SDG SEQ012611**

**SAF-RC-200**

Rad only

Chem only

Rad & Chem

Complete

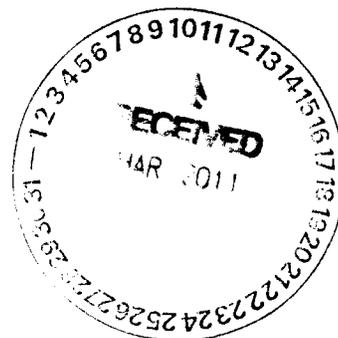
Partial

**Sample Location: Hanford Background**

# Analytical Chemistry Data Package Inorganics Analysis

**Project: Washington Closures Hanford  
Chromium VI Analysis of Soil**

SDG 012611



PNNL Project No. 60803  
MSL CF No. 3200



**Pacific Northwest**  
NATIONAL LABORATORY

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

SEQ012611

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**BATTELLE MARINE SCIENCES LABORATORY**

1529 West Sequim Bay Road  
 Sequim, Washington 98382  
 (360) 681-4564

**Washington Closures Hanford**  
 Chromium VI in Soil  
 SDG012611

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	Percent Dry Wt	Cr VI µg/g dry wt.
<i>Method Detection Limit (MDL)</i>								0.15
<i>Reporting Limit (RL) = 3.18*MDL</i>								0.48
3200-1	J1C3M9-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.339 JC
3200-2	J1C3N0-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.328 JC
3200-3	J1C3N1-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.467 JC
3200-3R2	J1C3N1-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.529 C
3200-4	J1C3N2-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.353 JC
3200-5	J1C3N3-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.372 JC
3200-6	J1C3N4-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.294 JC
3200-7	J1C3N5-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.400 JC
3200-8	J1C3N6-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.408 JC
3200-9	J1C3N7-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.375 JC
3200-10	J1C3N8-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.389 JC
3200-11	J1C3N9-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.262 JC
3200-12	J1C3P0-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.361 JC
3200-13	J1C3P1-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.218 JC

**QUALITY CONTROL SAMPLE RESULTS**

*Average 100.0*

**Method Blank**

Blank R1					02/24/11	022411-LCDRC		0.277 J
Blank R2					02/24/11	022411-LCDRC		0.241 J
Blank R3					02/24/11	022411-LCDRC		0.230 J
Mean Blank								0.249
5x Mean Blank (for flagging purposes)								1.25

**Laboratory Control Sample**

I.C.S I Cr VI					02/24/11	022411-LCDRC		2.20
Blank R1					02/24/11	022411-LCDRC		0.277 JC
Spike Concentration								2.00
% Recovery								96%

**Replicate Analysis Results**

3200-3	J1C3N1-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.467 JC
3200-3R2	J1C3N1-ADUP	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.529 C
<b>RPD</b>								12%

**Matrix Spike Accuracy**

3200-1	J1C3M9-A	SDG012611	01/26/11	01/07/11	02/24/11	022411-LCDRC	100.0	0.339 JC
3200-1 MS	J1C3M9-AMS							2.54
3200-1 MSD	J1C3M9-AMSD							2.27
Spike Amount, MS								1.97
Spike Amount, MSD								1.94
% Recovery, MS								112%
% Recovery, MSD								100%
<b>RPD</b>								11%

**Standard Reference Material (Liquid, Units = µg/L)**

SRM 2109 R1					02/24/11	022411-LCDRC		0.101
SRM 2109 R2					02/24/11	022411-LCDRC		0.0961
Certified Value (adjusted for dilution)								0.10
% Recovery								101%
% Recovery								96%

**BATTELLE MARINE SCIENCES LABORATORY**

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**Washington Closures Hanford**  
Chromium VI in Soil  
SDG012611

MSL Code	Client ID	SDG	Received Date	Collection Date	Analysis Date	Analytical Batch ID	Percent Dry Wt	Cr VI $\mu\text{g/g dry wt.}$
<i>Method Detection Limit (MDL)</i>								0.15

