SAF-RC-107
100-H Remaining Sites Burial Grounds – Soil Full Protocol
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 3/26/15
NITIAL/DATE

COMMENTS:

SDG JP0921 SAF-RC-107

Rad only Chem only ☑ Rad & Chem

☑ Complete Partial

Waste Site: 100-H-28:2 (subsite excavation)
Resample EXC-1

Analytical Data Package Prepared For

Washington Closure Hanford

Radiochemical Analysis By

TestAmerica Inc

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains 37 *Pages*

Report No.: 65076

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
JP0921	RC-107	J1V543	J5C170423-1	M6DMF1AD	9M6DMF10	5074169
		J1V543	J5C170423-1	M6DMF1AC	9M6DMF10	5074172
		J1V543	J5C170423-1	M6DMF1AA	9M6DMF10	5074193
		J1V543	J5C170423-1	M6DMF2AE	9M6DMF20	5079016

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

March 24, 2015

Attention: Joan Kessner

SAF Number	:	RC-107
Date SDG Closed	:	March 17, 2015
Number of Samples	:	One (1)
Sample Type	:	Soil
SDG Number	:	JP0921
Data Deliverable	:	7– Day / Summary

CASE NARRATIVE

I. Introduction

On March 17, 2015, one soil sample was received at TestAmerica for radiochemical and chemical analysis. Upon receipt, the sample was assigned the following laboratory ID number to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1V543	M6DMF	SOIL	3/17/15

II. Sample Receipt

The sample was received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001
Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008
Nickel-63 by method RL-LCS-017

Chemical Analysis
Hexavalent Chromium by EPA method 7196A

IV. Quality Control

The analytical results for each analysis performed includes a minimum of one laboratory control sample (LCS), one method (reagent) blank, and one duplicate sample analysis. Any exceptions have been noted in the "Comments" section.

QC and sample results are reported in the same units.

V. Comments

Gamma Spectroscopy
Gamma Spec by method RL-GAM-001:
The LCS, batch blank, sample and sample duplicate (J1V543) results are within contractual requirements.

Liquid Scintillation Counting
Carbon-14 by method RL-LSC-008:
The LCS recovery was not within the acceptance limits on the original count. The batch was reanalyzed for acceptable results. Except as noted; the LCS, batch blank, sample and sample duplicate (J1V543) results are within contractual requirements.

Nickel-63 by method RL-LCS-017:
The LCS, batch blank, sample and sample duplicate (J1V543) results are within contractual requirements.

Chemical Analysis
Hexavalent Chromium by EPA method 7196A
The LCS, batch blank, sample, sample duplicate (J1V543) and sample matrix spike (J1V543) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the following signature.

Reviewed and approved:

Rhonda Wagar
Project Manager

Drinking Water Method Cross References

	DRINKING WATER ASTM METHOD CROSS REFERENCES	
Referenced Method	**Isotope(s)**	**TestAmerica Richland's SOP No.**
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, R = constants * f(x,y,z,...). The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/?n), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
CSU (#s) ***u_c Combined Standard Uncert.***	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, *u_c the combined standard uncertainty*. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. Lc=(1.645 * Sqrt(2*(BkgrndCnt/BkgrndCntMin)/SCntMin)) * (ConvFct/(Eff*Yld*Abn*Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC|MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. MDC = (4.65 * Sqrt((BkgrndCnt/BkgrndCntMin)/SCntMin) + 2.71/SCntMin) * (ConvFct/(Eff * Yld * Abn * Vol) * IngrFct). For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the **Work Order** Number.
RER	The equation Replicate Error Ratio = (S-D)/[sqrt($TPUs^2$ + $TPUd^2$)] as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

TestAmerica Inc TARL

Ordered by Method, Batch No., Client Sample ID.

Date: 24-Mar-15

Report No. : 65076

SDG No: JP0921

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5079016 C14_CHEM_LSC									
J1V543									
	M6DMF2AE	C-14	9.50E-02 +- 1.7E-01	U	pCi/g	100%	3.37E-01	1.00E+00	
J1V543 DUP									
	M6DMF1AM	C-14	-7.73E-02 +- 1.6E-01	U	pCi/g	100%	3.38E-01	1.00E+00	
5074169 GAMMA_GS									
J1V543									
	M6DMF1AD	AG-108M	-1.24E-03 +- 8.7E-03	U	pCi/g		1.49E-02		
		AMERICIUM 241	4.82E-03 +- 1.7E-02	U	pCi/g		2.80E-02		
		BA-133	-5.35E-03 +- 1.3E-02	U	pCi/g		1.86E-02		
		CO-60	4.27E-03 +- 1.4E-02	U	pCi/g		2.48E-02	5.00E-02	
		CS-137	-1.14E-03 +- 1.3E-02	U	pCi/g		2.19E-02	1.00E-01	
		EU-152	-8.09E-03 +- 2.8E-02	U	pCi/g		4.77E-02	1.00E-01	
		EU-154	1.67E-02 +- 4.4E-02	U	pCi/g		8.01E-02	1.00E-01	
		EU-155	2.77E-02 +- 2.4E-02	U	pCi/g		4.14E-02	1.00E-01	
		K-40	1.31E+01 +- 1.6E+00		pCi/g		2.45E-01		
J1V543 DUP									
	M6DMF1AF	AG-108M	2.04E-03 +- 8.6E-03	U	pCi/g		1.42E-02		815.8
		AMERICIUM 241	1.55E-02 +- 1.4E-02	U	pCi/g		2.48E-02		105.2
		BA-133	-7.03E-03 +- 1.2E-02	U	pCi/g		1.77E-02		-27.1
		CO-60	4.79E-03 +- 1.3E-02	U	pCi/g		2.46E-02	5.00E-02	11.6
		CS-137	1.13E-02 +- 1.6E-02	U	pCi/g		2.26E-02	1.00E-01	244.6
		EU-152	6.74E-03 +- 2.4E-02	U	pCi/g		4.12E-02	1.00E-01	-2192.8
		EU-154	2.19E-04 +- 3.8E-02	U	pCi/g		6.77E-02	1.00E-01	194.8
		EU-155	2.14E-02 +- 2.7E-02	U	pCi/g		3.54E-02	1.00E-01	25.9
		K-40	1.30E+01 +- 1.5E+00		pCi/g		1.59E-01		0.7
5074172 NI63_LSC									
J1V543									
	M6DMF1AC	Ni-63	4.57E+00 +- 3.7E+00	U	pCi/g	98%	7.35E+00	3.00E+01	
J1V543 DUP									
	M6DMF1AH	Ni-63	-1.22E+00 +- 2.9E+00	U	pCi/g	98%	6.63E+00	3.00E+01	346.0
5074193 7196_CR6									
J1V543									
	M6DMF1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	M6DMF1AK	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	0.0

No. of Results: 24

TestAmerica Inc

rptTALRchSaSummary2 V5.3.6.8 A2002

RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

QC Results Summary

Date: 24-Mar-15

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 65076

SDG No.: JP0921

Batch Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
C14_CHEM_LSC								
5079016 BLANK QC,								
M6EN91AA	C-14	-1.21E-01 +- 1.6E-01	U	pCi/g	100%			3.38E-01
5079016 LCS,								
M6EN91AC	C-14	7.13E+00 +- 5.7E-01		pCi/g	100%	99%	0.0	3.35E-01
GAMMA_GS								
5074169 BLANK QC,								
M6DNV1AA	AG-108M	8.12E-04 +- 6.4E-03	U	pCi/g				1.14E-02
	AMERICIUM 241	-2.88E-03 +- 9.6E-03	U	pCi/g				1.66E-02
	BA-133	-4.97E-03 +- 1.0E-02	U	pCi/g				1.58E-02
	CO-60	2.99E-03 +- 8.7E-03	U	pCi/g				1.72E-02
	CS-137	9.32E-04 +- 8.8E-03	U	pCi/g				1.60E-02
	EU-152	1.65E-03 +- 2.3E-02	U	pCi/g				3.80E-02
	EU-154	1.43E-03 +- 2.4E-02	U	pCi/g				4.48E-02
	EU-155	1.25E-02 +- 1.7E-02	U	pCi/g				2.94E-02
	K-40	-2.51E-01 +- 2.5E-01	U	pCi/g				5.16E-01
5074169 LCS,								
M6DNV1AC	CS-137	9.55E-01 +- 1.2E-01		pCi/g		96%	0.0	2.54E-02
	RA-226	9.26E-01 +- 1.3E-01		pCi/g		81%	-0.2	3.96E-02
	RA-228	4.41E-01 +- 1.3E-01		pCi/g		76%	-0.2	9.25E-02
	U-238	9.60E-01 +- 1.4E-01		pCi/g		80%	-0.2	4.89E-02
NI63_LSC								
5074172 BLANK QC,								
M6DN81AA	Ni-63	-1.56E+00 +- 3.0E+00	U	pCi/g	98%			6.90E+00
5074172 LCS,								
M6DN81AC	Ni-63	2.40E+02 +- 1.5E+01		pCi/g	98%	91%	-0.1	6.18E+00
7196_CR6								
5074193 MATRIX SPIKE, J1V543								
M6DMF1AJ	HEXCHROME	2.86E+01 +- 0.0E+00		mg/kg	N/A	90%	-0.1	1.55E-01
5074193 LCS,								
M6DTV1AC	HEXCHROME	1.89E+01 +- 0.0E+00		mg/kg	N/A	95%	-0.1	1.55E-01
5074193 BLANK QC,								
M6DTV1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 20

TestAmerica Inc
rptSTLRchQcSummary V5.3.6.8
A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 24-Mar-15

Lab Name: TestAmerica Inc
Lot-Sample No.: J5C170423-1
Client Sample ID: J1V543

SDG: JP0921
Report No. : 65076
COC No. : RC-107-133

Collection Date: 3/16/2015 10:45:00 AM
Received Date: 3/17/2015 1:10:00 PM
Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5074169	GAMMA_GS			**Work Order:**	M6DMF1AD		**Report DB ID:**	9M6DMF10				
AG-108M	-1.24E-03	U	8.7E-03	8.7E-03	1.49E-02	pCi/g		-0.08	3/19/15 07:11 a		397.2	GER16$1
						7.48E-03		-0.28			g	
AMERICIUM 241	4.82E-03	U	1.7E-02	1.7E-02	2.80E-02	pCi/g		0.17	3/19/15 07:11 a		397.2	GER16$1
						1.40E-02		0.58			g	
BA-133	-5.35E-03	U	1.3E-02	1.3E-02	1.86E-02	pCi/g		-0.29	3/19/15 07:11 a		397.2	GER16$1
						9.30E-03		-0.81			g	
CO-60	4.27E-03	U	1.4E-02	1.4E-02	2.48E-02	pCi/g		0.17	3/19/15 07:11 a		397.2	GER16$1
						1.24E-02	5.00E-02	0.63			g	
CS-137	-1.14E-03	U	1.3E-02	1.3E-02	2.19E-02	pCi/g		-0.05	3/19/15 07:11 a		397.2	GER16$1
						1.10E-02	1.00E-01	-0.18			g	
EU-152	-8.09E-03	U	2.8E-02	2.8E-02	4.77E-02	pCi/g		-0.17	3/19/15 07:11 a		397.2	GER16$1
						2.39E-02	1.00E-01	-0.57			g	
EU-154	1.67E-02	U	4.4E-02	4.4E-02	8.01E-02	pCi/g		0.21	3/19/15 07:11 a		397.2	GER16$1
						4.02E-02	1.00E-01	0.75			g	
EU-155	2.77E-02	U	2.4E-02	2.4E-02	4.14E-02	pCi/g		0.67	3/19/15 07:11 a		397.2	GER16$1
						2.07E-02	1.00E-01	(2.3)			g	
K-40	1.31E+01		1.6E+00	1.6E+00	2.45E-01	pCi/g		(53.3)	3/19/15 07:11 a		397.2	GER16$1
						1.23E-01		(16.7)			g	
Batch: 5074172	NI63_LSC			**Work Order:**	M6DMF1AC		**Report DB ID:**	9M6DMF10				
Ni-63	4.57E+00	U	3.1E+00	3.7E+00	7.35E+00	pCi/g	98%	0.62	3/23/15 05:55 p		0.48	LSC4
						3.45E+00	3.00E+01	(2.5)			g	

TestAmerica Inc
rptSTLRchSample
V5.3.6.8 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 24-Mar-15

Lab Name: TestAmerica Inc
Lot-Sample No.: J5C170423-1
Client Sample ID: J1V543

SDG: JP0921
Report No. : 65076
COC No. : RC-107-133

Collection Date: 3/16/2015 10:45:00 AM
Received Date: 3/17/2015 1:10:00 PM
Matrix: SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5074193	7196_CR6			**Work Order:**	M6DMF1AA		**Report DB ID:**	9M6DMF10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	3/18/15 02:26 p		2.4965	
							1.55E-01	*N/A*			g	
Batch: 5079016	C14_CHEM_LSC			**Work Order:**	M6DMF2AE		**Report DB ID:**	9M6DMF20				
C-14	**9.50E-02**	U	1.4E-01	1.7E-01	3.37E-01	pCi/g	100%	*0.28*	3/21/15 02:35 a		5.0	LSC4
						1.61E-01	1.00E+00	*(1.1)*			g	

No. of Results: 12 **Comments:**

TestAmerica Inc
rptSTLRchSample
V5.3.6.8 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

Date: 24-Mar-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0921	**Collection Date:**	3/16/2015 10:45:00 AM
Lot-Sample No.:	**J5C170423-1**	**Report No. :**	65076	**Received Date:**	3/17/2015 1:10:00 PM
Client Sample ID:	**J1V543**	**COC No. :**	RC-107-133	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5074193	7196_CR6			**Work Order:** M6DMF1AK		**Report DB ID:** M6DMF1ER			**Orig Sa DB ID:** 9M6DMF10			
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	3/18/15 02:26 p		2.5063	
	1.55E-01	U	**RPD 0.0**			1.55E-01		N/A			g	

No. of Results: 1 **Comments:**

TestAmerica Inc
rptSTLRchDupV5.
3.6.8 A2002

RPD - Relative Percent Difference.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

Date: 24-Mar-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0921	**Collection Date:**	3/16/2015 10:45:00 AM
Lot-Sample No.:	**J5C170423-1**	**Report No. :**	65076	**Received Date:**	3/17/2015 1:10:00 PM
Client Sample ID:	**J1V543 DUP**	**COC No. :**	RC-107-133	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5074169	GAMMA_GS			**Work Order:**	M6DMF1AF	**Report DB ID:**	M6DMF1FR		**Orig Sa DB ID:** 9M6DMF10			
AG-108M	2.04E-03	U	8.6E-03	8.6E-03	1.42E-02	pCi/g		0.14	3/19/15 07:11 a		397.3	GER17$1
	-1.24E-03	U	**RPD**	**815.8**				0.48			g	
AMERICIUM 241	1.55E-02	U	1.4E-02	1.4E-02	2.48E-02	pCi/g		0.63	3/19/15 07:11 a		397.3	GER17$1
	4.82E-03	U	**RPD**	**105.2**				(2.2)			g	
BA-133	-7.03E-03	U	1.2E-02	1.2E-02	1.77E-02	pCi/g		-0.4	3/19/15 07:11 a		397.3	GER17$1
	-5.35E-03	U	**RPD**	**-27.1**				-(1.2)			g	
CO-60	4.79E-03	U	1.3E-02	1.3E-02	2.46E-02	pCi/g		0.19	3/19/15 07:11 a		397.3	GER17$1
	4.27E-03	U	**RPD**	**11.6**		5.00E-02		0.72			g	
CS-137	1.13E-02	U	1.6E-02	1.6E-02	2.26E-02	pCi/g		0.5	3/19/15 07:11 a		397.3	GER17$1
	-1.14E-03	U	**RPD**	**244.6**		1.00E-01		(1.4)			g	
EU-152	6.74E-03	U	2.4E-02	2.4E-02	4.12E-02	pCi/g		0.16	3/19/15 07:11 a		397.3	GER17$1
	-8.09E-03	U	**RPD**	**-2192.8**		1.00E-01		0.57			g	
EU-154	2.19E-04	U	3.8E-02	3.8E-02	6.77E-02	pCi/g		0.	3/19/15 07:11 a		397.3	GER17$1
	1.67E-02	U	**RPD**	**194.8**		1.00E-01		0.01			g	
EU-155	2.14E-02	U	2.7E-02	2.7E-02	3.54E-02	pCi/g		0.6	3/19/15 07:11 a		397.3	GER17$1
	2.77E-02	U	**RPD**	**25.9**		1.00E-01		(1.6)			g	
K-40	1.30E+01		1.5E+00	1.5E+00	1.59E-01	pCi/g		(81.4)	3/19/15 07:11 a		397.3	GER17$1
	1.31E+01		**RPD**	**0.7**				(16.9)			g	
Batch: 5074172	NI63_LSC			**Work Order:**	M6DMF1AH	**Report DB ID:**	M6DMF1HR		**Orig Sa DB ID:** 9M6DMF10			
Ni-63	-1.22E+00	U	2.5E+00	2.9E+00	6.63E+00	pCi/g	98%	-0.18	3/23/15 06:18 p		0.54	LSC4
	4.57E+00	U	**RPD**	**346.0**		3.00E+01		-0.84			g	

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RPD - Relative Percent Difference.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

