SAF-RC-074
100-D/DR Burial Grounds & Remaining Sites – Soil In-Process
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 2/20/14
INITIAL/DATE

COMMENTS:

SDG JP0720 SAF RC-074

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

Waste Site: 100-D-100 (NE Plume scraped area)

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 33 *Pages*

Report No.: 58686

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.
JP0720	RC-075	J1T843	J4B030426-1	M20J61AA	9M20J610	4034073
		J1T844	J4B030426-2	M20J81AA	9M20J810	4034073
		J1T845	J4B030426-3	M20J91AA	9M20J910	4034073
		J1T846	J4B030426-4	M20KA1AA	9M20KA10	4034073
		J1T847	J4B030426-5	M20KC1AA	9M20KC10	4034073
		J1T848	J4B030426-6	M20KD1AA	9M20KD10	4034073
		J1T849	J4B030426-7	M20KE1AA	9M20KE10	4034073
		J1T850	J4B030426-8	M20KF1AA	9M20KF10	4034073
		J1T851	J4B030426-9	M20KG1AA	9M20KG10	4034073
		J1T852	J4B030426-10	M20KH1AA	9M20KH10	4034073
	RC-075	J1T853	J4B030426-11	M20KJ1AA	9M20KJ10	4034073
		J1T854	J4B030426-12	M20KK1AA	9M20KK10	4034073
		J1T855	J4B030426-13	M20KL1AA	9M20KL10	4034073

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Certificate of Analysis

Washington Hanford Closure
2620 Fermi Avenue
Richland, WA 99354

February 6, 2014

Attention: Joan Kessner

SAF Number	:	RC-075
Date SDG Closed	:	February 3, 2014
Number of Samples	:	Thirteen (13)
Sample Type	:	Soil
SDG Number	:	JP0720
Data Deliverable	:	3-Day / Summary

CASE NARRATIVE

I. Introduction

On February 3, 2014, thirteen soil samples were received at TestAmerica for chemistry analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the Washington Closure Hanford (WCH) specific ID:

WCH ID#	TARL ID#	MATRIX	DATE OF RECEIPT
J1T843	M20J6	SOIL	2/03/14
J1T844	M20J8	SOIL	2/03/14
J1T845	M20J9	SOIL	2/03/14
J1T846	M20KA	SOIL	2/03/14
J1T847	M20KC	SOIL	2/03/14
J1T848	M20KD	SOIL	2/03/14
J1T849	M20KE	SOIL	2/03/14
J1T850	M20KF	SOIL	2/03/14
J1T851	M20KG	SOIL	2/03/14
J1T852	M20KH	SOIL	2/03/14
J1T853	M20KJ	SOIL	2/03/14
J1T854	M20KK	SOIL	2/03/14
J1T855	M20KL	SOIL	2/03/14

II. Sample Receipt

The samples were 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 analysis was:

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

Chemical Analysis
Hexavalent Chromium by EPA method 7196A:
The LCS, batch blank, samples, sample duplicate (J1T843) and sample matrix spike (J1T843) 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.
Total Uncert (#s) ***u_c - Combined Uncertainty.***	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 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.

TestAmerica Inc
rptGeneralInfo v3.72

Sample Results Summary

TestAmerica Inc TARL

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

Date: 06-Feb-14

Report No. : 58686

SDG No: JP0720

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
4034073 7196_CR6									
J1T843									
	M20J61AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
	M20J61AD	HEXCHROME	1.29E+00 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	157.1
J1T844									
	M20J81AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T845									
	M20J91AA	HEXCHROME	6.71E+00 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
J1T846									
	M20KA1AA	HEXCHROME	1.92E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
J1T847									
	M20KC1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T848									
	M20KD1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T849									
	M20KE1AA	HEXCHROME	1.70E-01 +- 0.0E+00		mg/kg	N/A	1.55E-01	1.55E-01	
J1T850									
	M20KF1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T851									
	M20KG1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T852									
	M20KH1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T853									
	M20KJ1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T854									
	M20KK1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	
J1T855									
	M20KL1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A	1.55E-01	1.55E-01	

No. of Results: 14

TestAmerica Inc

rptTALRchSaSummary2 V5.2.27 A2002

RPD - Relative Percent Difference.