**Standard Reference Material (Soil)**

NIST 2700 R1					02/24/11	022411-LCDRC		9.89
NIST 2700 R2					02/24/11	022411-LCDRC		9.65
NIST 2700 R3					02/24/11	022411-LCDRC		9.58

Certified Value not yet Published by NIST: provided for future reference

**Mean** 9.70  
**RSD** 1.7%

**Qualifiers:**

- U Not detected at or above MDL, MDL reported in value field
- J Value less than reporting limit, considered an estimate.
- C Sample concentration was <5 times detected mean blank
- N Outside Method DQOs for Blank Spikes ( $\leq 15\%$ ) and MS/MSD ( $\leq 25\%$ ) results
- \* Outside Method DQOs for Duplicates ( $\leq 25\%$ )

## QA/QC NARRATIVE

**PROJECT:** Washington Closures Hanford 012611  
**PARAMETER:** Chromium Speciation – Hexavalent Chromium (Cr VI)  
**LABORATORY:** Pacific Northwest National Laboratory (PNNL) operated by Battelle, Marine Sciences Laboratory (MSL), Sequim, Washington  
**MATRIX:** Soil  
**SAMPLE CUSTODY AND PROCESSING:** The samples addressed in this narrative were received in one shipment on 01/26/11. Table 1 provides the details for the sample receipt and analysis. A total of 13 soil samples were received at MSL. 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 (3200) and were entered into the MSL sample tracking and project management system.

**Table 1. Sample receipt, extraction, and analysis information.**

<b>SDG:</b>	012611
<b>MSL Sample IDs:</b>	3200*1-13
<b>Collection Date:</b>	01/07/11
<b>Description:</b>	soil
<b>Laboratory Arrival Date:</b>	01/26/11
<b>Cooler Temp.</b>	11.8°C
<b>Extraction Date:</b>	02/23/11
<b>Analysis Date:</b>	02/24/11

**METHODS:** The soil was processed and analyzed for CrVI following a modification from the Environmental Protection Agency (EPA) Method 6800 Elemental and Speciated Isotope Dilution Mass Spectrometry (SIDMS). The modification occurs in the preparation method for the soil matrix. The soils were extracted for CrVI following adaptations from Rahman et al. (2005) and Graham et al. (2009). The extracts were then analyzed following MSL standard operating procedure (SOP) MSL-I-035 CHROMIUM SPECIES ANALYSES USING SPECIATED ISOTOPE DILUTION MASS SPECTROMETRY IN AQUEOUS, SEDIMENT, AND TISSUE SAMPLES. This SOP was also adapted from the operations manual for chromium SIDMS provided by Applied Isotope Technologies, which is briefly discussed in EPA Method 6800.

Upon arrival at MSL, the lyophilized soil samples were stored at ambient temperature until analysis. The soil was extracted following the modified sediment procedure in SOP MSL-I-035 Section 5.4.3, which was adapted from Rahman et al. (2005) and Graham et al. (2009). Approximately 200 mg of soil was spiked with a known amount of enriched isotopes of  $^{52}\text{Cr}$  and  $^{53}\text{Cr}$  to correct for interferences and potential interconversion between the oxidation states of  $\text{Cr}^{3+}$  and  $\text{Cr}^{6+}$ . The soil was extracted using a  $\text{Na}_2\text{CO}_3$  and  $\text{NaOH}$  buffer, ultrasonication, and centrifugation. Extracts were sonicated at 70 °C for 2 hours and then heated at 85 °C for an hour. The extracts were then filtered through a 0.45 $\mu\text{m}$  Teflon syringe to removal particulates. The Cr species were separated using high performance liquid chromatography (HPLC) and quantified by the ICP-DRC-MS. Methane ( $\text{CH}_4$ ) is used as a reaction gas to decrease polyatomic isobaric spectral overlap interferences. Analytical results are reported in  $\mu\text{g/g}$  dry weight.

Data are not blank corrected. However, trace amounts of Cr occur in reagent grade salts and blank correction can be scientifically justified. Three blanks are analyzed with each batch of samples to provide an accurate measure of the reagent contribution. The mean of the blanks could be used to reagent blank correct the data set.

**HOLDING TIMES:** Samples were received as dry soil samples previously stored at ambient temperatures. The samples were stored at MSL at ambient temperature and analyzed within 30 days of samples receipt.