Date: 24-Mar-15

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0921	**Collection Date:**	3/16/2015 10:45:00 AM
Lot-Sample No.:	**J5C170423-1**	**Report No. :**	65076	**Received Date:**	3/17/2015 1:10:00 PM
Client Sample ID:	**J1V543 DUP**	**COC No. :**	RC-107-133	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5079016	C14_CHEM_LSC			**Work Order:**	M6DMF1AM	**Report DB ID:**	M6DMF1MR		**Orig Sa DB ID:**			
C-14	-7.73E-02	U	1.4E-01	1.6E-01	3.38E-01	pCi/g	100%	-0.23	3/21/15 03:19 a		5.0	LSC4
			RPD			1.00E+00		-0.97			g	

No. of Results: 11 **Comments:**

TestAmerica Inc
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3.6.8 A2002

RPD - Relative Percent Difference.
MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 24-Mar-15

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: JP0921

Report No. : 65076

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5074193	7196_CR6			**Work Order:**	M6DTV1AA		**Report DB ID:**	M6DTV1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	3/18/15 02:26 p		2.5	
						1.55E-01		N/A			g	
Batch: 5079016	C14_CHEM_LSC			**Work Order:**	M6EN91AA		**Report DB ID:**	M6EN91AB				
C-14	-1.21E-01	U	1.4E-01	1.6E-01	3.38E-01	pCi/g	100%	-0.36	3/21/15 04:02 a		5.0	LSC4
					1.62E-01	1.00E+00		-(1.5)			g	
Batch: 5074172	NI63_LSC			**Work Order:**	M6DN81AA		**Report DB ID:**	M6DN81AB				
Ni-63	-1.56E+00	U	2.6E+00	3.0E+00	6.90E+00	pCi/g	98%	-0.23	3/23/15 06:41 p		0.51	LSC4
					3.24E+00	3.00E+01		-(1.)			g	
Batch: 5074169	GAMMA_GS			**Work Order:**	M6DNV1AA		**Report DB ID:**	M6DNV1AB				
AG-108M	8.12E-04	U	6.4E-03	6.4E-03	1.14E-02	pCi/g		0.07	3/19/15 07:11 a		348.0	GER19$1
					5.74E-03			0.25			g	
AMERICIUM 241	-2.88E-03	U	9.6E-03	9.6E-03	1.66E-02	pCi/g		-0.17	3/19/15 07:11 a		348.0	GER19$1
					8.30E-03			-0.6			g	
BA-133	-4.97E-03	U	1.0E-02	1.0E-02	1.58E-02	pCi/g		-0.32	3/19/15 07:11 a		348.0	GER19$1
					7.90E-03			-0.97			g	
CO-60	2.99E-03	U	8.7E-03	8.7E-03	1.72E-02	pCi/g		0.17	3/19/15 07:11 a		348.0	GER19$1
					8.69E-03	5.00E-02		0.69			g	
CS-137	9.32E-04	U	8.8E-03	8.8E-03	1.60E-02	pCi/g		0.06	3/19/15 07:11 a		348.0	GER19$1
					8.01E-03	1.00E-01		0.21			g	
EU-152	1.65E-03	U	2.3E-02	2.3E-02	3.80E-02	pCi/g		0.04	3/19/15 07:11 a		348.0	GER19$1
					1.91E-02	1.00E-01		0.14			g	
EU-154	1.43E-03	U	2.4E-02	2.4E-02	4.48E-02	pCi/g		0.03	3/19/15 07:11 a		348.0	GER19$1
					2.27E-02	1.00E-01		0.12			g	

TestAmerica Inc
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V5.3.6.8 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 24-Mar-15

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: JP0921

Report No. : 65076

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
EU-155	1.25E-02	U	1.7E-02	1.7E-02	2.94E-02	pCi/g		0.43	3/19/15 07:11 a		348.0	GER19$1
					1.47E-02	1.00E-01		(1.5)			g	
K-40	-2.51E-01	U	2.5E-01	2.5E-01	5.16E-01	pCi/g		-0.49	3/19/15 07:11 a		348.0	GER19$1
					2.58E-01			-(2.)			g	

No. of Results: 12 **Comments:**

TestAmerica Inc
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V5.3.6.8 A2002

MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 24-Mar-15

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: JP0921

Report No. : 65076

Parameter	Result	Qual	Count Error (2 s)	CSU (2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 5074193	7196_CR6			**Work Order:**	M6DTV1AC		**Report DB ID:**	M6DTV1AS					
HEXCHROME	1.89E+01			0.0E+00	1.55E-01	mg/kg	N/A	2.00E+01		95%	3/18/15 02:26 p	2.5	
							Rec Limits:	80	120	-0.1		g	
Batch: 5079016	C14_CHEM_LSC			**Work Order:**	M6EN91AC		**Report DB ID:**	M6EN91CS					
C-14	7.13E+00		3.1E-01	5.7E-01	3.35E-01	pCi/g	100%	7.20E+00	1.4E-01	99%	3/21/15 04:46 a	5.0	LSC4
							Rec Limits:			0.0		g	
Batch: 5074172	NI63_LSC			**Work Order:**	M6DN81AC		**Report DB ID:**	M6DN81CS					
Ni-63	2.40E+02		8.6E+00	1.5E+01	6.18E+00	pCi/g	98%	2.64E+02	4.4E+00	91%	3/23/15 07:04 p	0.57	LSC4
							Rec Limits:	70	130	-0.1		g	
Batch: 5074169	GAMMA_GS			**Work Order:**	M6DNV1AC		**Report DB ID:**	M6DNV1CS					
CS-137	9.55E-01		1.2E-01	1.2E-01	2.54E-02	pCi/g		9.90E-01	1.0E-02	96%	3/19/15 07:12 a	350.1	GER11$1
							Rec Limits:	70	130	0.0		g	
RA-226	9.26E-01		1.3E-01	1.3E-01	3.96E-02	pCi/g		1.14E+00	1.2E-02	81%	3/19/15 07:12 a	350.1	GER11$1
							Rec Limits:	70	130	-0.2		g	
RA-228	4.41E-01		1.3E-01	1.3E-01	9.25E-02	pCi/g		5.83E-01	6.0E-03	76%	3/19/15 07:12 a	350.1	GER11$1
							Rec Limits:	70	130	-0.2		g	
U-238	9.60E-01		1.4E-01	1.4E-01	4.89E-02	pCi/g		1.20E+00	1.2E-02	80%	3/19/15 07:12 a	350.1	GER11$1
							Rec Limits:	70	130	-0.2		g	

No. of Results: 7 **Comments:**

TestAmerica Inc **Bias** - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchLcs
V5.3.6.8 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 24-Mar-15

Lab Name: TestAmerica Inc **SDG:** JP0921

Lot-Sample No.: J5C170423-1, J1V543 **Report No. :** 65076 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	CSU (2 s)	MDC|MDA	Rpt Unit	Yield	Rec-overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 5074193	**Work Order:** M6DMF1AJ			**Report DB ID:** M6DMF1CW			**Orig Sa DB ID:** 9M6DMF10					
HEXCHROME	2.86E+01			0.0E+00	1.55E-01	mg/kg	N/A	89.99%	3.18E+01	3/18/15 02:26 p	2.4996	7196_CR6
	1.55E-01										g	

Number of Results: 1

Comments:

RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
Bias - (Result/Expected)-1 as defined by ANSI N13.30.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

3/23/2015 11:51:37 AM

Lot No., Due Date: J5C170423; 03/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5074169; RGAMMA Gamma by GER
SDG, Matrix: JP0921; SOIL

1.0 COC	
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓ No N/A
2.0 QC Batch	
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓ No N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓ No N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓ No N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes No ✓ N/A
3.0 QC & Samples	
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓ No N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓ No N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes No ✓ N/A
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓ No N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓ No N/A
4.0 Raw Data	
4.1 Were results calculated in the correct units?	Yes ✓ No N/A
4.2 Were analysis volumes entered correctly?	Yes ✓ No N/A
4.3 Were Yields entered correctly?	Yes No ✓ N/A
4.4 Were spectra reviewed/meet contractual requirements?	Yes ✓ No N/A
4.5 Were raw counts reviewed for anomalies?	Yes ✓ No N/A
5.0 Other	
5.1 Are all nonconformances included and noted?	Yes No ✓ N/A
5.2 Are all required forms filled out?	Yes ✓ No N/A
5.3 Was the correct methodology used?	Yes ✓ No N/A
5.4 Was transcription checked?	Yes ✓ No N/A
5.5 Were all calculations checked at a minimum frequency?	Yes No ✓ N/A
5.6 Are worksheet entries complete and correct?	Yes ✓ No N/A
6.0 Comments on any No response:	

First Level [signature] **Date** 3/23/15

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 5074169

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances (NCM) included and noted?			✓
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response: CRDL = 0.1 pCi/g

Second Level Review: [signature] Date: 3/23/15

DR-001, Rev. 01, 10/30/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

3/24/2015 7:51:14 AM

Lot No., Due Date: J5C170423; 03/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5079016; RC14LSCC C-14 Digestion
SDG, Matrix: JP0921; SOIL

1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	Yes ✓	No	N/A
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	Yes ✓	No	N/A
2.2 Are the QC appropriate for the analysis included in the batch?	Yes ✓	No	N/A
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	Yes ✓	No	N/A
2.4 Does the Worksheets include a Tracer Vial label for each sample?	Yes	No	N/A ✓
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.2 Is the LCS result, yield, and MDA within contract limits?	Yes ✓	No	N/A
3.3 Are the MS/MSD results, yields, and MDA within contract limits?	Yes	No	N/A ✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	Yes ✓	No	N/A
3.5 Are the sample yields and MDAs within contract limits?	Yes ✓	No	N/A
4.0 Raw Data			
4.1 Were results calculated in the correct units?	Yes ✓	No	N/A
4.2 Were analysis volumes entered correctly?	Yes ✓	No	N/A
4.3 Were Yields entered correctly?	Yes	No	N/A ✓
4.4 Were spectra reviewed/meet contractual requirements?	Yes	No	N/A ✓
4.5 Were raw counts reviewed for anomalies?	Yes ✓	No	N/A
5.0 Other			
5.1 Are all nonconformances included and noted?	Yes ✓	No	N/A
5.2 Are all required forms filled out?	Yes ✓	No	N/A
5.3 Was the correct methodology used?	Yes ✓	No	N/A
5.4 Was transcription checked?	Yes ✓	No	N/A
5.5 Were all calculations checked at a minimum frequency?	Yes	No	N/A ✓
5.6 Are worksheet entries complete and correct?	Yes ✓	No	N/A

6.0 Comments on any No response:
NCM 10-30415

Thomas D McC

First Level _____ **Date** 3/24/15

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist

RADIOCHEMISTRY

Second Level Review

Batch Number: 50790116

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?			✓
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓	✓	
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances (NCM) included and noted?	✓		
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response: CRDL = 1.0 pCi/g
See NCM #: 10-30415

Second Level Review: Rhonda W. Jones Date: 3/24/15

DR-001, Rev. 01, 10/30/2013

Clouseau
Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-30415**
NCM Initiated By: Tom Mcginnis
Date Opened: 03/24/2015
Date Closed:

Classification: **Deficiency**
Status: **PMREVIEW**
Production Area: Environmental - Sep
Tests: C-14 Digestion
Lot #'s (Sample #'s): J5C170423 (1), J5C200000 (16),
QC Batches: 5079016,

Nonconformance: Batch Result Out of Limits
Subcategory: LCS result outside acceptance limits

Problem Description / Root Cause

Name	Date	Description
Tom Mcginnis	03/24/2015	The LCS recovery for the initial analysis batch 5074171 exceeded acceptance criteria. The results for reanalysis batch 5079016 meet all acceptance criteria.

Corrective Action

Name	Date	Corrective Action
Tom Mcginnis	03/24/2015	The PM was notified of the batch deficiency.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note	Response	Response Note

Quality Assurance Verification

Verified By	Due Date	Status	Notes
		This section not yet completed by QA.	

Approval History

Date Approved	Approved By	Position

Date Printed: 3/24/2015

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

RADIOCHEMISTRY, First Level Review

3/24/2015 9:42:17 AM

Lot No., Due Date: J5C170423; 03/24/2015
Client, Site: 127642; S00W235B00 HANFORD
QC Batch No., Method Test: 5074172; RNI63 Ni-63 by LSC
SDG, Matrix: JP0921; SOIL

	Yes	No	N/A
1.0 COC			
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		
2.0 QC Batch			
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?	✓		
3.0 QC & Samples			
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	✓		
3.5 Are the sample yields and MDAs within contract limits?	✓		
4.0 Raw Data			
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?	✓		
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		
5.0 Other			
5.1 Are all nonconformances included and noted?			✓
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?			✓
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

First Level Thomas DMcG Date 3/24/15

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 5074172

Review Item	Yes (√)	No (√)	NA (√)
A. Sample Analysis 1. Are the sample yields within acceptance criteria?	✓		
2. Is the sample Minimum Detectable Activity < the Contract Detection Limit?	✓		
3. Are the correct isotopes reported?	✓		
B. QC Samples 1. Is the Minimum Detectable Activity for the blank result ≤ the Contract Detection Limit?	✓		
2. Does the blank result meet the Contract criteria?	✓		
3. Is the blank result < the Contract Detection Limit?	✓		
4. Is the blank result > the Contract Detection Limit but the sample result < the Contract Detection Limit?			✓
5. Is the LCS recovery within contract acceptance criteria?	✓		
6. Is the LCS Minimum Detectable Activity ≤ the Contract Detection Limit?	✓		
7. Do the MS/MSD results and yields meet acceptance criteria?			✓
8. Do the duplicate sample results and yields meet acceptance criteria?	✓		
C. Other 1. Are all Nonconformances (NCM) included and noted?			✓
2. Was the correct methodology used?	✓		
3. Were units checked?	✓		

Comments on any "No" response: CRDL = 30 pCi/g

Second Level Review: [signature] Date: 3/24/15

DR-001, Rev. 01, 10/30/2013

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	5074193	Lab Sample Numbers or SDG:	JP0921

Method/Test/Parameter: Cr+6 ☐ RL-WC-008(Aqueous) ☐ RL-WC-003(Aqueous) ☒ RL-WC-004(Solid)

Review Item	Yes (✓)	No (✓)	N/A (✓)	2nd Level Review (✓)
A. Initial Calibration 1. Performed at required frequency with required number of levels?	✓			✓
2. Correlation coefficient greater than 0.97?	✓			✓
3. Initial calibration verification (ICV) analyzed immediately after calibration and results within 10% of expected?	✓			✓
4. Initial calibration blank (ICB) analyzed immediately after ICV and concentrations of all parameters ≤ reporting limit?	✓			✓
B. Continuing Calibration 1. CCV analyzed at required frequency and all parameters within 10% of expected?	✓			✓
2. CCB analyzed at required frequency and all results ≤ reporting limit?	✓			✓
C. Sample Analysis 1. Were any samples with concentrations above the linear range diluted and reanalyzed?			✓	✓
2. Were all sample holding times met?	✓			✓
D. QC Samples 1. All results for the preparation blank below limits?	✓			✓
2. LCS percent recovery within 85-115%	✓			✓
3. $PbCrO_4$ percent recovery within 75-125%?	✓			✓
4. Sample and Duplicate within 20% (aqueous) or 35% (solid) RPD?			✓	✓
5. MS or MS/MSD recoveries within 85-115% (aqueous) or 75-125% (solid)?	✓			✓
6. On MS failure, PDMS within 85-115%?			✓	✓
E. Other 1. Are all nonconformances included and noted?			✓	✓
2. Is the correct date and time of analysis shown?	✓			✓
3. Did the analyst sign and date the front page of the analytical run?	✓			✓
4. Correct methodology used?	✓			✓
5. Transcriptions checked?	✓			✓
6. Calculations checked at minimum frequency?	✓			✓
7. Units checked?	✓			✓

Comments on any "No" response or list NCM number:

Analyst I. Saltfu Date 3/20/15 2nd Review [signature] Date 3/20/15

CG-231 Rev 2 10/14

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-133

Collector: STOWE, QG	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 8B	Data Turnaround: 7 days		
Project Designation: 100-H Field Remediation	Sampling Location: 100-H-28:2 (subsite excavation) resample EXC1-1		SAF No.: RC-107
Ice Chest No.: WCH-12-40	Field Logbook No.: EL-1627-09	COA: 01H2822000	Method of Shipment: Local Delivery
Shipped To: TestAmerica Richland	Offsite Property No.: n/A		Bill of Lading/Air Bill No.: n/A

Other Labs Shipped To: TestAmerica Denver

POSSIBLE SAMPLE HAZARDS/REMARKS

N/A

Special Handling and/or Storage

Cool 4C

Preservation	Cool 4C	None	None	None							
Type of Container	G/P	G/P	G/P	G/P							
No. of Container(s)	1	1	1	1							
Volume	125mL	1000mL	125mL	125mL							
Sample Analysis	Chromium Hex - 7196	See item (3) in Special Instructions	Carbon-14 Low Level	Nickel-63							

Sample No.	Matrix	Sample Date	Sample Time										
J1V543 M6DMF	SOIL	03/16/15	1045	X	X	X	X						

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Quincy Stowe	Date/Time: 1049 3-16-15	Received By/Stored In: C. Martinez/C. Martinez	Date/Time: 1049 03/16/15
Relinquished By/Removed From: C. Martinez/C. Martinez	Date/Time: 1520 03/16/15	Received By/Stored In: C. Bingham	Date/Time: 3/16/15 1520
Relinquished By/Removed From: C. Bingham	Date/Time: 3/16/15 1525	Received By/Stored In: 1060 Battelle, Frige #3A	Date/Time: 3/16/15 1525
Relinquished By/Removed From: 1060 Battelle, Frige #3A	Date/Time: 3/17/15 1000	Received By/Stored In: C. Bingham	Date/Time: 3/17/15 1000
Relinquished By/Removed From: C. Bingham WCH	Date/Time: 3/17/15 1310	Received By/Stored In: Jack J. Bell TALB	Date/Time: 3-17-15/1310
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

SPECIAL INSTRUCTIONS

(3) Gamma Spec (Client List) {Americium-241, Barium-133, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Silver-108 metastable}

J5C170423
JP0921
Due 3-24-15

REVIEWED BY K. Wood Vaccaro DATE 3/17/15

JP0921

J5C170423

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 3-17-15 | 1310 Container GM Screen Result: (Airlock) 20 cpm Initials [B]
Sample GM Screen Result (Sample Receiving) 20 cpm Initials [B]

Client: WCH SDG #: JP0921 SAF #: RC-107 NA [ ]

Lot Number: JSC170423

Chain of Custody # RC-107-133

Shipping Container ID or Air Bill Number : Hand Deliv. NA [RW]

Samples received inside shipping container/cooler/box Yes [B] Continue with 1 through 4. Initial appropriate response.
No [ ] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [B]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [B]
3. Cooler temperature: 7.7 °C Ice NA [ ]
4. Vermiculite/packing materials is NA [B] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [B] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 1
7. Containers received: 3x125mLp; 1x Lp
8. Sample holding times exceeded? NA [ ] Yes [ ] No [B]
9. Samples have: ____tape ____hazard labels [B] custody seals [B] appropriate sample labels
10. Matrix: [B] A (FLT, Wipe, Solid, Soil) ____I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    [B] are in good condition ____are leaking ____are broken
    [B] have air bubbles (Only for samples requiring no head space) ____Other ____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [B]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO_3 added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [B]
14. Description of anomalies (include sample numbers): NA [B]
15. Sample Location, Sample Collector Listed on COC? * Yes [ ] No [B]
    *For documentation only. No corrective action needed.
16. Additional Information: N/A

[ ] Client/Courier denied temperature check. [ ] Client/Courier unpack cooler.