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

QC Results Summary

Date: 06-Feb-14

TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 58686

SDG No.: JP0720

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
7196_CR6								
4034073 MATRIX SPIKE, J1T843								
M20J61AC	HEXCHROME	2.76E+01 +- 0.0E+00		mg/kg	N/A	88%	-0.1	1.55E-01
4034073 LCS,								
M20LH1AC	HEXCHROME	1.85E+01 +- 0.0E+00		mg/kg	N/A	92%	-0.1	1.55E-01
4034073 BLANK QC,								
M20LH1AA	HEXCHROME	1.55E-01 +- 0.0E+00	U	mg/kg	N/A			1.55E-01

No. of Results: 3

TestAmerica Inc

rptSTLRchQcSummary V5.2.27
A2002

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

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

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 10:00:00 AM
Lot-Sample No.:	**J4B030426-1**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T843**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20J61AA		**Report DB ID:**	9M20J610				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5027	
							1.55E-01	*N/A*			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:42:00 AM
Lot-Sample No.:	**J4B030426-2**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T844**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20J81AA		**Report DB ID:**	9M20J810				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5051	
							1.55E-01	*N/A*			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	TestAmerica Inc	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:57:00 AM
Lot-Sample No.:	J4B030426-3	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	J1T845	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20J91AA		**Report DB ID:**	9M20J910				
HEXCHROME	**6.71E+00**			0.0E+00	1.55E-01	mg/kg	N/A	*(43.3)*	2/4/14 07:35 a		2.5086	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:46:00 AM
Lot-Sample No.:	**J4B030426-4**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T846**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KA1AA		**Report DB ID:**	9M20KA10				
HEXCHROME	**1.92E-01**			0.0E+00	1.55E-01	mg/kg	N/A	*(1.2)*	2/4/14 07:35 a		2.5027	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	TestAmerica Inc	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:28:00 AM
Lot-Sample No.:	J4B030426-5	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	J1T847	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KC1AA		**Report DB ID:**	9M20KC10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5007	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:55:00 AM
Lot-Sample No.:	**J4B030426-6**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T848**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KD1AA		**Report DB ID:**	9M20KD10				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5103	
							1.55E-01	*N/A*			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:49:00 AM
Lot-Sample No.:	**J4B030426-7**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T849**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KE1AA		**Report DB ID:**	9M20KE10				
HEXCHROME	**1.70E-01**			0.0E+00	1.55E-01	mg/kg	N/A	*(1.1)*	2/4/14 07:35 a		2.505	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:33:00 AM
Lot-Sample No.:	**J4B030426-8**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T850**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KF1AA		**Report DB ID:**	9M20KF10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5177	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	TestAmerica Inc	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:53:00 AM
Lot-Sample No.:	J4B030426-9	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	J1T851	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KG1AA		**Report DB ID:**	9M20KG10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5036	
							1.55E-01	*N/A*			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:51:00 AM
Lot-Sample No.:	**J4B030426-10**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T852**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KH1AA		**Report DB ID:**	9M20KH10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5145	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:37:00 AM
Lot-Sample No.:	**J4B030426-11**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T853**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KJ1AA		**Report DB ID:**	9M20KJ10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5089	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:39:00 AM
Lot-Sample No.:	**J4B030426-12**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T854**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KK1AA		**Report DB ID:**	9M20KK10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.5073	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 06-Feb-14

Lab Name:	TestAmerica Inc	**SDG:**	JP0720	**Collection Date:**	2/3/2014 9:39:00 AM
Lot-Sample No.:	J4B030426-13	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	J1T855	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(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: 4034073	7196_CR6			**Work Order:**	M20KL1AA		**Report DB ID:**	9M20KL10				
HEXCHROME	**1.55E-01**	U		0.0E+00	1.55E-01	mg/kg	N/A	*1.*	2/4/14 07:35 a		2.501	
							1.55E-01	*N/A*			g	

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

TestAmerica Inc
rptSTLRchSample
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

Date: 06-Feb-14

DUPLICATE RESULTS

Lab Name:	**TestAmerica Inc**	**SDG:**	JP0720	**Collection Date:**	2/3/2014 10:00:00 AM
Lot-Sample No.:	**J4B030426-1**	**Report No. :**	58686	**Received Date:**	2/3/2014 2:00:00 PM
Client Sample ID:	**J1T843**	**COC No. :**	RC-075-399	**Matrix:**	SOIL