## QA/QC NARRATIVE

### 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.)
CrVI	HPLC/ICP-DRC-MS	85-115%	75-125%	<25%	≤25%	0.15 µg/g

**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. Eight replicates of a soil sample were used to generate the MDL for the dry weight concentration. Data were evaluated and flagged in accordance with the following criteria:

- U Not detected at or above the MDL, MDL reported in value field.
- J Value less than reporting limit, considered an estimate.
- C Sample concentration was <5 times detected mean blank.
- N Outside method DQOs for Blank Spikes (≤ 15%) and MS/MSD (≤ 25%) results.
- \* Outside Method DQOs for Duplicates (≤ 25%).

**METHOD BLANKS:** Method blanks were prepared and analyzed with the samples at a frequency of three per analytical batch. Three method blanks are reported with detectable CrVI, however, the results are less than the reporting limit. Results less than five times the mean detected blank are flagged.

**LABORATORY CONTROL SAMPLE (LCS) ACCURACY:** A laboratory control sample (LCS) was prepared and analyzed. The LCS consists of reagents spiked with the isotopically enriched Cr VI and Cr III standards for <sup>52</sup>Cr and <sup>53</sup>Cr. The LCS sample was within the QC criterion of 85-115% recovery.

**REPLICATE PRECISION:** A laboratory duplicate was analyzed. The duplicate sample was within the QC criterion of ≤25% RPD. Precision was also assessed using the matrix spike duplicate and three replicates of the soil SRM NIST 2700. All measures of precision were within the QC criterion.

**MATRIX SPIKE ACCURACY:** A matrix spike and matrix spike duplicate (MS/MSD) were prepared and analyzed with this batch of samples. The MS/MSD samples were within the QC acceptance criterion of 75-125%.

**STANDARD REFERENCE MATERIAL:** Two SRMs were analyzed with this batch of soil samples, SRM 2109 (liquid) and NIST 2700 (soil). The SRM 2109 samples were within the QC criterion of 75-125% recovery of the certified value for Cr VI. The certified value for the NIST 2700 has not been published yet, however results were provided for future reference.

**REFERENCES:** Graham, A.M., Wadhawan, A.R., Bouwer, E.J., 2009. Environ. Toxicol. Chem. 28: 471-480.

Rahman, G.M.M., Kingston, H.M.S. Towns, T.G., Vitale, R.J., Clay, K.R., 2005. Anal. Bioanal Chem., 382: 1111-1120.

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

# Hexavalent Chromium Worksheet

Dataset: 022211 -LCDRC

Sample	50Cr 6+	52Cr 6+	53Cr 6+	Ratio 52Cr/53Cr r	Fraction of 52Cr in sample (%)	Fraction of 53Cr in sample (%)	Fraction of Cr52 in enriched standard (%)	Fraction of Cr53 in enriched standard (%)	Enriched standard used (g)	Cr Conc in enriched standard (ug/g)	Sample (g)	Cr conc. In sample (ug/g)
--------	---------	---------	---------	-------------------------	---	---	---	---	-------------------------------------	--	---------------	---------------------------------

Rec = 108%

SRM2109 (0.1ug/mL) 10536 198452 211372 0.9389 83.79 9.502 9.502 0.050 0.10 0.050 0.108

3mL of Extraction solution + 7mL of DI water, 30uL of optima HAc to 2mL

20-50uL of extracts was diluted to 1mL with the mobile phase. Mobile phase flow rate 1.5 ml/min.