Sample Check-in List completed by Sample Custodian:
Signature: [signature] Date: 3-17-15

Client Notification needed? Yes [ ] No [X] Date: ____
By: ____
Person contacted: ____

[X] No action necessary; process as is

Project Manager [signature] Date 3/17/15

LS-023 Rev. 17, 05/13

3/23/2015 11:50:30 AM

Sample Preparation/Analysis

Balance Id:1120421763,,

127642, Washington Closure Hanford LLC ,
Bechtel Hanford, Inc.

AX Gamma Prp PRP003/GAM001
TA Gamma by HPGE
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 03/24/2015

Sep1 DT/Tm Tech:

Batch: 5074169 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 5074169 AXTA, 5074171 5STC, 5074172 AFS4, 5074193 DWEA, 5079016 5STC,

Prep Tech: WoodT

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 **M6DMF-1-AD**			397.20g,in	397.20g									
J5C170423-1-SAMP			1593.90g,fi										
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
2 **M6DMF-1-AF-X**			397.30g,in	397.30g									
J5C170423-1-DUP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
3 **M6DNV-1-AA-B**			348.00g,in	348.00g	OSBK								
J5C150000-169-BLK													
03/17/2015 15:59 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 **M6DNV-1-AC-C**			350.10g,in	350.10g	QC20009								
J5C150000-169-LCS					08/04/09,pd 09/01/09,r								
03/17/2015 15:59 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

3/23/2015 11:50:31 AM

Sample Preparation/Analysis

AX Gamma Prp PRP003/GAM001
TA Gamma by HPGE
5I CLIENT: HANFORD

Balance Id:1120421763,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,WoodT

AnalyDueDate: 03/24/2015

Batch: 5074169 pCi/g
SEQ Batch, Test: None

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments:

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M6DMF1AD-SAMP Constituent List:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:70	UCL:130	RPD:35
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:70	UCL:130	RPD:35	Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
K-40	RDL:	pCi/g	LCL:	UCL:	RPD:						

M6DNV1AA-BLK:

Co-60	RDL:5.00E-02	pCi/g	LCL:	UCL:	RPD:	Cs-137	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Cs-137DA	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-152	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
Eu-154	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:	Eu-155	RDL:1.00E-01	pCi/g	LCL:	UCL:	RPD:
K-40	RDL:	pCi/g	LCL:	UCL:	RPD:						

M6DNV1AC-LCS:

Cs-137	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35	Cs-137DA	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
K-40	RDL:--	pCi/g	LCL:70	UCL:130	RPD:35	Ra-226	RDL:0.1	pCi/g	LCL:70	UCL:130	RPD:35
RA-228	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35	RA-228DA	RDL:0.2	pCi/g	LCL:70	UCL:130	RPD:35
U-238	RDL:	pCi/g	LCL:70	UCL:130	RPD:35						

M6DMF1AD-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M6DNV1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

M6DNV1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

3/23/2015 11:40:15 AM

ICOC Fraction Transfer/Status Report

ByDate: 3/23/2014, 3/28/2015, Batch: '5074169', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5074169						
AC		**Rev1C**	**WoodT**	3/18/2015 8:56:01		
SC			McginnisT	IsBatched	3/17/2015 4:09:38 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	3/18/2015 8:56:01 AM	RL-PRP-003 REVISION 5
SC			WoodT	Prep2C	3/18/2015 8:56:15 AM	RL-GAM-001 REVISION 5
SC			BullJ	InCnt1	3/18/2015 9:14:12 AM	RL-CI-007 REVISION 5
SC			BullJ	CalcC	3/19/2015 11:30:35 AM	RL-CI-007 REVISION 5
SC			carnesj	Rev1C	3/23/2015 11:38:21 AM	RL-DR-001 Rev 5
AC			**WoodT**	3/18/2015 8:56:15		
AC			**BullJ**	3/18/2015 9:14:12		
AC			**BullJ**	3/19/2015 11:30:35		
AC			**carnesj**	3/23/2015 11:38:21		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 5

ICOCFractions

4

3/20/2015 10:11:02 AM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

5S C-14 Prp/Sep LSC008
TC C-14 by LSC, Carbosorb
01 STANDARD TEST SET

AnalyDueDate: 03/24/2015

Batch: 5079016 **SOIL** **pCi/g** **PM, Quote: RW2, 27038**
SEQ Batch, Test: None All Tests: 5074169 AXTA, 5074171 5STC, 5074172 AFS4, 5074193 DWEA, 5079016 5STC,

Balance Id:
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M6DMF-1-AM-X													
J5C170423-1-DUP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
2 M6DMF-2-AE													
J5C170423-1-SAMP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
3 M6EN9-1-AA-B													
J5C200000-16-BLK													
03/20/2015 10:10 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 M6EN9-1-AC-C													
J5C200000-16-LCS													
03/20/2015 10:10 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M6EN9-1-AD-BN													
J5C200000-16-IBLK													
03/20/2015 10:10 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

3/20/2015 10:11:03 AM Prepa

Sample Preparation/Analysis

5S C-14 Prp/Sep LSC008
TC C-14 by LSC, Carbosorb
01 STANDARD TEST SET

Balance Id:,,

Pipet #: _____

AnalyDueDate: 03/24/2015

Sep1 DT/Tm Tech:

Batch: 5079016 pCi/g

SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech:

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments:

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M6DMF1AM-DUP Constituent List:

M6EN91AA-BLK:

M6EN91AC-LCS:

M6EN91AD-IBLK:

M6DMF1AM-DUP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6EN91AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6EN91AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6EN91AD-IBLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

3/24/2015 7:47:50 AM

ICOC Fraction Transfer/Status Report

ByDate: 3/24/2014, 3/29/2015, Batch: '5079016', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5079016						
AC		**Rev1C**	**NortonP**	3/20/2015 2:20:07 PM		
SC			nortonp	IsBatched	3/20/2015 12:26:25 PM	ICOC_RADCALC v4.9.0
SC			NortonP	Sep1C	3/20/2015 2:20:07 PM	RL-LSC-008 REVISION 5
SC			DawkinsO	InCnt1	3/20/2015 5:57:40 PM	RL-CI-005 REVISION 3
SC			BullJ	CalcC	3/23/2015 9:30:25 AM	RL-CI-005 REVISION 3
SC			McginnisT	Rev1C	3/24/2015 7:47:09 AM	RL-DR-001 Rev 5
AC			**DawkinsO**	3/20/2015 5:57:40 PM		
AC			**BullJ**	3/23/2015 9:30:25		
AC			**McginnisT**	3/24/2015 7:47:09		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

Page 1

Grp Rec Cnt: 4

ICOCFractions

3/19/2015 1:32:29 AM

Sample Preparation/Analysis

Balance Id:1120373922,,

127642, Washington Closure Hanford LLC ,
Bechtel Hanford, Inc.

AF Ni-63 Prp PRP003/PRP005, Sep LSC017
S4 Nickel by ICP and Nickel-63 by Liquid Scint
5I CLIENT: HANFORD

Pipet #: _____

AnalyDueDate: 03/24/2015

Sep1 DT/Tm Tech:

Batch: 5074172 SOIL pCi/g PM, Quote: RW2, 27038

Sep2 DT/Tm Tech:

SEQ Batch, Test: None All Tests: 5074169 AXTA, 5074171 5STC, 5074172 AFS4, 5074193 DWEA,

Prep Tech: WoodT

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M6DMF-1-AC			0.48g,in	0.48g	NITA14046 02/11/15								
J5C170423-1-SAMP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
2 M6DMF-1-AH-X			0.54g,in	0.54g	NITA14047 02/11/15								
J5C170423-1-DUP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
3 M6DN8-1-AA-B			0.51g,in	0.51g	NITA14048 02/11/15								
J5C150000-172-BLK													
03/17/2015 15:59 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
4 M6DN8-1-AC-C			0.57g,in	0.57g	NISA2221 02/11/15								
J5C150000-172-LCS													
03/17/2015 15:59 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
5 M6DN8-1-AD-BN													
J5C150000-172-IBLK													
03/17/2015 15:59 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

3/19/2015 1:32:31 AM

Sample Preparation/Analysis

AF Ni-63 Prp PRP003/PRP005, Sep LSC017
S4 Nickel by ICP and Nickel-63 by Liquid Scint
5I CLIENT: HANFORD