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 4034073	7196_CR6			**Work Order:** M20J61AD		**Report DB ID:** M20J61ER			**Orig Sa DB ID:** 9M20J610			
HEXCHROME	1.29E+00			0.0E+00	1.55E-01	mg/kg	N/A	(8.3)	2/4/14 07:35 a		2.5023	
	1.55E-01	U	**RPD**	**157.1**		1.55E-01		N/A			g	

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

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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 06-Feb-14

Lab Name: TestAmerica Inc

Matrix: SOIL

SDG: JP0720

Report No. : 58686

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 4034073	7196_CR6			**Work Order:**	M20LH1AA		**Report DB ID:**	M20LH1AB				
HEXCHROME	1.55E-01	U		0.0E+00	1.55E-01	mg/kg	N/A	1.	2/4/14 07:35 a		2.5	
						1.55E-01		N/A			g	

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

TestAmerica Inc
rptSTLRchBlank
V5.2.27 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. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 06-Feb-14

Lab Name: TestAmerica Inc

SDG: JP0720

Matrix: SOIL

Report No. : 58686

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 4034073	7196_CR6			**Work Order:**	M20LH1AC		**Report DB ID:**	M20LH1AS					
HEXCHROME	1.85E+01			0.0E+00	1.55E-01	mg/kg	N/A	2.00E+01		92%	2/4/14 07:35 a	2.5	
							Rec Limits:	80	120	-0.1		g	

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

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

rptSTLRchLcs
V5.2.27 A2002

FORM II

MATRIX SPIKE RESULTS

Date: 06-Feb-14

Lab Name: TestAmerica Inc **SDG:** JP0720

Lot-Sample No.: J4B030426-1, J1T843 **Report No. :** 58686 **Matrix:** SOIL

Parameter	SpikeResult, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Rpt Unit	Yield	Rec-overy	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 4034073	**Work Order:** M20J61AC			**Report DB ID:** M20J61CW			**Orig Sa DB ID:** 9M20J610					
HEXCHROME	2.76E+01			0.0E+00	1.55E-01	mg/kg	N/A	88.47%	3.12E+01	2/4/14 07:35 a	2.507	7196_CR6
	1.55E-01										g	

Number of Results: 1

Comments:

TestAmerica Inc
rptSTLRchMs
V5.2.27 A2002

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

Richland Laboratory
Data Review Check List
Hexavalent Chromium

Batch Number(s):	4034073	Lab Sample Numbers or SDG:	JP0720

Method/Test/Parameter: Cr+6 ☐ 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 [signature] Date 2/5/14 2nd Review [signature] Date 2/6/14

CG-231 Rev 1 5/12

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-399

Collector: H Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 3 day	Data Turnaround		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-100 (NE Plume scraped area)		SAF No.: RC-075
Ice Chest No.: N/A	Field Logbook No.: EL-1607-~~22~~ 23 (02/03/14)	COA: 00D1002000	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										
Type of Container	G/P										
No. of Container(s)	1										
Volume	125mL										
Sample Analysis	Chromium Hex - 7196										

Sample No.	Matrix	Sample Date	Sample Time										
J1T843 M20J6	SOIL	02/03/14	1000	X									
J1T844 M20J8	SOIL	02/03/14	0942	X									
J1T845 M20J9	SOIL	02/03/14	0957	X									
J1T846 M20KA	SOIL	02/03/14	0946	X									
J1T847 M20KC	SOIL	02/03/14	0928	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber/[signature]	2/3/14 1030	C. Martinez/C. Martinez	02/03/14 1030
C. Martinez/C. Martinez	02/03/14 1145	C. Bingham/[signature]	2-3-14 1145
C. Bingham/[signature]	2-3-14 1400	J. Bock/[signature]	2-3-14 1400

FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

SPECIAL INSTRUCTIONS

J4B030426

Due 2-6-14

J4B030426

REVIEWED BY K. Wendt Viaenmal DATE 2-3-14

JP0720

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-399

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 02/03/14 T.T. 3 day	Data Turnaround		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-100 (NE Plume scraped area)		SAF No.: RC-075
Ice Chest No.: N/A	Field Logbook No.: 02/03/14 EL-1607-~~22~~ 23	COA: 00D1002000	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										
Type of Container	G/P										
No. of Container(s)	1										
Volume	125mL										
Sample Analysis	Chromium Hex - 7196										