Blank R1	5046	12478	0.4044	83.79	9.502	9.502	6.20	92.8	0.080	1.00	0.200	0.157
Blank R2	6895	14039	0.4912	83.79	9.502	9.502	6.20	92.8	0.080	1.00	0.200	0.199
LCS6 67753		74493	0.9095	83.79	9.502	9.502	6.20	92.8	0.040	10.00	0.200	2.081
LCS6D *	67057	71222	0.9559	83.79	9.502	9.502	6.20	92.8	0.040	10.00	0.200	2.209
LCS3		19218	2.3644	83.79	9.502	9.502	6.20	92.8	0.080	1.00	0.200	1.391
NIST 2700 R1	17410	226304	1.3557	83.79	9.502	9.502	6.20	92.8	0.100	10.00	0.191	8.832
NIST 2700 R2	15204	314426	1.3403	83.79	9.502	9.502	6.20	92.8	0.100	10.00	0.191	8.708
NIST 2700 R3 *	24570	315933	1.3245	83.79	9.502	9.502	6.20	92.8	0.100	10.00	0.206	7.957
NIST 2700 R4 *	19887	336955	2.23127	1.5101	83.79	9.502	6.20	92.8	0.100	10.00	0.192	10.046
NIST 2700 MS6 R1 50x	19887	444196	2.1340	2.0068	83.79	9.502	6.20	92.8	0.200	10.00	0.184	30.236
NIST 2700 MS6 R2 * 50x	21227	460201	2.1379	83.79	9.502	9.502	6.20	92.8	0.200	10.00	0.194	31.216
NIST 2700 MS3	19202	355802	2.40237	1.4810	83.79	9.502	6.20	92.8	0.100	10.00	0.198	9.508

## Sediment MDL

MDL R1 (3200-1)	34074	39678	0.8588	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.200	0.972
MDL R2	33791	38035	0.8884	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.200	1.012
MDL R3	33626	37509	0.8965	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.201	1.018
MDL R4	35587	39844	0.8932	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.201	1.013
MDL R5	31172	35546	0.8770	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.201	0.991
MDL R6	35896	40242	0.8920	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.199	1.022
MDL R7	36118	41724	0.8656	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.200	0.981
MDL R8	33513	42854	0.7820	83.79	9.502	9.502	6.20	92.8	0.200	1.00	0.200	0.869

St Dev (ug/g) =  
MDL (ug/g) =

## Spike Recovery

Blank R1	5046	12478	0.4044	83.79	9.502	9.502	6.20	92.8	0.080	1.00	0.200	0.157
Blank R2	6895	14039	0.4912	83.79	9.502	9.502	6.20	92.8	0.080	1.00	0.200	0.199
LCS6 67753		74493	0.9095	83.79	9.502	9.502	6.20	92.8	0.040	10.00	0.200	2.081
LCS6D *	67057	71222	0.9559	83.79	9.502	9.502	6.20	92.8	0.040	10.00	0.200	2.209
											Spike =	2.00
											Spike =	2.00
NIST 2700 R1	17410	226304	1.3557	83.79	9.502	9.502	6.20	92.8	0.100	10.00	0.191	8.832
NIST 2700 R2	15204	314426	1.3403	83.79	9.502	9.502	6.20	92.8	0.100	10.00	0.191	8.708
NIST 2700 MS6 R1 50x	19887	444196	2.23140	2.0068	83.79	9.502	6.20	92.8	0.200	10.00	0.184	30.236
											Spike =	21.739
NIST 2700 MS6 R2 * 50x	21227	460201	2.1379	83.79	9.502	9.502	6.20	92.8	0.200	10.00	0.194	31.216
											Spike =	20.619

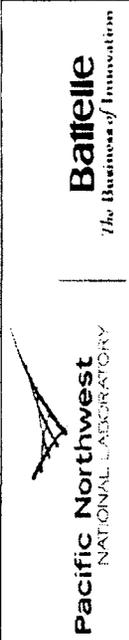
Rec = 95.2%  
Rec = 101.5%

Rec = 98.7%  
Rec = 108.9%  
RPD = 9.7%

# SAMPLE LOGIN

Project Manager: Brandenberger  
 Date Received: 1/26/2011  
 Batch: 1  
 Login Designee: McGahan

## Project: WA 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
J1C3M9-A ✓	na	3200-1 ✓	soil	Prep Lab J-1-B	✓Chromium Hex in Solids- 1636M	01/07/11 ✓
J1C3N0-A ✓	na	3200-2	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N1-A ✓	na	3200-3	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N2-A ✓	na	3200-4	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N3-A ✓	na	3200-5	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N4-A ✓	na	3200-6	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N5-A ✓	na	3200-7	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N6-A ✓	na	3200-8	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N7-A ✓	na	3200-9	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N8-A ✓	na	3200-10	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3N9-A ✓	na	3200-11	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3P0-A ✓	na	3200-12	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11
J1C3P1-A ✓	na	3200-13	soil	Prep Lab J-1-B	Chromium Hex in Solids- 1636M	01/07/11