Balance Id:,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 03/24/2015

Batch: 5074172 **pCi/g**
SEQ Batch, Test: None

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments: M6DN8-BLK "Comments S-14-00242",S-15-00032,P-15-00156,P-15-00086,S-15-00005

```
All Clients for Batch:
   127642, Washington Closure Hanford LLC          Bechtel Hanford, Inc.        ,  RW2, 27038

M6DMF1AC-SAMP Constituent List:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M6DN81AA-BLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:
M6DN81AC-LCS:
  Ni-63       RDL:30          pCi/g     LCL:70      UCL:130     RPD:35
M6DN81AD-IBLK:
  Ni-63       RDL:30          pCi/g     LCL:        UCL:        RPD:

M6DMF1AC-SAMP Calc Info:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M6DN81AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M6DN81AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M6DN81AD-IBLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

3/24/2015 9:41:33 AM

ICOC Fraction Transfer/Status Report

ByDate: 3/24/2014, 3/29/2015, Batch: '5074172', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			SOPs,Reagents,Comments
5074172						
AC		**Rev1C**	**WoodT**	3/19/2015 7:42:08		
SC			McginnisT	IsBatched	3/17/2015 4:09:52 PM	ICOC_RADCALC v4.9.0
SC			WoodT	Prep1C	3/19/2015 7:42:08 AM	RL-PRP-003 REVISION 5
SC			CarneyA	InSep2	3/20/2015 12:25:01 PM	ST-RC-0055 REVISION 1
SC			CarneyA	Sep2C	3/23/2015 11:53:39 AM	ST-RC-0055 REVISION 1
SC			BullJ	InCnt1	3/23/2015 12:17:39 PM	RL-CI-005 REVISION 3
SC			BullJ	CalcC	3/24/2015 9:35:58 AM	RL-CI-005 REVISION 3
SC			McginnisT	Rev1C	3/24/2015 9:41:26 AM	RL-DR-001 Rev 5
AC			**CarneyA**	3/20/2015 12:25:01		
AC			**CarneyA**	3/23/2015 11:53:39		
AC			**BullJ**	3/23/2015 12:17:39		
AC			**BullJ**	3/24/2015 9:35:58		
AC			**McginnisT**	3/24/2015 9:41:26		

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

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Grp Rec Cnt: 6

ICOCFractions

3/18/2015 8:21:49 AM

Sample Preparation/Analysis

127642, Washington Closure Hanford LLC
Bechtel Hanford, Inc.

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

Balance Id:,,
Pipet #:
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech:

AnalyDueDate: 03/24/2015

Batch: 5074193 SOIL mg/kg **PM, Quote: RW2, 27038**
SEQ Batch, Test: None

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 M6DMF-1-AA													
J5C170423-1-SAMP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
2 M6DMF-1-AJ-S													
J5C170423-1-MS													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
3 M6DMF-1-AK-X													
J5C170423-1-DUP													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
4 M6DMF-1-AL-S													
J5C170423-1-MS													
03/16/2015 10:45			AmtRec: 3X125MLP;1XLP		#Containers: 4				Scr:		Alpha:		Beta:
5 M6DTV-1-AA-B													
J5C150000-193-BLK													
03/18/2015 08:21 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
6 M6DTV-1-AC-C													
J5C150000-193-LCS													
03/18/2015 08:21 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

3/18/2015 8:21:50 AM

Sample Preparation/Analysis

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)
5I CLIENT: HANFORD

Balance Id:,,

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech:

AnalyDueDate: 03/24/2015

Batch: 5074193 **mg/kg**
SEQ Batch, Test: None

Work Ord, Lot, Sample Date	Total Amt/Unit	Total Acidified/Unit	Initial Aliquot Amt/Unit	Adj Aliq Amt (Un-Acidified)	QC Tracer Prep Date	Tracer Yield	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:

Comments:

All Clients for Batch:
127642, Washington Closure Hanford LLC Bechtel Hanford, Inc. , RW2, 27038

M6DMF1AA-SAMP Constituent List:
HEXCHROME RDL:.1548 mg/kg LCL:80 UCL:120 RPD:20 HXCR RDL:.1548 mg/kg LCL:80 UCL:120 RPD:20

M6DMF1AJ-MS Constituent List:

M6DMF1AL-MS:

M6DTV1AA-BLK:

M6DTV1AC-LCS:

M6DMF1AA-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6DMF1AJ-MS Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6DMF1AL-MS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6DTV1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
M6DTV1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

ANALYTICAL REPORT

Job Number: 280-66648-1

SDG Number: JP0921

Job Description: SAF# RC-107

For:
Washington Closure Hanford
2620 Fermi Avenue
Richland, WA 99354

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Senior Project Manager
3/25/2015 4:37 PM

Kae E Yoder, Senior Project Manager
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
03/25/2015

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Job Number: 280-66648-1

SDG #: JP0921
SAF#: RC-107

Date SDG Closed: March 18, 2015
Data Deliverable: 7 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1V543	280-66648-1	6010/7471/9056M/353.2/9045/8310/8082/ 8081/8270/WTPH-D+	6010B/7471A/9056M/353.2/9045C/8310/8082/ 8081A/8270C/NWTPH-Dx
J1V544	280-66648-2	6010/7471/8270	6010B/7471A/8270C

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this Case Narrative. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the signature on the Report Cover.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 3/18/2015 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

GC/MS SEMIVOLATILES - SW846 8270C
The LCS associated with batch 280-268785 exhibited the percent recovery outside the control limits, biased low, for Pentachlorophenol at 53% (lower limit 56%), and associated sample results have been flagged "T". A full list spike was utilized, and although this compound was recovered outside current historical control limits, the recovery was within the allowed Marginal Exceedance control limits (lower limit 47%). This marginal exceedance has been determined to be sporadic, not systematic; therefore, corrective action is deemed unnecessary.

The MSD aliquot of the MS/MSD performed on sample J1V544 exhibited the percent recovery outside the control limits for Pentachlorophenol, and the associated sample result has been flagged "T". The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GC SEMIVOLATILES - SW846 8081A - Pesticides
No anomalies were encountered.

GC SEMIVOLATILES - SW846 8082 - PCBs
No anomalies were encountered.

GC SEMIVOLATILES - NWTPH-Dx - DRO
No anomalies were encountered.

HPLC - SW846 8310 - PAHs
No anomalies were encountered.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-268822 indicates that physical and chemical interferences are present for Cobalt and Nickel. Results have been flagged with an “X”.

Serial dilution of a digestate in batch 280-269339 indicates that physical and chemical interferences are present for Calcium and Iron. Results have been flagged with an “X”.

Low levels of Aluminum, Barium, Manganese, Calcium, Copper and Magnesium are present in the method blanks associated with batches 280-268822 and 280-269339, respectively. Because the concentrations in the method blanks are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-269339 and in the Matrix Spike performed on sample J1V543 in batch 280-269339. The associated sample results have been flagged “N”. Silicon has been identified as a poor performing element when analyzed using this method and has a history of reacting inconsistently; therefore, corrective action is not initiated. Data are reported as is.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1V543; therefore, control limits are not applicable.

Boron was recovered outside the control limits in the Matrix Spike performed on sample J1V543, and the associated sample result has been flagged “N”. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1V543 exhibited RPD data outside the control limits for Arsenic, Barium, Boron and Sodium, and the associated sample results have been flagged “M”. There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

GENERAL CHEMISTRY - MCAWW 353.2 - NITRATE NITRITE as N
No anomalies were encountered.

GENERAL CHEMISTRY - SW846 9056M - ANIONS
Chloride is present in the method blank associated with batch 280-269016 at 6.89 mg/kg, which is greater than the project specific reporting limit (PSRL) of 5 mg/kg. TestAmerica’s practical quantitation limit (PQL) for Chloride is 30 mg/kg. The laboratory cannot maintain system cleanliness at this low level; therefore, corrective action is not initiated. It can be noted that the concentration found in the method blank is less than half of the laboratory standard PQL.

No other anomalies were encountered.

GENERAL CHEMISTRY - SW846 9045C - PH
SU = standard units

No anomalies were encountered.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Section	Qualifier	Description
GC/MS Semi VOA		
	U	Analyzed for but not detected.
	J	Indicates an Estimated Value for TICs
	T	LCS, LCSD: Recovery exceeds upper or lower control limits.
	T	MS, MSD: Recovery exceeds upper or lower control limits.
	N	Presumptive evidence of material.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
GC Semi VOA		
	U	Analyzed for but not detected.
HPLC/IC		
	U	Analyzed for but not detected.
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
Metals		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
	N	Recovery exceeds upper or lower control limits
	M	Sample duplicate precision not met.
	X	Serial dilution in the analytical batch indicates that physical and chemical interferences are present.
	C	The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Section	Qualifier	Description
General Chemistry		
	U	Analyzed for but not detected.
	B	Estimated result. Result is less than the RL, but greater than MDL
	C	The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-66648-1	J1V543	Solid	03/16/2015 1045	03/18/2015 0915
280-66648-2	J1V544	Solid	03/16/2015 1038	03/18/2015 0915

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Semivolatile Organic Compounds (GC/MS)	TAL DEN	SW846 8270C	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Organochlorine Pesticides (GC)	TAL DEN	SW846 8081A	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	TAL DEN	SW846 8082	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Northwest - Semi-Volatile Petroleum Products (GC)	TAL DEN	NWTPH NWTPH-Dx	
Ultrasonic Extraction	TAL DEN		SW846 3550C
PAHs (HPLC)	TAL DEN	SW846 8310	
Ultrasonic Extraction	TAL DEN		SW846 3550C
Metals (ICP)	TAL DEN	SW846 6010B	
Preparation, Metals	TAL DEN		SW846 3050B
Mercury (CVAA)	TAL DEN	SW846 7471A	
Preparation, Mercury	TAL DEN		SW846 7471A
Nitrogen, Nitrate-Nitrite	TAL DEN	MCAWW 353.2	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
pH	TAL DEN	SW846 9045C	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
Anions, Ion Chromatography	TAL DEN	SW846 9056M	
Deionized Water Leaching Procedure	TAL DEN		ASTM DI Leach
ASTM D-2216	TAL DEN	ASTM D-2216	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method	Analyst	Analyst ID
SW846 8270C	Hoefler, Alexandra F	AFH
SW846 8081A	Wells, David A	DAW
SW846 8082	Jackson, Todd D	TDJ
NWTPH NWTPH-Dx	Moore, Tegan E	TEM
SW846 6010B	Broander, Laura L	LLB
SW846 6010B	Scott, Samantha J	SJS
SW846 7471A	Sexton, Michael L	MLS
MCAWW 353.2	Janssen, Elizabeth L	ELJ
SW846 9045C	Simons, Nicole A	NAS
SW846 9056M	Phan, Thu L	TLP
ASTM D-2216	Cherry, Scott V	SVC
SW846 8310	Fiedler, Heather K	HKF

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Prep Method:	3550C	Prep Batch:	280-268785	Lab File ID:	D9430.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	03/20/2015 1818			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		11	U	11	340
Acenaphthylene		17	U	17	340
Anthracene		17	U	17	340
Benzo[a]anthracene		21	U	21	340
Benzo[a]pyrene		21	U	21	340
Benzo[b]fluoranthene		27	U	27	340
Benzo[ghi]perylene		16	U	16	340
Benzo[k]fluoranthene		41	U	41	340
Bis(2-chloroethoxy)methane		24	U	24	340
Bis(2-chloroethyl)ether		17	U	17	340
bis (2-chloroisopropyl) ether		24	U	24	340
Bis(2-ethylhexyl) phthalate		47	U	47	340
4-Bromophenyl phenyl ether		20	U	20	340
Butyl benzyl phthalate		44	U	44	340
Carbazole		37	U	37	340
4-Chloroaniline		84	U	84	340
4-Chloro-3-methylphenol		68	U	68	340
2-Chloronaphthalene		10	U	10	340
2-Chlorophenol		22	U	22	340
4-Chlorophenyl phenyl ether		22	U	22	340
Chrysene		28	U	28	340
Dibenz(a,h)anthracene		20	U	20	340
Dibenzofuran		21	U	21	340
1,2-Dichlorobenzene		23	U	23	340
1,3-Dichlorobenzene		12	U	12	340
1,4-Dichlorobenzene		14	U	14	340
3,3'-Dichlorobenzidine		93	U	93	680
2,4-Dichlorophenol		10	U	10	340
Diethyl phthalate		27	U	27	340
2,4-Dimethylphenol		68	U	68	340
Dimethyl phthalate		24	U	24	340
Di-n-butyl phthalate		30	U	30	340
4,6-Dinitro-2-methylphenol		340	U	340	680
2,4-Dinitrophenol		340	U	340	850
2,4-Dinitrotoluene		68	U	68	340
2,6-Dinitrotoluene		29	U	29	340
Di-n-octyl phthalate		15	U	15	340
Fluoranthene		37	U	37	340
Fluorene		19	U	19	340
Hexachlorobenzene		30	U	30	340
Hexachlorobutadiene		10	U	10	340
Hexachlorocyclopentadiene		51	U	51	340
Hexachloroethane		22	U	22	340
Indeno[1,2,3-cd]pyrene		23	U	23	340
Isophorone		17	U	17	340
2-Methylnaphthalene		20	U	20	340

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Prep Method:	3550C	Prep Batch:	280-268785	Lab File ID:	D9430.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	03/20/2015 1818			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	340
3 & 4 Methylphenol		34	U	34	340
Naphthalene		32	U	32	340
2-Nitroaniline		51	U	51	340
3-Nitroaniline		75	U	75	340
4-Nitroaniline		75	U	75	340
Nitrobenzene		23	U	23	340
2-Nitrophenol		10	U	10	340
4-Nitrophenol		100	U	100	680
N-Nitrosodi-n-propylamine		32	U	32	340
N-Nitrosodiphenylamine		22	U	22	340
Pentachlorophenol		340	U T	340	680
Phenanthrene		17	U	17	340
Phenol		19	U	19	340
Pyrene		12	U	12	340
1,2,4-Trichlorobenzene		29	U	29	340
2,4,5-Trichlorophenol		10	U	10	340
2,4,6-Trichlorophenol		10	U	10	340

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	72		50 - 120
2-Fluorophenol	74		53 - 120
Nitrobenzene-d5	74		50 - 120
Phenol-d5	75		52 - 120
Terphenyl-d14	74		55 - 120
2,4,6-Tribromophenol	75		51 - 120

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Prep Method:	3550C	Prep Batch:	280-268785	Lab File ID:	D9430.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	03/20/2015 1818			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL

Tentatively Identified Compounds **Number TIC's Found:** **2**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.34	3000	N J
638-67-5	Tricosane	8.63	150	N J

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V544**

Lab Sample ID: 280-66648-2
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 03/16/2015 1038
Date Received: 03/18/2015 0915

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Prep Method:	3550C	Prep Batch:	280-268785	Lab File ID:	D9431.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	03/20/2015 1846			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	330
Acenaphthylene		17	U	17	330
Anthracene		17	U	17	330
Benzo[a]anthracene		20	U	20	330
Benzo[a]pyrene		20	U	20	330
Benzo[b]fluoranthene		26	U	26	330
Benzo[ghi]perylene		16	U	16	330
Benzo[k]fluoranthene		40	U	40	330
Bis(2-chloroethoxy)methane		23	U	23	330
Bis(2-chloroethyl)ether		16	U	16	330
bis (2-chloroisopropyl) ether		23	U	23	330
Bis(2-ethylhexyl) phthalate		46	U	46	330
4-Bromophenyl phenyl ether		19	U	19	330
Butyl benzyl phthalate		43	U	43	330
Carbazole		36	U	36	330
4-Chloroaniline		81	U	81	330
4-Chloro-3-methylphenol		65	U	65	330
2-Chloronaphthalene		9.9	U	9.9	330
2-Chlorophenol		21	U	21	330
4-Chlorophenyl phenyl ether		21	U	21	330
Chrysene		27	U	27	330
Dibenz(a,h)anthracene		19	U	19	330
Dibenzofuran		20	U	20	330
1,2-Dichlorobenzene		22	U	22	330
1,3-Dichlorobenzene		12	U	12	330
1,4-Dichlorobenzene		13	U	13	330
3,3'-Dichlorobenzidine		89	U	89	650
2,4-Dichlorophenol		9.9	U	9.9	330
Diethyl phthalate		29	J	26	330
2,4-Dimethylphenol		65	U	65	330
Dimethyl phthalate		23	U	23	330
Di-n-butyl phthalate		29	U	29	330
4,6-Dinitro-2-methylphenol		330	U	330	650
2,4-Dinitrophenol		330	U	330	820
2,4-Dinitrotoluene		65	U	65	330
2,6-Dinitrotoluene		28	U	28	330
Di-n-octyl phthalate		14	U	14	330
Fluoranthene		36	U	36	330
Fluorene		18	U	18	330
Hexachlorobenzene		29	U	29	330
Hexachlorobutadiene		9.9	U	9.9	330
Hexachlorocyclopentadiene		50	U	50	330
Hexachloroethane		21	U	21	330
Indeno[1,2,3-cd]pyrene		22	U	22	330
Isophorone		17	U	17	330
2-Methylnaphthalene		19	U	19	330

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V544**

Lab Sample ID: 280-66648-2
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 03/16/2015 1038
Date Received: 03/18/2015 0915

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Prep Method:	3550C	Prep Batch:	280-268785	Lab File ID:	D9431.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	03/20/2015 1846			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
2-Methylphenol		13	U	13	330
3 & 4 Methylphenol		33	U	33	330
Naphthalene		31	U	31	330
2-Nitroaniline		50	U	50	330
3-Nitroaniline		72	U	72	330
4-Nitroaniline		72	U	72	330
Nitrobenzene		22	U	22	330
2-Nitrophenol		9.9	U	9.9	330
4-Nitrophenol		96	U	96	650
N-Nitrosodi-n-propylamine		31	U	31	330
N-Nitrosodiphenylamine		21	U	21	330
Pentachlorophenol		330	U T	330	650
Phenanthrene		17	U	17	330