Sample No.	Matrix	Sample Date	Sample Time	Chromium Hex - 7196
J1T848 m20KD	SOIL	02/03/14	0955	X
J1T849 m20KE	SOIL	02/03/14	0949	X
J1T850 m20KF	SOIL	02/03/14	0933	X
J1T851 m20KG	SOIL	02/03/14	0953	X
J1T852 m20KH	SOIL	02/03/14	0951	X

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	2/3/14 1030	C. Martinez / C. Martinez	02/03/14 1030
C. Martinez / C. Martinez	02/03/14 1145	C. Bingham / [signature]	2-3-14 1145
C. Bingham / [signature] WCH	2-3-14 1400	J. Buck / [signature] TALL	2-3-14 1400

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

SPECIAL INSTRUCTIONS

J4B030426
Due 2-6-14

REVIEWED BY K. Wendt Vlaemaal DATE 2-3-14

JP0720

WCH-EE-011

Washington Closure Hanford

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

RC-075-399

Collector: H. Weber	Company Contact: Joan Kessner	Telephone No.: 375-4688	Project Coordinator: KESSNER, JH
Price Code: 3 day	Data Turnaround		
Project Designation: 100-D/DR Field Remediation	Sampling Location: 100-D-100 (NE Plume scraped area)		SAF No.: RC-075
Ice Chest No.: n/A	Field Logbook No.: EL-1607-~~22~~ 23 02/03/14	COA: 00D1002000	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										
Type of Container	G/P										
No. of Container(s)	1										
Volume	125mL										
Sample Analysis	Chromium Hex - 7196										

Sample No.	Matrix	Sample Date	Sample Time										
J1T853 M20KJ	SOIL	02/03/14	0937	X									
J1T854 M20KK	SOIL	02/03/14	0939	X									
J1T855 M20KL	Soil	02/03/14	0939	X									

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Heather Weber / [signature]	2/3/14 1030	C. Martinez / C. Martinez	02/03/14 1030
C. Martinez / C. Martinez	02/03/14 1145	C. Bingham [signature]	2-3-14 1145
C. Bingham [signature] WCH	2-3-14 1400	J. Bock [signature] TALL	2-3-14 1400

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

SPECIAL INSTRUCTIONS

J4B030426
Due 2-6-14

REVIEWED BY K. Wendt via email
DATE 2-3-14

JP0720

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

Date/Time Received: 2-3-14 / 1400 Container GM Screen Result: (Airlock) 40 cpm Initials [ ]
Sample GM Screen Result (Sample Receiving) 80 cpm Initials [ ]

Client: USCH SDG #: JP0720 SAF #: RC-075 NA [ ]

Lot Number: J4B030426

Chain of Custody # RC-075-399

Shipping Container ID or Air Bill Number : hand delivered NA [ ]

Samples received inside shipping container/cooler/box Yes [ ] 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 [ ]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [ ]
3. Cooler temperature: 4.4 °C Ice NA [ ]
4. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 13
7. Containers received: 13 x 125mLp
8. Sample holding times exceeded? NA [ ] Yes [ ] No [ ]
9. Samples have: ____tape ____hazard labels ____custody seals ____appropriate sample labels
10. Matrix: ____A (FLT, Wipe, Solid, Soil) ____I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    ____are in good condition ____are leaking ____are broken
    ____have air bubbles (Only for samples requiring no head space) ____Other ____
12. Sample pH appropriate for analysis requested Yes [ ] No [ ] NA [ ]
    (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 [ ]
14. Description of anomalies (include sample numbers): NA [ ]
15. Sample Location, Sample Collector Listed on COC? * Yes [ ] No [ ]
    *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: _____ Date: 2-3-14

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

[ ] No action necessary; process as is

Project Manager _____ Date 2/4/14

LS-023 Rev. 17, 05/13

2/4/2014 6:09:31 AM

Sample Preparation/Analysis

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

DW Alkaline Digestion by method 3060A
EA Chromium, Hexavalent (7196A)