*Handwritten signature/initials*

Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				RC-200-3		Page 1 of 3	
Collector <i>ANGEL Garcia</i>	Company Contact RL WEISS	Telephone No. 509-372-9631	Project Coordinator WEISS, RL	Price Code 8N	Data Turnaround 45 Days				
Project Designation Special Hexavalent Chromium Testing	Sampling Location Hanford Background	Field Logbook No. NA	COA NA	Method of Shipment Commercial	Bill of Lading/Air Bill No. <i>7966 9137 4062</i>				
Ice Chest No. <i>NA</i>	<i>NA</i>	<i>NA</i>	<i>NA</i>	Offsite Property No. NA					
Shipped To Battelle Marine Sciences	POSSIBLE SAMPLE HAZARDS/REMARKS <i>None JEB 1-25-11</i>								
Special Handling and/or Storage <i>None</i>		Preservation <i>JEB 1-25-11</i>	Type of Container <i>None</i>	No. of Container(s) <i>1</i>	Volume <i>60mL</i>	Chromium Hex at Solids - 1636M			
Sample No.	Matrix *	Sample Date	Sample Time	SPECIAL INSTRUCTIONS					
J1C3M9-A 3200-1	SOIL	1/7/11	10:00	Matrix *					
J1C3N0-A 2	SOIL	1/7/11	10:05	Soil					
J1C3N1-A 3	SOIL	1/7/11	10:10	SE=Sealment					
J1C3N2-A 4	SOIL	1/7/11	10:15	SO=Soil					
J1C3N3-A 5200-5	SOIL	1/7/11	10:20	SI=Sludge					
CHAIN OF POSSESSION				W = Water					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	O=Oil					
<i>Angela Garcia</i>	<i>1-25-11</i>	<i>JEB</i>	<i>1-25-11</i>	A=Air					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	DS=Drum Solids					
				DL=Drum Liquids					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	T=Trash					
				W=Wipe					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	L=Liquid					
				V=Vegetation					
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time	X=Other					
LABORATORY SECTION				RECEIVED BY <i>JEB</i>					
FINAL SAMPLE DISPOSITION				DATE <i>1-25-11</i>					
Received By				Date/Time					
Disposal Method				Date/Time					

WCH-EE-011



Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-200-3	Page 3 of 3
Collector <i>Margaret Garcia</i>	Company Contact RL WEISS	Telephone No. 509-372-9631	Project Coordinator WEISS, RL	Price Code 8N	Data Turnaround 45 Days	
Project Designation Special Hexavalent Chromium Testing	Sampling Location Hanford Background	Field Logbook No. NA	COA NA	Method of Shipment Commercial / FED EX		
Ice Chest No. GWS-58	Offsite Property No. NA	Bill of Lading/Air Bill No. 7966 9137 4062				
Shipped To Battelle Marine Sciences						
POSSIBLE SAMPLE HAZARDS/REMARKS						
NONE						
Special Handling and/or Storage						
NONE						
SAMPLE ANALYSIS						
Sample No.	Matrix *	Sample Date	Sample Time	Preservation	Volume	Chromium Hex # Solids - 1636M
J1C3N9-A 3200-11	SOIL	1/7/11	10:50	JEB 1-25-11 NONE	60mL	
J1C3P0-A 12	SOIL	1/7/11	10:55	GIP		
J1C3P1-A 3200-13	SOIL	1/7/11	11:00	1		
CHAIN OF POSSESSION						
Relinquished By/Removed From	Sign/Print Names	Received By/Stored In	Date/Time	SPECIAL INSTRUCTIONS		
<i>Mr. Steve Haber. 1115</i>		<i>[Signature]</i>	1/25/11	REVIEWED BY <i>JEB</i> DATE 1-25-11		
Relinquished By/Removed From		Received By/Stored In	Date/Time			
Relinquished By/Removed From		Received By/Stored In	Date/Time			
Relinquished By/Removed From		Received By/Stored In	Date/Time			
Relinquished By/Removed From		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