Phenol		18	U	18	330
Pyrene		12	U	12	330
1,2,4-Trichlorobenzene		28	U	28	330
2,4,5-Trichlorophenol		9.9	U	9.9	330
2,4,6-Trichlorophenol		9.9	U	9.9	330

Surrogate	%Rec	Qualifier	Acceptance Limits
2-Fluorobiphenyl	73		50 - 120
2-Fluorophenol	73		53 - 120
Nitrobenzene-d5	73		50 - 120
Phenol-d5	74		52 - 120
Terphenyl-d14	75		55 - 120
2,4,6-Tribromophenol	67		51 - 120

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V544**

Lab Sample ID: 280-66648-2
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 03/16/2015 1038
Date Received: 03/18/2015 0915

8270C Semivolatile Organic Compounds (GC/MS)

Analysis Method:	8270C	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Prep Method:	3550C	Prep Batch:	280-268785	Lab File ID:	D9431.D
Dilution:	1.0			Initial Weight/Volume:	30.3 g
Analysis Date:	03/20/2015 1846			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL

Tentatively Identified Compounds **Number TIC's Found:** **1**

Cas Number	Analyte	RT	Est. Result (ug/Kg)	Qualifier
	Unknown	3.34	3000	N J

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

8081A Organochlorine Pesticides (GC)

Analysis Method:	8081A	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Prep Method:	3550C	Prep Batch:	280-268825	Initial Weight/Volume:	30.7 g
Dilution:	1.0			Final Weight/Volume:	10 mL
Analysis Date:	03/20/2015 1627			Injection Volume:	1 uL
Prep Date:	03/19/2015 1811			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
4,4'-DDD		0.56	U	0.56	1.7
4,4'-DDE		0.24	U	0.24	1.7
4,4'-DDT		0.60	U	0.60	1.7
Aldrin		0.26	U	0.26	1.7
alpha-BHC		0.22	U	0.22	1.7
beta-BHC		0.68	U	0.68	1.7
delta-BHC		0.41	U	0.41	1.7
gamma-BHC (Lindane)		0.47	U	0.47	1.7
Heptachlor		0.22	U	0.22	1.7
Heptachlor epoxide		0.43	U	0.43	1.7
Endosulfan I		0.18	U	0.18	1.7
Endosulfan II		0.29	U	0.29	1.7
Endosulfan sulfate		0.28	U	0.28	1.7
Endrin		0.31	U	0.31	1.7
Endrin aldehyde		0.17	U	0.17	1.7
Endrin ketone		0.50	U	0.50	1.7
gamma-Chlordane		0.27	U	0.27	1.7
Methoxychlor		0.46	U	0.46	3.4
alpha-Chlordane		0.33	U	0.33	1.7
Dieldrin		0.21	U	0.21	1.7
Toxaphene		16	U	16	170

Surrogate	%Rec	Qualifier	Acceptance Limits
Tetrachloro-m-xylene	80		59 - 115
Decachlorobiphenyl	89		63 - 124

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analysis Method:	8082	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Prep Method:	3550C	Prep Batch:	280-268810	Initial Weight/Volume:	31.4 g
Dilution:	1.0			Final Weight/Volume:	5 mL
Analysis Date:	03/20/2015 1618			Injection Volume:	1 uL
Prep Date:	03/19/2015 1733			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Aroclor 1016		2.8	U	2.8	10
Aroclor 1221		8.0	U	8.0	16
Aroclor 1232		2.0	U	2.0	10
Aroclor 1242		4.6	U	4.6	10
Aroclor 1248		4.6	U	4.6	10
Aroclor 1254		2.6	U	2.6	10
Aroclor 1260		2.6	U	2.6	10

Surrogate	%Rec	Qualifier	Acceptance Limits
Decachlorobiphenyl	71		59 - 130
Tetrachloro-m-xylene	75		53 - 128

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Analysis Method:	NWTPH-Dx	Analysis Batch:	280-269265	Instrument ID:	SGC_U2a
Prep Method:	3550C	Prep Batch:	280-268846	Lab File ID:	03230007.D
Dilution:	1.0			Initial Weight/Volume:	30.4 g
Analysis Date:	03/23/2015 1707			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 2158			Injection Volume:	1 uL

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
C10-C36		7400		1000	4100
C10-C28		4600		700	4100

Surrogate	%Rec	Qualifier	Acceptance Limits
o-Terphenyl	68		49 - 115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

8310 PAHs (HPLC)

Analysis Method:	8310	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Prep Method:	3550C	Prep Batch:	280-268796	Initial Weight/Volume:	30.4 g
Dilution:	1.0			Final Weight/Volume:	4 mL
Analysis Date:	03/20/2015 1304			Injection Volume:	20 uL
Prep Date:	03/19/2015 1637			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
Acenaphthene		10	U	10	100
Acenaphthylene		9.3	U	9.3	100
Anthracene		3.1	U	3.1	21
Benzo[a]anthracene		3.3	U	3.3	15
Benzo[a]pyrene		6.6	U	6.6	15
Benzo[b]fluoranthene		5.4	J	4.3	15
Benzo[g,h,i]perylene		7.4	U	7.4	31
Benzo[k]fluoranthene		4.1	U	4.1	15
Chrysene		7.5	J	5.0	41
Dibenzo(a,h)anthracene		11	U	11	31
Fluoranthene		13	U	13	41
Fluorene		5.4	U	5.4	31
Indeno[1,2,3-cd]pyrene		12	U	12	31
Naphthalene		12	U	12	100
Phenanthrene		12	U	12	41
Pyrene		12	U	12	41

Surrogate	%Rec	Qualifier	Acceptance Limits
Terphenyl-d14 (SUR)	90		72 - 115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-269256	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-268822	Lab File ID:	26e032015.asc
Dilution:	1.0			Initial Weight/Volume:	1.19 g
Analysis Date:	03/20/2015 2345			Final Weight/Volume:	100 mL
Prep Date:	03/20/2015 0900				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		8000		1.4	4.4
Antimony		0.51	B	0.33	0.53
Arsenic		5.3	M	0.58	0.88
Barium		160	M	0.067	0.44
Beryllium		0.85		0.029	0.18
Boron		25.7	M N	0.86	1.8
Cadmium		0.075	B	0.036	0.18
Chromium		10.2		0.051	0.18
Cobalt		5.7	X	0.088	0.88
Lead		11.7		0.24	0.44
Manganese		264		0.088	0.88
Molybdenum		0.31	B	0.23	1.8
Nickel		12.8	X	0.11	3.5
Potassium		789		35.9	263
Selenium		0.75	U	0.75	0.88
Silver		0.14	U	0.14	0.18
Sodium		498	M	51.7	105
Vanadium		43.5		0.082	1.8
Zinc		34.7		0.35	0.88

Analysis Method:	6010B	Analysis Batch:	280-269682	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-269339	Lab File ID:	26AA032515.asc
Dilution:	1.0			Initial Weight/Volume:	1.06 g
Analysis Date:	03/25/2015 1322			Final Weight/Volume:	100 mL
Prep Date:	03/24/2015 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Calcium		6350	X	13.9	49.2
Copper		16.4		0.21	0.98
Iron		17500	X	3.7	4.9
Magnesium		4490		3.6	19.7
Silicon		257	N	5.6	9.8

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-268693	Lab File ID:	150319ac.txt
Dilution:	1.0			Initial Weight/Volume:	0.54 g
Analysis Date:	03/19/2015 1512			Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0092	B	0.0064	0.020

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Client Sample ID: **J1V544**

Lab Sample ID: 280-66648-2
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 03/16/2015 1038
Date Received: 03/18/2015 0915

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-269256	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-268822	Lab File ID:	26e032015.asc
Dilution:	1.0			Initial Weight/Volume:	1.12 g
Analysis Date:	03/20/2015 2355			Final Weight/Volume:	100 mL
Prep Date:	03/20/2015 0900				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		165		1.4	4.5
Antimony		0.34	U	0.34	0.54
Arsenic		0.60	B	0.59	0.89
Barium		1.7		0.068	0.45
Beryllium		0.071	B	0.029	0.18
Boron		0.88	U	0.88	1.8
Cadmium		0.037	U	0.037	0.18
Chromium		0.19		0.052	0.18
Cobalt		0.16	B X	0.089	0.89
Lead		0.34	B	0.24	0.45
Manganese		4.6		0.089	0.89
Molybdenum		0.23	U	0.23	1.8
Nickel		0.41	B X	0.11	3.6
Potassium		47.2	B	36.6	268
Selenium		0.77	U	0.77	0.89
Silver		0.14	U	0.14	0.18
Sodium		52.7	U	52.7	107
Vanadium		0.63	B	0.084	1.8
Zinc		1.3		0.36	0.89

Analysis Method:	6010B	Analysis Batch:	280-269682	Instrument ID:	MT_026
Prep Method:	3050B	Prep Batch:	280-269339	Lab File ID:	26AA032515.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	03/25/2015 1331			Final Weight/Volume:	100 mL
Prep Date:	03/24/2015 0800				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Calcium		35.5	B C X	13.6	48.1
Copper		0.45	B C	0.21	0.96
Iron		195	X	3.7	4.8
Magnesium		18.3	B C	3.6	19.2
Silicon		70.4	N	5.4	9.6

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-268693	Lab File ID:	150319ac.txt
Dilution:	1.0			Initial Weight/Volume:	0.58 g
Analysis Date:	03/19/2015 1519			Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0057	U	0.0057	0.018

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

General Chemistry

Client Sample ID: **J1V543**

Lab Sample ID: 280-66648-1
Client Matrix: Solid
% Moisture: 4.1

Date Sampled: 03/16/2015 1045
Date Received: 03/18/2015 0915

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Nitrate Nitrite as N-Soluble	2.9		mg/Kg	0.37	0.77	1.0	353.2
Analysis Batch: 280-269379	Analysis Date: 03/23/2015 1545						DryWt Corrected: Y
Chloride-Soluble	30.1	C	mg/Kg	2.0	5.0	1.0	9056M
Analysis Batch: 280-269016	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y
Nitrate as N-Soluble	3.1		mg/Kg	0.31	2.5	1.0	9056M
Analysis Batch: 280-269015	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y
Bromide-Soluble	0.39	U	mg/Kg	0.39	2.0	1.0	9056M
Analysis Batch: 280-269016	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y
Nitrite as N-Soluble	0.34	U	mg/Kg	0.34	2.5	1.0	9056M
Analysis Batch: 280-269015	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y
Orthophosphate as P-Soluble	1.2	U	mg/Kg	1.2	5.0	1.0	9056M
Analysis Batch: 280-269015	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y
Sulfate-Soluble	13.4		mg/Kg	1.7	5.0	1.0	9056M
Analysis Batch: 280-269016	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y
Fluoride-Soluble	1.3	B	mg/Kg	0.82	5.0	1.0	9056M
Analysis Batch: 280-269016	Analysis Date: 03/20/2015 2037						DryWt Corrected: Y

Analyte	Result	Qual	Units	RL	RL	Dil	Method
pH adj. to 25 deg C-Soluble	8.93		SU	0.100	0.100	1.0	9045C
Analysis Batch: 280-269104	Analysis Date: 03/20/2015 2157						DryWt Corrected: N
Percent Moisture	4.1		%	0.10	0.10	1.0	D-2216
Analysis Batch: 280-269297	Analysis Date: 03/23/2015 1201						DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

General Chemistry

Client Sample ID: **J1V544**

Lab Sample ID: 280-66648-2
Client Matrix: Solid

Date Sampled: 03/16/2015 1038
Date Received: 03/18/2015 0915

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	0.10	U	%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-269297 Analysis Date: 03/23/2015 1201 DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Surrogate Recovery Report

8270C Semivolatile Organic Compounds (GC/MS)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	FBP %Rec	2FP %Rec	NBZ %Rec	PHL %Rec	TPH %Rec	TBP %Rec
280-66648-1	J1V543	72	74	74	75	74	75
280-66648-2	J1V544	73	73	73	74	75	67
MB 280-268785/1-A		68	68	71	71	70	69
LCS 280-268785/2-A		64	63	66	68	62	70
280-66648-2 MS	J1V544 MS	72	71	72	73	74	79
280-66648-2 MSD	J1V544 MSD	64	62	64	66	65	71

Surrogate	Acceptance Limits
FBP = 2-Fluorobiphenyl	50-120
2FP = 2-Fluorophenol	53-120
NBZ = Nitrobenzene-d5	50-120
PHL = Phenol-d5	52-120
TPH = Terphenyl-d14	55-120
TBP = 2,4,6-Tribromophenol	51-120

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Surrogate Recovery Report

8081A Organochlorine Pesticides (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	TCX1 %Rec	DCB1 %Rec
280-66648-1	J1V543	80	89
MB 280-268825/1-A		80	85
LCS 280-268825/2-A		81	88
280-66648-1 MS	J1V543 MS	78	92
280-66648-1 MSD	J1V543 MSD	80	95

Surrogate	Acceptance Limits
TCX = Tetrachloro-m-xylene	59-115
DCB = Decachlorobiphenyl	63-124

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Surrogate Recovery Report

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Matrix: Solid

Lab Sample ID	Client Sample ID	DCB1 %Rec	TCX1 %Rec
280-66648-1	J1V543	71	75
MB 280-268810/1-A		76	75
LCS 280-268810/2-A		81	78
280-66648-1 MS	J1V543 MS	74	77
280-66648-1 MSD	J1V543 MSD	70	70

Surrogate	Acceptance Limits
DCB = Decachlorobiphenyl	59-130
TCX = Tetrachloro-m-xylene	53-128

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Surrogate Recovery Report

NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	OTPH %Rec
280-66648-1	J1V543	68
MB 280-268846/1-A		69
LCS 280-268846/2-A		69
280-66648-1 MS	J1V543 MS	71
280-66648-1 MSD	J1V543 MSD	74

Surrogate	Acceptance Limits
OTPH = o-Terphenyl	49-115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Surrogate Recovery Report

8310 PAHs (HPLC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	TPH1 %Rec
280-66648-1	J1V543	90
MB 280-268796/1-A		91
LCS 280-268796/2-A		90
280-66648-1 MS	J1V543 MS	87
280-66648-1 MSD	J1V543 MSD	84

Surrogate	Acceptance Limits
TPH = Terphenyl-d14 (SUR)	72-115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268785

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-268785/1-A	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9419.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1309	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Acenaphthene	10	U	10	330
Acenaphthylene	17	U	17	330
Anthracene	17	U	17	330
Benzo[a]anthracene	20	U	20	330
Benzo[a]pyrene	20	U	20	330
Benzo[b]fluoranthene	26	U	26	330
Benzo[ghi]perylene	16	U	16	330
Benzo[k]fluoranthene	40	U	40	330
Bis(2-chloroethoxy)methane	23	U	23	330
Bis(2-chloroethyl)ether	17	U	17	330
bis (2-chloroisopropyl) ether	23	U	23	330
Bis(2-ethylhexyl) phthalate	46	U	46	330
4-Bromophenyl phenyl ether	19	U	19	330
Butyl benzyl phthalate	43	U	43	330
Carbazole	36	U	36	330
4-Chloroaniline	82	U	82	330
4-Chloro-3-methylphenol	66	U	66	330
2-Chloronaphthalene	10	U	10	330
2-Chlorophenol	21	U	21	330
4-Chlorophenyl phenyl ether	21	U	21	330
Chrysene	27	U	27	330
Dibenz(a,h)anthracene	19	U	19	330
Dibenzofuran	20	U	20	330
1,2-Dichlorobenzene	22	U	22	330
1,3-Dichlorobenzene	12	U	12	330
1,4-Dichlorobenzene	14	U	14	330
3,3'-Dichlorobenzidine	90	U	90	660
2,4-Dichlorophenol	10	U	10	330
Diethyl phthalate	26	U	26	330
2,4-Dimethylphenol	66	U	66	330
Dimethyl phthalate	23	U	23	330
Di-n-butyl phthalate	29	U	29	330
4,6-Dinitro-2-methylphenol	330	U	330	660
2,4-Dinitrophenol	330	U	330	830
2,4-Dinitrotoluene	66	U	66	330
2,6-Dinitrotoluene	28	U	28	330
Di-n-octyl phthalate	14	U	14	330
Fluoranthene	36	U	36	330
Fluorene	18	U	18	330
Hexachlorobenzene	29	U	29	330
Hexachlorobutadiene	10	U	10	330
Hexachlorocyclopentadiene	50	U	50	330
Hexachloroethane	21	U	21	330
Indeno[1,2,3-cd]pyrene	22	U	22	330
Isophorone	17	U	17	330

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268785

Method: 8270C
Preparation: 3550C

Lab Sample ID:	MB 280-268785/1-A	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9419.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1309	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
2-Methylnaphthalene	19	U	19	330
2-Methylphenol	13	U	13	330
3 & 4 Methylphenol	33	U	33	330
Naphthalene	31	U	31	330
2-Nitroaniline	50	U	50	330
3-Nitroaniline	73	U	73	330
4-Nitroaniline	73	U	73	330
Nitrobenzene	22	U	22	330
2-Nitrophenol	10	U	10	330
4-Nitrophenol	97	U	97	660
N-Nitrosodi-n-propylamine	31	U	31	330
N-Nitrosodiphenylamine	21	U	21	330
Pentachlorophenol	330	U	330	660
Phenanthrene	17	U	17	330
Phenol	18	U	18	330
Pyrene	12	U	12	330
1,2,4-Trichlorobenzene	28	U	28	330
2,4,5-Trichlorophenol	10	U	10	330
2,4,6-Trichlorophenol	10	U	10	330

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	68	50 - 120
2-Fluorophenol	68	53 - 120
Nitrobenzene-d5	71	50 - 120
Phenol-d5	71	52 - 120
Terphenyl-d14	70	55 - 120
2,4,6-Tribromophenol	69	51 - 120

Method Blank TICs- Batch: 280-268785

Cas Number	Analyte	RT	Est. Result (ug/K	Qual
	Tentatively Identified Compound		None	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Control Sample - Batch: 280-268785

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-268785/2-A	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9420.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1337	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2670	1750	66	60 - 120	
Acenaphthylene	2670	1850	69	64 - 120	
Anthracene	2670	1850	69	63 - 120	
Benzo[a]anthracene	2670	1830	68	65 - 120	
Benzo[a]pyrene	2670	1830	68	59 - 120	
Benzo[b]fluoranthene	2670	1810	68	47 - 129	
Benzo[ghi]perylene	2670	1810	68	55 - 126	
Benzo[k]fluoranthene	2670	1760	66	48 - 130	
Bis(2-chloroethoxy)methane	2670	1740	65	56 - 120	
Bis(2-chloroethyl)ether	2670	1640	62	51 - 120	
bis (2-chloroisopropyl) ether	2670	1670	63	49 - 120	
Bis(2-ethylhexyl) phthalate	2670	1910	71	65 - 120	
4-Bromophenyl phenyl ether	2670	1830	69	64 - 120	
Butyl benzyl phthalate	2670	1830	69	65 - 120	
Carbazole	2670	1820	68	64 - 120	
4-Chloroaniline	2670	1350	50	28 - 120	
4-Chloro-3-methylphenol	2670	1960	74	63 - 120	
2-Chloronaphthalene	2670	1710	64	59 - 120	
2-Chlorophenol	2670	1740	65	57 - 120	
4-Chlorophenyl phenyl ether	2670	1800	67	64 - 120	
Chrysene	2680	1830	68	64 - 120	
Dibenz(a,h)anthracene	2670	1820	68	50 - 133	
Dibenzofuran	2670	1800	67	61 - 120	
1,2-Dichlorobenzene	2680	1620	61	53 - 120	
1,3-Dichlorobenzene	2670	1600	60	52 - 120	
1,4-Dichlorobenzene	2670	1630	61	52 - 120	
3,3'-Dichlorobenzidine	2670	1450	54	30 - 120	
2,4-Dichlorophenol	2670	1820	68	60 - 120	
Diethyl phthalate	2670	1880	71	66 - 120	
2,4-Dimethylphenol	2670	1910	72	54 - 120	
Dimethyl phthalate	2670	1820	68	65 - 120	
Di-n-butyl phthalate	2670	1860	70	67 - 120	
4,6-Dinitro-2-methylphenol	5340	3240	61	57 - 120	
2,4-Dinitrophenol	5340	2910	55	46 - 120	
2,4-Dinitrotoluene	2670	1900	71	68 - 120	
2,6-Dinitrotoluene	2670	1850	69	64 - 120	
Di-n-octyl phthalate	2670	1810	68	66 - 120	
Fluoranthene	2670	1850	70	66 - 120	
Fluorene	2670	1840	69	64 - 120	
Hexachlorobenzene	2670	1860	70	62 - 120	
Hexachlorobutadiene	2670	1650	62	53 - 120	
Hexachlorocyclopentadiene	2670	1740	65	47 - 120	
Hexachloroethane	2670	1700	64	51 - 120	
Indeno[1,2,3-cd]pyrene	2670	1840	69	63 - 120	
Isophorone	2670	1840	69	56 - 120	
2-Methylnaphthalene	2660	1800	67	57 - 120	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Control Sample - Batch: 280-268785

Method: 8270C
Preparation: 3550C