From: (509) 375-3131  
Shipping Dept  
TESTAMERICA LABORATORIES  
2800 GEORGE WASHINGTON WAY

Origin ID: PSCA



J1110101220225

RICHLAND, WA 99354

Ship Date: 25JAN11  
ActWgt: 6.0 LB  
CAD: 1033413/INET3130

Delivery Address Bar Code

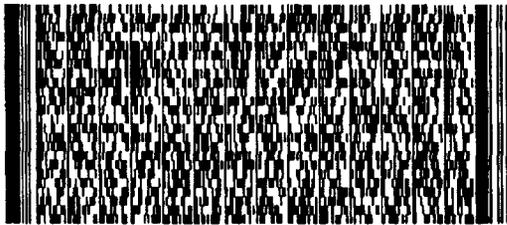


SHIP TO: (360) 681-4584 **BILL THIRD PARTY**  
**JILL BRANDENBERGER**  
Pacific Northwest National Lab.  
MARINE SCIENCE LABORATORY  
1529 WEST SEQUIM BAY ROAD  
SEQUIM, WA 98382

Ref # GWS-58  
Invoice #  
PO #  
Dept #

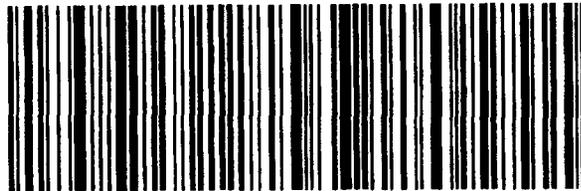
WED - 26 JAN AM  
PRIORITY OVERNIGHT

TRK# 7966 9137 4062  
0201



**85 CLMA**

98382  
WA-US  
SEA



500G1DE77/EFB

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**LOG-IN CHECKLIST**

Reference SOP# MSL-A-001

Central File #: 3200 Sample No(s): 1-13 Batch: 1  
 Project Name: WA Closure Hanford Project Manager: Brandenberger

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

Matrix: \_\_\_\_\_ WP# \_\_\_\_\_

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

Yes  No  USDA Samples (see Compliance Agreement Checklist)  
 Collected in WA state 8/28/11  
 27/11

PM Verification: NIA

Filter Samples: Amount:  Entire sample  Half of sample

Freeze dry sample(s) - samples will be weighed and placed in ultralow temp freezer (Login Lab)

Special instructions: \_\_\_\_\_

Sample Preservation Instructions: \_\_\_\_\_

**\*\*See LIMS for archive/disposal information\*\***

**TO BE COMPLETED UPON SAMPLE ARRIVAL/LOG-IN**

Yes  No  N/A  Indicate in Appropriate Box

Custody seal present Seal intact?  YES  NO

Cooler temperature (acceptable range: 4±2°C or solids:frozen) 11.8 °C  
 (if multiple coolers, note temp. of each)

Project Manager notified of any custody/login discrepancies (cooler temp, sponsor codes, etc)  
 Comment/Remedy: altered samples

Were all chain of custody forms signed and dated?

Were samples filtered at MSL?

Sample condition(s): acceptable Other (explain): \_\_\_\_\_

Container type:  Tupper Ware  Glass  Cap. Vial Other: \_\_\_\_\_

Notes: \_\_\_\_\_

Completed By: [Signature] Date/Time: 01/26/11 1146

**SAMPLE PRESERVATION**

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

Random pH checked for ~10% of samples (use dip paper) Sample IDs: \_\_\_\_\_

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

Sample(s) were preserved at MSL

Type:  0.2% HNO3 Notes: \_\_\_\_\_ Lot# \_\_\_\_\_

0.5% HCl (Hg samples) Notes: \_\_\_\_\_ Lot# \_\_\_\_\_

Refrigerate/Freeze Notes: \_\_\_\_\_

Other Notes: \_\_\_\_\_

Completed By: [Signature] Date/Time: 01/26/11 1235

Storage Shelf: Prep lab J-1-B