Lab Sample ID:	LCS 280-268785/2-A	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9420.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1337	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
2-Methylphenol	2670	1830	68	56 - 120	
3 & 4 Methylphenol	2670	1890	71	53 - 120	
Naphthalene	2670	1700	64	57 - 120	
2-Nitroaniline	2670	1980	74	63 - 120	
3-Nitroaniline	2670	1440	54	47 - 120	
4-Nitroaniline	2670	1780	67	64 - 120	
Nitrobenzene	2670	1800	68	54 - 120	
2-Nitrophenol	2670	1680	63	56 - 120	
4-Nitrophenol	5330	4300	81	63 - 121	
N-Nitrosodi-n-propylamine	2670	1870	70	51 - 120	
N-Nitrosodiphenylamine	5330	3720	70	61 - 120	
Pentachlorophenol	5330	2820	53	56 - 120	T
Phenanthrene	2670	1840	69	64 - 120	
Phenol	2680	1820	68	56 - 120	
Pyrene	2670	1870	70	64 - 120	
1,2,4-Trichlorobenzene	2670	1650	62	52 - 120	
2,4,5-Trichlorophenol	2670	1810	68	64 - 120	
2,4,6-Trichlorophenol	2670	1830	69	61 - 120	

Surrogate	% Rec	Acceptance Limits
2-Fluorobiphenyl	64	50 - 120
2-Fluorophenol	63	53 - 120
Nitrobenzene-d5	66	50 - 120
Phenol-d5	68	52 - 120
Terphenyl-d14	62	55 - 120
2,4,6-Tribromophenol	70	51 - 120

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268785

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-66648-2	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9432.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.0 g
Analysis Date:	03/20/2015 1914			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-66648-2	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9433.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.8 g
Analysis Date:	03/20/2015 1942			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	74	67	60 - 120	16	30		
Acenaphthylene	79	70	64 - 120	17	30		
Anthracene	82	70	63 - 120	21	30		
Benzo[a]anthracene	81	71	65 - 120	19	30		
Benzo[a]pyrene	83	73	59 - 120	18	30		
Benzo[b]fluoranthene	80	71	47 - 129	18	44		
Benzo[ghi]perylene	82	72	55 - 126	18	31		
Benzo[k]fluoranthene	81	70	48 - 130	20	30		
Bis(2-chloroethoxy)methane	71	64	56 - 120	16	30		
Bis(2-chloroethyl)ether	68	60	51 - 120	18	30		
bis (2-chloroisopropyl) ether	71	63	49 - 120	17	30		
Bis(2-ethylhexyl) phthalate	87	75	65 - 120	20	30		
4-Bromophenyl phenyl ether	80	70	64 - 120	18	30		
Butyl benzyl phthalate	84	74	65 - 120	19	30		
Carbazole	81	70	64 - 120	19	30		
4-Chloroaniline	60	55	28 - 120	15	30		
4-Chloro-3-methylphenol	82	73	63 - 120	18	30		
2-Chloronaphthalene	72	65	59 - 120	17	30		
2-Chlorophenol	73	65	57 - 120	17	30		
4-Chlorophenyl phenyl ether	77	69	64 - 120	17	30		
Chrysene	81	72	64 - 120	18	35		
Dibenz(a,h)anthracene	82	74	50 - 133	17	30		
Dibenzofuran	76	68	61 - 120	17	30		
1,2-Dichlorobenzene	66	59	53 - 120	17	30		
1,3-Dichlorobenzene	66	57	52 - 120	19	32		
1,4-Dichlorobenzene	65	59	52 - 120	16	30		
3,3'-Dichlorobenzidine	68	62	30 - 120	16	30		
2,4-Dichlorophenol	75	67	60 - 120	17	30		
Diethyl phthalate	81	73	66 - 120	15	30		
2,4-Dimethylphenol	79	70	54 - 120	18	30		
Dimethyl phthalate	78	71	65 - 120	16	30		
Di-n-butyl phthalate	83	74	67 - 120	18	30		
4,6-Dinitro-2-methylphenol	74	65	57 - 120	19	30		

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268785

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-66648-2	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9432.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.0 g
Analysis Date:	03/20/2015 1914			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-66648-2	Analysis Batch:	280-268939	Instrument ID:	SMS_D
Client Matrix:	Solid	Prep Batch:	280-268785	Lab File ID:	D9433.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.8 g
Analysis Date:	03/20/2015 1942			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 1537			Injection Volume:	0.5 uL
Leach Date:	N/A				

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
2,4-Dinitrophenol	66	59	46 - 120	16	34		
2,4-Dinitrotoluene	80	74	68 - 120	14	30		
2,6-Dinitrotoluene	79	71	64 - 120	17	30		
Di-n-octyl phthalate	83	73	66 - 120	19	30		
Fluoranthene	82	72	66 - 120	19	30		
Fluorene	78	71	64 - 120	16	30		
Hexachlorobenzene	82	72	62 - 120	19	30		
Hexachlorobutadiene	69	62	53 - 120	17	30		
Hexachlorocyclopentadiene	73	64	47 - 120	19	30		
Hexachloroethane	70	61	51 - 120	19	30		
Indeno[1,2,3-cd]pyrene	83	73	63 - 120	18	30		
Isophorone	78	70	56 - 120	17	30		
2-Methylnaphthalene	73	65	57 - 120	18	30		
2-Methylphenol	75	66	56 - 120	18	30		
3 & 4 Methylphenol	77	69	53 - 120	16	30		
Naphthalene	70	62	57 - 120	19	30		
2-Nitroaniline	86	76	63 - 120	18	30		
3-Nitroaniline	67	62	47 - 120	13	30		
4-Nitroaniline	78	71	64 - 120	15	30		
Nitrobenzene	74	66	54 - 120	17	30		
2-Nitrophenol	71	65	56 - 120	15	30		
4-Nitrophenol	90	81	63 - 121	16	30		
N-Nitrosodi-n-propylamine	77	69	51 - 120	17	30		
N-Nitrosodiphenylamine	82	71	61 - 120	20	36		
Pentachlorophenol	63	53	56 - 120	23	30		T
Phenanthrene	82	72	64 - 120	19	30		
Phenol	76	66	56 - 120	20	30		
Pyrene	83	72	64 - 120	19	38		
1,2,4-Trichlorobenzene	69	62	52 - 120	16	30		
2,4,5-Trichlorophenol	78	70	64 - 120	16	30		
2,4,6-Trichlorophenol	77	69	61 - 120	16	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorobiphenyl	72	64	50 - 120

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
2-Fluorophenol	71	62	53 - 120
Nitrobenzene-d5	72	64	50 - 120
Phenol-d5	73	66	52 - 120
Terphenyl-d14	74	65	55 - 120
2,4,6-Tribromophenol	79	71	51 - 120

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268785

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-66648-2	Units:	ug/Kg	MSD Lab Sample ID:	280-66648-2
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1914			Analysis Date:	03/20/2015 1942
Prep Date:	03/19/2015 1537			Prep Date:	03/19/2015 1537
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Acenaphthene	10	U	2670	2520	1980	1690
Acenaphthylene	17	U	2670	2520	2100	1770
Anthracene	17	U	2670	2520	2180	1770
Benzo[a]anthracene	20	U	2670	2520	2170	1800
Benzo[a]pyrene	20	U	2670	2520	2210	1840
Benzo[b]fluoranthene	26	U	2670	2520	2140	1790
Benzo[ghi]perylene	16	U	2670	2520	2190	1820
Benzo[k]fluoranthene	40	U	2670	2520	2160	1770
Bis(2-chloroethoxy)methane	23	U	2670	2520	1910	1620
Bis(2-chloroethyl)ether	16	U	2670	2520	1810	1500
bis (2-chloroisopropyl) ether	23	U	2670	2520	1890	1590
Bis(2-ethylhexyl) phthalate	46	U	2670	2520	2320	1890
4-Bromophenyl phenyl ether	19	U	2670	2520	2120	1770
Butyl benzyl phthalate	43	U	2670	2520	2250	1850
Carbazole	36	U	2670	2520	2150	1770
4-Chloroaniline	81	U	2670	2520	1610	1380
4-Chloro-3-methylphenol	65	U	2670	2520	2190	1830
2-Chloronaphthalene	9.9	U	2670	2520	1930	1630
2-Chlorophenol	21	U	2670	2520	1940	1630
4-Chlorophenyl phenyl ether	21	U	2670	2520	2070	1740
Chrysene	27	U	2680	2520	2170	1820
Dibenz(a,h)anthracene	19	U	2670	2520	2200	1850
Dibenzofuran	20	U	2670	2520	2040	1710
1,2-Dichlorobenzene	22	U	2680	2520	1770	1490
1,3-Dichlorobenzene	12	U	2670	2520	1750	1450
1,4-Dichlorobenzene	13	U	2670	2520	1750	1490
3,3'-Dichlorobenzidine	89	U	2670	2520	1810	1550
2,4-Dichlorophenol	9.9	U	2670	2520	2010	1700
Diethyl phthalate	29	J	2670	2520	2180	1870
2,4-Dimethylphenol	65	U	2670	2520	2110	1750
Dimethyl phthalate	23	U	2670	2520	2090	1790
Di-n-butyl phthalate	29	U	2670	2520	2230	1860
4,6-Dinitro-2-methylphenol	330	U	5340	5030	3960	3280
2,4-Dinitrophenol	330	U	5340	5040	3500	2980
2,4-Dinitrotoluene	65	U	2670	2520	2130	1860
2,6-Dinitrotoluene	28	U	2670	2520	2100	1780
Di-n-octyl phthalate	14	U	2670	2520	2230	1850
Fluoranthene	36	U	2670	2520	2190	1810
Fluorene	18	U	2670	2520	2090	1770
Hexachlorobenzene	29	U	2670	2520	2190	1820
Hexachlorobutadiene	9.9	U	2670	2520	1850	1550
Hexachlorocyclopentadiene	50	U	2670	2520	1950	1620
Hexachloroethane	21	U	2670	2520	1880	1550

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268785

Method: 8270C
Preparation: 3550C

MS Lab Sample ID:	280-66648-2	Units:	ug/Kg	MSD Lab Sample ID:	280-66648-2
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1914			Analysis Date:	03/20/2015 1942
Prep Date:	03/19/2015 1537			Prep Date:	03/19/2015 1537
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual	
Indeno[1,2,3-cd]pyrene	22	U	2670	2520	2210	1850	
Isophorone	17	U	2670	2510	2090	1750	
2-Methylnaphthalene	19	U	2660	2510	1960	1640	
2-Methylphenol	13	U	2670	2520	1990	1670	
3 & 4 Methylphenol	33	U	2670	2520	2050	1740	
Naphthalene	31	U	2670	2520	1880	1560	
2-Nitroaniline	50	U	2670	2520	2310	1920	
3-Nitroaniline	72	U	2670	2520	1780	1560	
4-Nitroaniline	72	U	2670	2520	2080	1800	
Nitrobenzene	22	U	2670	2520	1980	1660	
2-Nitrophenol	9.9	U	2670	2520	1890	1630	
4-Nitrophenol	96	U	5330	5030	4800	4080	
N-Nitrosodi-n-propylamine	31	U	2670	2520	2050	1730	
N-Nitrosodiphenylamine	21	U	5330	5030	4380	3590	
Pentachlorophenol	330	U	5330	5030	3360	2670	T
Phenanthrene	17	U	2670	2510	2180	1810	
Phenol	18	U	2680	2520	2040	1670	
Pyrene	12	U	2670	2510	2200	1820	
1,2,4-Trichlorobenzene	28	U	2670	2520	1830	1550	
2,4,5-Trichlorophenol	9.9	U	2670	2520	2080	1760	
2,4,6-Trichlorophenol	9.9	U	2670	2520	2050	1750	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268825

Method: 8081A
Preparation: 3550C

Lab Sample ID:	MB 280-268825/1-A	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268825	Lab File ID:	03200020.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.1 g
Analysis Date:	03/20/2015 1717	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1811			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
4,4'-DDD	0.53	U	0.53	1.6
4,4'-DDE	0.23	U	0.23	1.6
4,4'-DDT	0.57	U	0.57	1.6
Aldrin	0.24	U	0.24	1.6
alpha-BHC	0.21	U	0.21	1.6
beta-BHC	0.64	U	0.64	1.6
delta-BHC	0.39	U	0.39	1.6
gamma-BHC (Lindane)	0.45	U	0.45	1.6
Heptachlor	0.21	U	0.21	1.6
Heptachlor epoxide	0.41	U	0.41	1.6
Endosulfan I	0.17	U	0.17	1.6
Endosulfan II	0.28	U	0.28	1.6
Endosulfan sulfate	0.27	U	0.27	1.6
Endrin	0.30	U	0.30	1.6
Endrin aldehyde	0.16	U	0.16	1.6
Endrin ketone	0.47	U	0.47	1.6
gamma-Chlordane	0.26	U	0.26	1.6
Methoxychlor	0.43	U	0.43	3.2
alpha-Chlordane	0.31	U	0.31	1.6
Dieldrin	0.20	U	0.20	1.6
Toxaphene	15	U	15	160

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	80	59 - 115
Decachlorobiphenyl	85	63 - 124

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Control Sample - Batch: 280-268825

Method: 8081A
Preparation: 3550C

Lab Sample ID:	LCS 280-268825/2-A	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268825	Lab File ID:	03200016.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.0 g
Analysis Date:	03/20/2015 1610	Units:	ug/Kg	Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1811			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
4,4'-DDD	16.7	14.9	90	69 - 126	
4,4'-DDE	16.7	14.4	86	71 - 116	
4,4'-DDT	16.7	15.5	93	67 - 132	
Aldrin	16.7	15.1	90	69 - 116	
alpha-BHC	16.7	14.9	89	65 - 122	
beta-BHC	16.7	14.3	86	62 - 121	
delta-BHC	16.7	14.9	90	67 - 122	
gamma-BHC (Lindane)	16.7	14.6	88	66 - 120	
Heptachlor	16.7	15.4	92	61 - 126	
Heptachlor epoxide	16.7	14.9	90	71 - 119	
Endosulfan I	16.7	13.3	80	67 - 115	
Endosulfan II	16.7	13.7	82	69 - 120	
Endosulfan sulfate	16.7	16.2	97	69 - 126	
Endrin	16.7	16.1	96	69 - 129	
Endrin aldehyde	16.7	13.5	81	41 - 128	
Endrin ketone	16.7	13.8	83	70 - 125	
gamma-Chlordane	16.7	14.7	88	69 - 122	
Methoxychlor	16.7	16.2	97	65 - 139	
alpha-Chlordane	16.7	14.6	88	71 - 118	
Dieldrin	16.7	15.1	91	71 - 120	

Surrogate	% Rec	Acceptance Limits
Tetrachloro-m-xylene	81	59 - 115
Decachlorobiphenyl	88	63 - 124

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268825

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268825	Lab File ID:	03200018.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.0 g
Analysis Date:	03/20/2015 1644			Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1811			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-66648-1	Analysis Batch:	280-268949	Instrument ID:	SGC_P2
Client Matrix:	Solid	Prep Batch:	280-268825	Lab File ID:	03200019.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.2 g
Analysis Date:	03/20/2015 1701			Final Weight/Volume:	10 mL
Prep Date:	03/19/2015 1811			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
4,4'-DDD	91	98	69 - 126	10	20		
4,4'-DDE	82	80	71 - 116	0	15		
4,4'-DDT	92	91	67 - 132	1	29		
Aldrin	88	89	69 - 116	3	50		
alpha-BHC	88	89	65 - 122	4	17		
beta-BHC	83	83	62 - 121	4	17		
delta-BHC	86	87	67 - 122	3	19		
gamma-BHC (Lindane)	85	85	66 - 120	3	24		
Heptachlor	89	89	61 - 126	3	18		
Heptachlor epoxide	87	87	71 - 119	3	18		
Endosulfan I	77	77	67 - 115	3	26		
Endosulfan II	80	79	69 - 120	1	20		
Endosulfan sulfate	92	92	69 - 126	3	22		
Endrin	95	94	69 - 129	2	30		
Endrin aldehyde	81	81	41 - 128	2	29		
Endrin ketone	81	81	70 - 125	2	20		
gamma-Chlordane	81	81	69 - 122	3	21		
Methoxychlor	94	95	65 - 139	4	23		
alpha-Chlordane	85	84	71 - 118	2	18		
Dieldrin	88	88	71 - 120	3	25		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Tetrachloro-m-xylene	78	80	59 - 115
Decachlorobiphenyl	92	95	63 - 124

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268825

Method: 8081A
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66648-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1644			Analysis Date:	03/20/2015 1701
Prep Date:	03/19/2015 1811			Prep Date:	03/19/2015 1811
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
4,4'-DDD	0.56	U	16.8	17.3	15.4	16.9
4,4'-DDE	0.24	U	16.8	17.3	13.8	13.8
4,4'-DDT	0.60	U	16.8	17.3	15.5	15.7
Aldrin	0.26	U	16.8	17.3	14.8	15.3
alpha-BHC	0.22	U	16.8	17.3	14.7	15.3
beta-BHC	0.68	U	16.8	17.3	13.9	14.4
delta-BHC	0.41	U	16.8	17.3	14.5	15.0
gamma-BHC (Lindane)	0.47	U	16.8	17.3	14.3	14.7
Heptachlor	0.22	U	16.8	17.3	14.9	15.3
Heptachlor epoxide	0.43	U	16.8	17.3	14.7	15.0
Endosulfan I	0.18	U	16.8	17.3	13.0	13.3
Endosulfan II	0.29	U	16.8	17.3	13.5	13.6
Endosulfan sulfate	0.28	U	16.8	17.3	15.5	16.0
Endrin	0.31	U	16.8	17.3	16.0	16.3
Endrin aldehyde	0.17	U	16.8	17.3	13.7	13.9
Endrin ketone	0.50	U	16.8	17.3	13.7	13.9
gamma-Chlordane	0.27	U	16.8	17.3	13.6	14.1
Methoxychlor	0.46	U	16.8	17.3	15.8	16.4
alpha-Chlordane	0.33	U	16.8	17.3	14.2	14.5
Dieldrin	0.21	U	16.8	17.3	14.8	15.2

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268810

Method: 8082
Preparation: 3550C

Lab Sample ID:	MB 280-268810/1-A	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268810	Lab File ID:	0320B015.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1535	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1733			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Aroclor 1016	2.8	U	2.8	10
Aroclor 1221	8.0	U	8.0	17
Aroclor 1232	2.0	U	2.0	10
Aroclor 1242	4.7	U	4.7	10
Aroclor 1248	4.7	U	4.7	10
Aroclor 1254	2.6	U	2.6	10
Aroclor 1260	2.6	U	2.6	10

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	76	59 - 130
Tetrachloro-m-xylene	75	53 - 128

Lab Control Sample - Batch: 280-268810

Method: 8082
Preparation: 3550C

Lab Sample ID:	LCS 280-268810/2-A	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268810	Lab File ID:	0320B016.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1557	Units:	ug/Kg	Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1733			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aroclor 1016	33.3	24.7	74	54 - 132	
Aroclor 1260	33.3	24.2	73	62 - 129	

Surrogate	% Rec	Acceptance Limits
Decachlorobiphenyl	81	59 - 130
Tetrachloro-m-xylene	78	53 - 128

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268810

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268810	Lab File ID:	0320B018.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.7 g
Analysis Date:	03/20/2015 1640			Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1733			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-66648-1	Analysis Batch:	280-268917	Instrument ID:	SGC_P3b
Client Matrix:	Solid	Prep Batch:	280-268810	Lab File ID:	0320B019.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	31.3 g
Analysis Date:	03/20/2015 1701			Final Weight/Volume:	5 mL
Prep Date:	03/19/2015 1733			Injection Volume:	1 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Aroclor 1016	72	67	54 - 132	5	26		
Aroclor 1260	73	70	62 - 129	2	26		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Decachlorobiphenyl	74	70	59 - 130
Tetrachloro-m-xylene	77	70	53 - 128

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268810

Method: 8082
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66648-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1640			Analysis Date:	03/20/2015 1701
Prep Date:	03/19/2015 1733			Prep Date:	03/19/2015 1733
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Aroclor 1016	2.8	U	32.9	33.3	23.7	22.4
Aroclor 1260	2.6	U	32.9	33.3	23.9	23.4

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268846

Method: NWTPH-Dx
Preparation: 3550C

Lab Sample ID:	MB 280-268846/1-A	Analysis Batch:	280-269265	Instrument ID:	SGC_U2a
Client Matrix:	Solid	Prep Batch:	280-268846	Lab File ID:	03230005.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/23/2015 1617	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 2158			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
C10-C36	1000	U	1000	4000
C10-C28	680	U	680	4000

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	69	49 - 115

Lab Control Sample - Batch: 280-268846

Method: NWTPH-Dx
Preparation: 3550C

Lab Sample ID:	LCS 280-268846/2-A	Analysis Batch:	280-269265	Instrument ID:	SGC_U2a
Client Matrix:	Solid	Prep Batch:	280-268846	Lab File ID:	03230006.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/23/2015 1642	Units:	ug/Kg	Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 2158			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
C10-C36	66700	54500	82	57 - 115	
C10-C28	66700	54200	81	53 - 115	

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	69	49 - 115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268846

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Analysis Batch:	280-269265	Instrument ID:	SGC_U2a
Client Matrix:	Solid	Prep Batch:	280-268846	Lab File ID:	03230008.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.3 g
Analysis Date:	03/23/2015 1731			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 2158			Injection Volume:	1 uL
Leach Date:	N/A				

MSD Lab Sample ID:	280-66648-1	Analysis Batch:	280-269265	Instrument ID:	SGC_U2a
Client Matrix:	Solid	Prep Batch:	280-268846	Lab File ID:	03230009.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.4 g
Analysis Date:	03/23/2015 1756			Final Weight/Volume:	1 mL
Prep Date:	03/19/2015 2158			Injection Volume:	1 uL
Leach Date:	N/A				

Analyte	% Rec. MS	% Rec. MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
C10-C36	78	83	57 - 115	5	23		
C10-C28	79	83	56 - 115	5	23		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
o-Terphenyl	71	74	49 - 115

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268846

Method: NWTPH-Dx
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66648-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/23/2015 1731			Analysis Date:	03/23/2015 1756
Prep Date:	03/19/2015 2158			Prep Date:	03/19/2015 2158
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual	MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
C10-C36	7400	68800	68600	60800	64100
C10-C28	4600	68800	68600	58800	61500

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268796

Method: 8310
Preparation: 3550C

Lab Sample ID:	MB 280-268796/1-A	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268796	Lab File ID:	G0320011.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1203	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1637			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
Acenaphthene	10	U	10	100
Acenaphthylene	9.0	U	9.0	100
Anthracene	3.1	U	3.1	20
Benzo[a]anthracene	3.2	U	3.2	15
Benzo[a]pyrene	6.4	U	6.4	15
Benzo[b]fluoranthene	4.2	U	4.2	15
Benzo[g,h,i]perylene	7.2	U	7.2	30
Benzo[k]fluoranthene	3.9	U	3.9	15
Chrysene	4.8	U	4.8	40
Dibenzo(a,h)anthracene	11	U	11	30
Fluoranthene	13	U	13	40
Fluorene	5.3	U	5.3	30
Indeno[1,2,3-cd]pyrene	12	U	12	30
Naphthalene	12	U	12	100
Phenanthrene	12	U	12	40
Pyrene	12	U	12	40

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	91	72 - 115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Control Sample - Batch: 280-268796

Method: 8310
Preparation: 3550C

Lab Sample ID:	LCS 280-268796/2-A	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268796	Lab File ID:	G0320012.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30 g
Analysis Date:	03/20/2015 1234	Units:	ug/Kg	Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1637			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Acenaphthene	2000	1670	83	75 - 116	
Acenaphthylene	2000	1660	83	66 - 115	
Anthracene	2000	1630	81	71 - 115	
Benzo[a]anthracene	2000	1810	90	77 - 120	
Benzo[a]pyrene	2000	1640	82	69 - 115	
Benzo[b]fluoranthene	2000	1750	87	56 - 115	
Benzo[g,h,i]perylene	2000	1950	97	72 - 120	
Benzo[k]fluoranthene	2000	1790	89	76 - 115	
Chrysene	2000	1770	89	79 - 115	
Dibenzo(a,h)anthracene	2000	1690	84	72 - 115	
Fluoranthene	2000	1790	89	77 - 115	
Fluorene	2000	1760	88	77 - 115	
Indeno[1,2,3-cd]pyrene	2000	1770	89	78 - 115	
Naphthalene	2000	1600	80	68 - 120	
Phenanthrene	2000	1670	84	75 - 115	
Pyrene	2000	1870	94	72 - 115	

Surrogate	% Rec	Acceptance Limits
Terphenyl-d14 (SUR)	90	72 - 115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268796

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268796	Lab File ID:	G0320014.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.9 g
Analysis Date:	03/20/2015 1335			Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1637			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-66648-1	Analysis Batch:	280-268877	Instrument ID:	CHHPLC_G
Client Matrix:	Solid	Prep Batch:	280-268796	Lab File ID:	G0320015.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	30.8 g
Analysis Date:	03/20/2015 1405			Final Weight/Volume:	4 mL
Prep Date:	03/19/2015 1637			Injection Volume:	20 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
Acenaphthene	83	77	75 - 116	8	20		
Acenaphthylene	81	80	66 - 115	1	20		
Anthracene	80	78	71 - 115	2	20		
Benzo[a]anthracene	88	84	77 - 120	4	20		
Benzo[a]pyrene	91	79	69 - 115	14	20		
Benzo[b]fluoranthene	91	82	56 - 115	11	20		
Benzo[g,h,i]perylene	98	92	72 - 120	6	20		
Benzo[k]fluoranthene	91	84	76 - 115	9	20		
Chrysene	88	83	79 - 115	5	20		
Dibenzo(a,h)anthracene	87	79	72 - 115	9	20		
Fluoranthene	87	84	77 - 115	3	20		
Fluorene	86	84	77 - 115	2	20		
Indeno[1,2,3-cd]pyrene	88	83	78 - 115	6	20		
Naphthalene	79	77	68 - 120	2	20		
Phenanthrene	82	80	75 - 115	2	20		
Pyrene	91	88	72 - 115	3	20		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
Terphenyl-d14 (SUR)	87	84	72 - 115

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-268796

Method: 8310
Preparation: 3550C

MS Lab Sample ID:	280-66648-1	Units:	ug/Kg	MSD Lab Sample ID:	280-66648-1
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 1335			Analysis Date:	03/20/2015 1405
Prep Date:	03/19/2015 1637			Prep Date:	03/19/2015 1637
Leach Date:	N/A			Leach Date:	N/A

Analyte	Sample Result/Qual		MS Spike Amount	MSD Spike Amount	MS Result/Qual	MSD Result/Qual
Acenaphthene	10	U	2020	2030	1690	1570
Acenaphthylene	9.3	U	2020	2030	1640	1610
Anthracene	3.1	U	2020	2030	1610	1580
Benzo[a]anthracene	3.3	U	2020	2030	1780	1720
Benzo[a]pyrene	6.6	U	2020	2030	1840	1590
Benzo[b]fluoranthene	5.4	J	2020	2030	1860	1660
Benzo[g,h,i]perylene	7.4	U	2020	2030	1980	1870
Benzo[k]fluoranthene	4.1	U	2020	2030	1850	1700
Chrysene	7.5	J	2020	2030	1780	1690
Dibenzo(a,h)anthracene	11	U	2020	2030	1750	1600
Fluoranthene	13	U	2020	2030	1760	1710
Fluorene	5.4	U	2020	2030	1740	1710
Indeno[1,2,3-cd]pyrene	12	U	2020	2030	1780	1690
Naphthalene	12	U	2020	2030	1600	1570
Phenanthrene	12	U	2020	2030	1660	1630
Pyrene	12	U	2020	2030	1850	1800

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268822

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-268822/1-A	Analysis Batch:	280-269256	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-268822	Lab File ID:	26e032015.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/20/2015 2339	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/20/2015 0900				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	2.06	B	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.206	B	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Chromium	0.058	U	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Lead	0.27	U	0.27	0.50
Manganese	0.104	B	0.10	1.0
Molybdenum	0.26	U	0.26	2.0
Nickel	0.12	U	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.40	U	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Control Sample - Batch: 280-268822

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-268822/2-A	Analysis Batch:	280-269256	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-268822	Lab File ID:	26e032015.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/20/2015 2342	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/20/2015 0900				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	202.2	101	82 - 116	
Antimony	50.0	50.74	101	82 - 110	
Arsenic	100	94.53	95	85 - 110	
Barium	200	191.1	96	87 - 112	
Beryllium	5.00	4.89	98	84 - 114	
Boron	100	97.76	98	80 - 120	
Cadmium	10.0	9.57	96	87 - 110	
Chromium	20.0	18.77	94	84 - 114	
Cobalt	50.0	47.67	95	87 - 110	
Lead	50.0	48.00	96	86 - 110	
Manganese	50.0	47.40	95	88 - 110	
Molybdenum	100	96.71	97	86 - 110	
Nickel	50.0	46.65	93	87 - 110	
Potassium	5000	4872	97	89 - 110	
Selenium	200	183.3	92	83 - 110	
Silver	5.00	4.38	88	87 - 114	
Sodium	5000	5117	102	90 - 112	
Vanadium	50.0	48.09	96	88 - 110	
Zinc	50.0	46.66	93	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike - Batch: 280-268822

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269256	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-268822	Lab File ID:	26e032015.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.03 g
Analysis Date:	03/20/2015 2352	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/20/2015 0900				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	8000		202	8235	118	50 - 200	4
Antimony	0.51	B	50.6	33.41	65	20 - 200	
Arsenic	5.3		101	93.10	87	76 - 111	
Barium	160		202	292.0	65	52 - 159	
Beryllium	0.85		5.06	5.62	94	72 - 105	
Boron	25.7		101	103.7	77	80 - 120	N
Cadmium	0.075	B	10.1	9.34	92	40 - 130	
Chromium	10.2		20.2	29.26	94	70 - 200	
Cobalt	5.7		50.6	51.37	90	72 - 106	
Lead	11.7		50.6	53.80	83	70 - 200	
Manganese	264		50.6	334.2	140	40 - 200	4
Molybdenum	0.31	B	101	91.10	90	75 - 103	
Nickel	12.8		50.6	55.28	84	61 - 126	
Potassium	789		5060	5674	97	56 - 172	
Selenium	0.75	U	202	173.2	86	76 - 104	
Silver	0.14	U	5.06	4.17	82	75 - 141	
Sodium	498		5060	5304	95	78 - 111	
Vanadium	43.5		50.6	97.36	107	50 - 169	
Zinc	34.7		50.6	81.73	93	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Duplicate - Batch: 280-268822

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269256	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-268822	Lab File ID:	26e032015.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.10 g
Analysis Date:	03/20/2015 2350	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/20/2015 0900				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	8000		7078	12	40	
Antimony	0.51	B	0.565	10	40	B
Arsenic	5.3		3.76	33	30	M
Barium	160		111.3	36	30	M
Beryllium	0.85		0.809	5	30	
Boron	25.7		14.55	55	30	M
Cadmium	0.075	B	0.0730	3	30	B
Chromium	10.2		9.55	6	40	
Cobalt	5.7		5.68	0.09	30	
Lead	11.7		7.82	40	40	
Manganese	264		263.1	0.2	40	
Molybdenum	0.31	B	0.25	NC	30	U
Nickel	12.8		12.15	5	30	
Potassium	789		734.7	7	40	
Selenium	0.75	U	0.82	NC	30	U
Silver	0.14	U	0.15	NC	30	U
Sodium	498		288.3	53	30	M
Vanadium	43.5		44.05	1	30	
Zinc	34.7		33.81	3	40	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-269339

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-269339/1-A	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269339	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/25/2015 1317	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/24/2015 0800				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Calcium	16.29	B	14.1	50.0
Copper	0.259	B	0.22	1.0
Iron	3.8	U	3.8	5.0
Magnesium	4.97	B	3.7	20.0
Silicon	5.7	U	5.7	10.0

Lab Control Sample - Batch: 280-269339

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-269339/2-A	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269339	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	03/25/2015 1319	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/24/2015 0800				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Calcium	5000	4761	95	82 - 114	
Copper	25.0	25.30	101	88 - 110	
Iron	100	97.68	98	87 - 120	
Magnesium	5000	4823	96	90 - 110	
Silicon	1000	48.98	5	10 - 70	N

Matrix Spike - Batch: 280-269339

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269339	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.18 g
Analysis Date:	03/25/2015 1329	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/24/2015 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Calcium	6350	4420	11230	110	43 - 165	
Copper	16.4	22.1	34.59	82	37 - 187	
Iron	17500	88.3	16660	-996	70 - 200	4
Magnesium	4490	4420	8463	90	64 - 145	
Silicon	257	883	302.5	5	20 - 200	N

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Duplicate - Batch: 280-269339

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269682	Instrument ID:	MT_026
Client Matrix:	Solid	Prep Batch:	280-269339	Lab File ID:	26AA032515.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.11 g
Analysis Date:	03/25/2015 1327	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	03/24/2015 0800				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Calcium	6350	6618	4	30	
Copper	16.4	15.65	5	30	
Iron	17500	16160	8	40	
Magnesium	4490	4022	11	30	
Silicon	257	255.4	0.5	40	N

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-268693

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-268693/1-A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268693	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	03/19/2015 1507	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-268693

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-268693/2-A	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268693	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.60 g
Analysis Date:	03/19/2015 1510	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.424	102	87 - 111	

Matrix Spike - Batch: 280-268693

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268693	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.57 g
Analysis Date:	03/19/2015 1517	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.0092	B	0.457	0.473	102	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Duplicate - Batch: 280-268693

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-268911	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-268693	Lab File ID:	150319ac.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.53 g
Analysis Date:	03/19/2015 1514	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	03/19/2015 1215				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Mercury	0.0092	B	0.0065	NC	20	U

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-269379

Method: 353.2
Preparation: N/A

Lab Sample ID:	MB 280-269276/1-A	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269276	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1541	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1027				

Analyte	Result	Qual	MDL	RL
Nitrate Nitrite as N-Soluble	0.36	U	0.36	0.75

Method Reporting Limit Check - Batch: 280-269379

Method: 353.2
Preparation: N/A

Lab Sample ID:	MRL 280-269379/18	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	100 mL
Analysis Date:	03/23/2015 1259	Units:	mg/L	Final Weight/Volume:	100 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	0.100	0.0797	80	50 - 150	B

Lab Control Sample - Batch: 280-269379

Method: 353.2
Preparation: N/A

Lab Sample ID:	LCS 280-269276/2-A	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269276	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1543	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1027				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	50.0	51.55	103	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike - Batch: 280-269379

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269276	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1549	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1027				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate Nitrite as N-Soluble	2.9	40.7	44.98	103	90 - 110	

Duplicate - Batch: 280-269379

Method: 353.2
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269379	Instrument ID:	WC_Alp 2
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	C:\FLOW_4\032315.RST
Dilution:	1.0	Leach Batch:	280-269276	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1547	Units:	mg/Kg	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/23/2015 1027				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Nitrate Nitrite as N-Soluble	2.9	3.01	3	10	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-269104

Method: 9045C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-268857/1-A	Analysis Batch:	280-269104	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	280-268857	Initial Weight/Volume:	
Analysis Date:	03/20/2015 2157	Units:	SU	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/19/2015 2138				

LCSD Lab Sample ID:	LCSD 280-268857/4-A	Analysis Batch:	280-269104	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	280-268857	Initial Weight/Volume:	
Analysis Date:	03/20/2015 2157	Units:	SU	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/20/2015 1755				

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
pH adj. to 25 deg C-Soluble	100	100	97 - 103	0	5		

Laboratory Control/
Laboratory Duplicate Data Report - Batch: 280-269104

Method: 9045C
Preparation: N/A

LCS Lab Sample ID:	LCS 280-268857/1-A	Units:	SU	LCSD Lab Sample ID:	LCSD 280-268857/4-A
Client Matrix:	Solid			Client Matrix:	Solid
Dilution:	1.0			Dilution:	1.0
Analysis Date:	03/20/2015 2157			Analysis Date:	03/20/2015 2157
Prep Date:	N/A			Prep Date:	N/A
Leach Date:	03/19/2015 2138			Leach Date:	03/20/2015 1755

Analyte	LCS Spike Amount	LCSD Spike Amount	LCS Result/Qual	LCSD Result/Qual
pH adj. to 25 deg C-Soluble	7.00	7.00	7.030	7.020

Duplicate - Batch: 280-269104

Method: 9045C
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269104	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	280-268857	Initial Weight/Volume:	
Analysis Date:	03/20/2015 2157	Units:	SU	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	03/19/2015 2139				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
pH adj. to 25 deg C-Soluble	8.93	8.890	0.4	5	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-269015

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-269040/2-A	Analysis Batch:	280-269015	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0021.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 2017	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	03/20/2015 1633				

Analyte	Result	Qual	MDL	RL
Nitrate as N-Soluble	0.31	U	0.31	2.5
Nitrite as N-Soluble	0.34	U	0.34	2.5
Orthophosphate as P-Soluble	1.2	U	1.2	5.0

Method Reporting Limit Check - Batch: 280-269015

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-269015/3	Analysis Batch:	280-269015	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0010.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 1638	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	0.200	0.260	130	50 - 150	B
Nitrite as N-Soluble	0.200	0.240	120	50 - 150	B
Orthophosphate as P-Soluble	0.200	0.231	116	50 - 150	B

Lab Control Sample - Batch: 280-269015

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-269040/1-A	Analysis Batch:	280-269015	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0020.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 1957	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	03/20/2015 1633				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	50.0	52.04	104	90 - 110	
Nitrite as N-Soluble	50.0	50.24	100	90 - 110	
Orthophosphate as P-Soluble	50.0	53.84	108	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike - Batch: 280-269015

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269015	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0026.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 2157	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	03/20/2015 1633				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Nitrate as N-Soluble	3.1		51.1	58.19	108	80 - 120	
Nitrite as N-Soluble	0.34	U	51.1	55.65	109	80 - 120	
Orthophosphate as P-Soluble	1.2	U	51.1	51.06	100	80 - 120	

Duplicate - Batch: 280-269015

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269015	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0023.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 2057	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	03/20/2015 1633				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Nitrate as N-Soluble	3.1		3.06	0.7	15	
Nitrite as N-Soluble	0.34	U	0.34	NC	15	U
Orthophosphate as P-Soluble	1.2	U	1.2	NC	15	U

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Method Blank - Batch: 280-269016

Method: 9056M
Preparation: N/A

Lab Sample ID:	MB 280-269040/2-A	Analysis Batch:	280-269016	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0021.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 2017	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	03/20/2015 1633				

Analyte	Result	Qual	MDL	RL
Chloride-Soluble	6.89		2.0	5.0
Bromide-Soluble	0.39	U	0.39	2.0
Sulfate-Soluble	1.7	U	1.7	5.0
Fluoride-Soluble	0.82	U	0.82	5.0

Method Reporting Limit Check - Batch: 280-269016

Method: 9056M
Preparation: N/A

Lab Sample ID:	MRL 280-269016/3	Analysis Batch:	280-269016	Instrument ID:	WC_IonChrom11
Client Matrix:	Water	Prep Batch:	N/A	Lab File ID:	0010.d
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 1638	Units:	mg/L	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	2.50	2.43	97	50 - 150	B
Bromide-Soluble	0.200	0.238	119	50 - 150	
Sulfate-Soluble	2.50	2.48	99	50 - 150	B
Fluoride-Soluble	0.200	0.238	119	50 - 150	B

Lab Control Sample - Batch: 280-269016

Method: 9056M
Preparation: N/A

Lab Sample ID:	LCS 280-269040/1-A	Analysis Batch:	280-269016	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0020.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 1957	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				
Leach Date:	03/20/2015 1633				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	1000	1011	101	90 - 110	
Bromide-Soluble	50.0	51.25	102	90 - 110	
Sulfate-Soluble	1000	987.1	99	90 - 110	
Fluoride-Soluble	50.0	48.78	98	90 - 110	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Matrix Spike - Batch: 280-269016

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269016	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0026.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 2157	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	03/20/2015 1633				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Chloride-Soluble	30.1		255	272.4	95	80 - 120	
Bromide-Soluble	0.39	U	51.1	54.71	107	80 - 120	
Sulfate-Soluble	13.4		256	245.1	91	80 - 120	
Fluoride-Soluble	1.3	B	51.1	46.42	88	80 - 120	

Duplicate - Batch: 280-269016

Method: 9056M
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269016	Instrument ID:	WC_IonChrom11
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	0023.d
Dilution:	1.0	Leach Batch:	280-269040	Initial Weight/Volume:	5 mL
Analysis Date:	03/20/2015 2057	Units:	mg/Kg	Final Weight/Volume:	5 mL
Prep Date:	N/A				25 uL
Leach Date:	03/20/2015 1633				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Chloride-Soluble	30.1		30.09	0.2	10	C
Bromide-Soluble	0.39	U	0.39	NC	10	U
Sulfate-Soluble	13.4		12.66	5	10	
Fluoride-Soluble	1.3	B	1.31	2	10	B

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

Duplicate - Batch: 280-269297

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-66648-1	Analysis Batch:	280-269297	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	03/23/2015 1201	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	4.1	4.5	10	20	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC/MS Semi VOA					
Prep Batch: 280-268785					
LCS 280-268785/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268785/1-A	Method Blank	T	Solid	3550C	
280-66648-1	J1V543	T	Solid	3550C	
280-66648-2	J1V544	T	Solid	3550C	
280-66648-2MS	Matrix Spike	T	Solid	3550C	
280-66648-2MSD	Matrix Spike Duplicate	T	Solid	3550C	
Analysis Batch:280-268939					
LCS 280-268785/2-A	Lab Control Sample	T	Solid	8270C	280-268785
MB 280-268785/1-A	Method Blank	T	Solid	8270C	280-268785
280-66648-1	J1V543	T	Solid	8270C	280-268785
280-66648-2	J1V544	T	Solid	8270C	280-268785
280-66648-2MS	Matrix Spike	T	Solid	8270C	280-268785
280-66648-2MSD	Matrix Spike Duplicate	T	Solid	8270C	280-268785

Report Basis
T = Total

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 280-268810					
LCS 280-268810/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268810/1-A	Method Blank	T	Solid	3550C	
280-66648-1	J1V543	T	Solid	3550C	
280-66648-1MS	Matrix Spike	T	Solid	3550C	
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
Prep Batch: 280-268825					
LCS 280-268825/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268825/1-A	Method Blank	T	Solid	3550C	
280-66648-1	J1V543	T	Solid	3550C	
280-66648-1MS	Matrix Spike	T	Solid	3550C	
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
Prep Batch: 280-268846					
LCS 280-268846/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268846/1-A	Method Blank	T	Solid	3550C	
280-66648-1	J1V543	T	Solid	3550C	
280-66648-1MS	Matrix Spike	T	Solid	3550C	
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
Analysis Batch:280-268917					
LCS 280-268810/2-A	Lab Control Sample	T	Solid	8082	280-268810
MB 280-268810/1-A	Method Blank	T	Solid	8082	280-268810
280-66648-1	J1V543	T	Solid	8082	280-268810
280-66648-1MS	Matrix Spike	T	Solid	8082	280-268810
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	8082	280-268810
Analysis Batch:280-268949					
LCS 280-268825/2-A	Lab Control Sample	T	Solid	8081A	280-268825
MB 280-268825/1-A	Method Blank	T	Solid	8081A	280-268825
280-66648-1	J1V543	T	Solid	8081A	280-268825
280-66648-1MS	Matrix Spike	T	Solid	8081A	280-268825
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	8081A	280-268825
Analysis Batch:280-269265					
LCS 280-268846/2-A	Lab Control Sample	T	Solid	NWTPH-Dx	280-268846
MB 280-268846/1-A	Method Blank	T	Solid	NWTPH-Dx	280-268846
280-66648-1	J1V543	T	Solid	NWTPH-Dx	280-268846
280-66648-1MS	Matrix Spike	T	Solid	NWTPH-Dx	280-268846
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	NWTPH-Dx	280-268846

Report Basis
T = Total

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-268693					
LCS 280-268693/2-A	Lab Control Sample	T	Solid	7471A	
MB 280-268693/1-A	Method Blank	T	Solid	7471A	
280-66648-1	J1V543	T	Solid	7471A	
280-66648-1DU	Duplicate	T	Solid	7471A	
280-66648-1MS	Matrix Spike	T	Solid	7471A	
280-66648-2	J1V544	T	Solid	7471A	
Prep Batch: 280-268822					
LCS 280-268822/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-268822/1-A	Method Blank	T	Solid	3050B	
280-66648-1	J1V543	T	Solid	3050B	
280-66648-1DU	Duplicate	T	Solid	3050B	
280-66648-1MS	Matrix Spike	T	Solid	3050B	
280-66648-2	J1V544	T	Solid	3050B	
Analysis Batch:280-268911					
LCS 280-268693/2-A	Lab Control Sample	T	Solid	7471A	280-268693
MB 280-268693/1-A	Method Blank	T	Solid	7471A	280-268693
280-66648-1	J1V543	T	Solid	7471A	280-268693
280-66648-1DU	Duplicate	T	Solid	7471A	280-268693
280-66648-1MS	Matrix Spike	T	Solid	7471A	280-268693
280-66648-2	J1V544	T	Solid	7471A	280-268693
Analysis Batch:280-269256					
LCS 280-268822/2-A	Lab Control Sample	T	Solid	6010B	280-268822
MB 280-268822/1-A	Method Blank	T	Solid	6010B	280-268822
280-66648-1	J1V543	T	Solid	6010B	280-268822
280-66648-1DU	Duplicate	T	Solid	6010B	280-268822
280-66648-1MS	Matrix Spike	T	Solid	6010B	280-268822
280-66648-2	J1V544	T	Solid	6010B	280-268822
Prep Batch: 280-269339					
LCS 280-269339/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-269339/1-A	Method Blank	T	Solid	3050B	
280-66648-1	J1V543	T	Solid	3050B	
280-66648-1DU	Duplicate	T	Solid	3050B	
280-66648-1MS	Matrix Spike	T	Solid	3050B	
280-66648-2	J1V544	T	Solid	3050B	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Analysis Batch:280-269682					
LCS 280-269339/2-A	Lab Control Sample	T	Solid	6010B	280-269339
MB 280-269339/1-A	Method Blank	T	Solid	6010B	280-269339
280-66648-1	J1V543	T	Solid	6010B	280-269339
280-66648-1DU	Duplicate	T	Solid	6010B	280-269339
280-66648-1MS	Matrix Spike	T	Solid	6010B	280-269339
280-66648-2	J1V544	T	Solid	6010B	280-269339

Report Basis
T = Total

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Prep Batch: 280-268857					
LCS 280-268857/1-A	Lab Control Sample	S	Solid	DI Leach	
LCSD 280-268857/4-A	Lab Control Sample Duplicate	S	Solid	DI Leach	
280-66648-1	J1V543	S	Solid	DI Leach	
280-66648-1DU	Duplicate	S	Solid	DI Leach	
Analysis Batch:280-269015					
LCS 280-269040/1-A	Lab Control Sample	S	Solid	9056M	
MB 280-269040/2-A	Method Blank	S	Solid	9056M	
280-66648-1	J1V543	S	Solid	9056M	
280-66648-1DU	Duplicate	S	Solid	9056M	
280-66648-1MS	Matrix Spike	S	Solid	9056M	
Analysis Batch:280-269016					
LCS 280-269040/1-A	Lab Control Sample	S	Solid	9056M	
MB 280-269040/2-A	Method Blank	S	Solid	9056M	
280-66648-1	J1V543	S	Solid	9056M	
280-66648-1DU	Duplicate	S	Solid	9056M	
280-66648-1MS	Matrix Spike	S	Solid	9056M	
Prep Batch: 280-269040					
LCS 280-269040/1-A	Lab Control Sample	S	Solid	DI Leach	
MB 280-269040/2-A	Method Blank	S	Solid	DI Leach	
280-66648-1	J1V543	S	Solid	DI Leach	
280-66648-1DU	Duplicate	S	Solid	DI Leach	
280-66648-1MS	Matrix Spike	S	Solid	DI Leach	
Analysis Batch:280-269104					
LCS 280-268857/1-A	Lab Control Sample	S	Solid	9045C	
LCSD 280-268857/4-A	Lab Control Sample Duplicate	S	Solid	9045C	
280-66648-1	J1V543	S	Solid	9045C	
280-66648-1DU	Duplicate	S	Solid	9045C	
Prep Batch: 280-269276					
LCS 280-269276/2-A	Lab Control Sample	S	Solid	DI Leach	
MB 280-269276/1-A	Method Blank	S	Solid	DI Leach	
280-66648-1	J1V543	S	Solid	DI Leach	
280-66648-1DU	Duplicate	S	Solid	DI Leach	
280-66648-1MS	Matrix Spike	S	Solid	DI Leach	
Analysis Batch:280-269297					
280-66648-1	J1V543	T	Solid	D-2216	
280-66648-1DU	Duplicate	T	Solid	D-2216	
280-66648-2	J1V544	T	Solid	D-2216	

Client: Washington Closure Hanford

Job Number: 280-66648-1
Sdg Number: JP0921

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-269379					
LCS 280-269276/2-A	Lab Control Sample	S	Solid	353.2	
MB 280-269276/1-A	Method Blank	S	Solid	353.2	
280-66648-1	J1V543	S	Solid	353.2	
280-66648-1DU	Duplicate	S	Solid	353.2	
280-66648-1MS	Matrix Spike	S	Solid	353.2	

Report Basis
S = Soluble
T = Total

HPLC/IC					
Prep Batch: 280-268796					
LCS 280-268796/2-A	Lab Control Sample	T	Solid	3550C	
MB 280-268796/1-A	Method Blank	T	Solid	3550C	
280-66648-1	J1V543	T	Solid	3550C	
280-66648-1MS	Matrix Spike	T	Solid	3550C	
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	3550C	
Analysis Batch:280-268877					
LCS 280-268796/2-A	Lab Control Sample	T	Solid	8310	280-268796
MB 280-268796/1-A	Method Blank	T	Solid	8310	280-268796
280-66648-1	J1V543	T	Solid	8310	280-268796
280-66648-1MS	Matrix Spike	T	Solid	8310	280-268796
280-66648-1MSD	Matrix Spike Duplicate	T	Solid	8310	280-268796

Report Basis
T = Total

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-107-133

Collector STOWE, QG	**Company Contact** Joan Kessner	**Telephone No.** 375-4688	**Project Coordinator** KESSNER, JH
Price Code 8B	**Data Turnaround** 7 days		
Project Designation 100-H Field Remediation	**Sampling Location** 100-H-28:2 (subsite excavation) resample EXC1-1		**SAF No.** RC-107
Ice Chest No. WCH-08-072	**Field Logbook No.** EL-1627-09	**COA** 01H2822000	**Method of Shipment** Commercial Carrier Fed Ex
Shipped To TestAmerica Denver	**Offsite Property No.** A 131393		**Bill of Lading/Air Bill No.** See OSPC

Other Labs Shipped To
TestAmerica Richland

POSSIBLE SAMPLE HAZARDS/REMARKS
N/A

Special Handling and/or Storage
Cool 4C

Preservation	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C			
Type of Container	G/P	G/P	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	250mL	250mL	250mL	250mL	250mL	125mL			
Sample Analysis	See item (1) in Special Instructions	See item (2) in Special Instructions	PAHs - 8310	PCBs - 8082	Pesticides - 8081	Semi-VOA - 8270 (TCL)	TPH-Diesel Range - WTPH-D+			

Sample No.	Matrix	Sample Date	Sample Time									
J1W543	SOIL	03/16/15	1045	X	X	X	X	X	X	X		
J1W544	SOIL	03/16/15	1038	X	n/A	n/A	n/A	n/A	X	n/A		

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Quincy Stowe	1049 3-16-15	C. Martinez/C. Martinez	1049 03/16/15
C. Martinez/C. Martinez	03/16/15 1520	C. Bingham	3/16/15 1520
C. Bingham	3/16/15 1525	1060 Battelle, Fridge #3A	1525 3/16/15
1060 Battelle, Fridge #3A	3/17/15 1000	C. Bingham	3/17/15 1000
C. Bingham WCH	3/17/15 1005	Fed Ex	3/17/15
			3/18/15 9:15

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV)
(2) IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2; pH (Soil) - 9045

2.1 IRS +0.2
Transferred by MTG 3/18/15

280-66648 Chain of Custody

BY K. Wood Vincent
DATE 3/17/15

JP0921

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

90 w/Permission

Project 28002142

Report Due: 3/25/2015 D.K. 3-19-15

TALs TAT: RUSH 5d

2.1 RSTD.2 18Mar15
Transferred by

Sample Check-in List

Date/Time Received: 0915 18Mar15 GM Screen Result 15 microR/hr

Client: Washington Closure Hanford SDG #: JP0921 NA[ ] SAF #: RC-107 NA [ ]

Job Number: 66648 Chain of Custody # RC-107-133

Shipping Container ID: WCH-08-072 Air Bill # 7731 4546 7909

1. Custody Seals on shipping container intact? NA [ ] Yes [X] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [X] No [ ]
3. Chain of Custody record present? NA [ ] Yes [X] No [ ]
4. Cooler Temperature °C: 2.3 corr'd NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [X]
6. Number of samples in shipping container: 2
7. Sample holding times exceeded? MJ 3/18/15 NA [ ] Yes [ ] No [X]
8. Samples have:
   - X Tape
   - X Custody Seals
   - X Hazard Labels
   - X Appropriate Sample Labels
9. Samples are:
   - X In Good Condition
   - ____ Broken
   - ____ Leaking
   - ____ Have Air Bubbles (Only for samples requiring no head space.)
10. Sample pH taken? NA [X] pH<2 [ ] pH>2 [ ] pH>9 [ ] Amount HNO_3 Added ____
11. Sample Location, Sample Collector Listed? * Y
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [X]
13. Description of anomalies (include sample numbers): ____

Sample Custodian: [signature] Date 18Mar15

Client Sample ID	Analysis Requested	Condition	Comments/Action

Client Informed on ____ by ____ Person Contacted ____

[ ] No action necessary; process as is.

Project Manager Darlene Bendy Date 3-19-15

LS-023, Rev. 7, 1/08

From: (509) 376-7492
1162 Shipping
US DOE c/o WCH
2355 Stevens Dr

Richland, WA 99354

Origin ID: PSCA

FedEx Express

J15121502230 3uv

Ship Date: 17MAR15
ActWgt: 65.0 LB
CAD: 105266502/NET3610

Delivery Address Bar Code

Ref # 000N962600
Invoice #
PO #
Dept #

SHIP TO: (303) 736-0190
Kae Yoder
TestAmerica
4955 Yarrow St.
A131393
ARVADA, CO 80002

BILL THIRD PARTY

WED - 18 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7731 4546 7909

XH WHHA

80002
CO-US
DEN

537J1/879A/EE4B

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
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