AnalyDueDate: 02/06/2014

5I CLIENT: HANFORD

Batch: 4034073 SOIL mg/kg
SEQ Batch, Test: None All Tests: 4034073 DWEA,

PM, Quote: RW2, 27038

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 M20J6-1-AA													
J4B030426-1-SAMP													
02/03/2014 10:00			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
2 M20J6-1-AC-S													
J4B030426-1-MS													
02/03/2014 10:00			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
3 M20J6-1-AD-X													
J4B030426-1-DUP													
02/03/2014 10:00			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
4 M20J6-1-AE-S													
J4B030426-1-MS													
02/03/2014 10:00			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
5 M20J8-1-AA													
J4B030426-2-SAMP													
02/03/2014 09:42			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
6 M20J9-1-AA													
J4B030426-3-SAMP													
02/03/2014 09:57			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
7 M20KA-1-AA													
J4B030426-4-SAMP													
02/03/2014 09:46			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

Page 1

ISV - Insufficient Volume for Analysis

WO Cnt: 7

ICOC v4.8.49

2/4/2014 6:09:31 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: 02/06/2014

Batch: 4034073 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:
8 M20KC-1-AA J4B030426-5-SAMP 02/03/2014 09:28			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:
9 M20KD-1-AA J4B030426-6-SAMP 02/03/2014 09:55			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:
10 M20KE-1-AA J4B030426-7-SAMP 02/03/2014 09:49			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:
11 M20KF-1-AA J4B030426-8-SAMP 02/03/2014 09:33			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:
12 M20KG-1-AA J4B030426-9-SAMP 02/03/2014 09:53			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:
13 M20KH-1-AA J4B030426-10-SAMP 02/03/2014 09:51			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:
14 M20KJ-1-AA J4B030426-11-SAMP 02/03/2014 09:37			AmtRec: 1X125MLP	#Containers: 1					Scr:		Alpha:		Beta:

TestAmerica Richland Wa.

Key: In - Initial Amt, fi - Final Amt, di - Diluted Amt, s1 - Sep1, s2 - Sep2 Page 2
pd - Prep Dt, dc - Date Chg, r - Reference Dt, ec-Enrichment Cell, ct-Cocktailed Added

ISV - Insufficient Volume for Analysis

WO Cnt: **14**
ICOC v4.8.49

2/4/2014 6:09:31 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: 02/06/2014

Batch: 4034073 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:
15 M20KK-1-AA													
J4B030426-12-SAMP													
02/03/2014 09:39			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
16 M20KL-1-AA													
J4B030426-13-SAMP													
02/03/2014 09:39			AmtRec: 1X125MLP		#Containers: 1				Scr:		Alpha:		Beta:
17 M20LH-1-AA-B													
J4B030000-73-BLK													
02/04/2014 06:09 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:
18 M20LH-1-AC-C													
J4B030000-73-LCS													
02/04/2014 06:09 pd			AmtRec:		#Containers: 1				Scr:		Alpha:		Beta:

Comments:

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

M20J61AA-SAMP Constituent List:
HEXCHROME RDL:.1548 mg/kg LCL:80 UCL:120 RPD:20
M20J61AC-MS Constituent List:
HEXCHROME RDL:0.35 mg/kg LCL:75 UCL:125 RPD:20
M20J61AE-MS:
HEXCHROME RDL:0.35 mg/kg LCL:75 UCL:125 RPD:20
M20LH1AA-BLK:
HEXCHROME RDL:.1548 mg/kg LCL: UCL: RPD:

2/4/2014 6:09:31 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: 02/06/2014

Batch: 4034073 **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:

```
M20LH1AC-LCS:
  HEXCHROME   RDL:0.35        mg/kg     LCL:80      UCL:120     RPD:20
M20J61AA-SAMP Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M20J61AC-MS Calc Info:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M20J61AE-MS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M20LH1AA-BLK:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
M20LH1AC-LCS:
     Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

ANALYTICAL REPORT

Job Number: 280-51773-1

SDG Number: JP0720

Job Description: SAF# RC-075

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

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Senior Project Manager
2/7/2014 2:32 PM

Kae E Yoder, Senior Project Manager
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0190
kae.yoder@testamericainc.com
02/07/2014

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 E87667.

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

Table of Contents

Cover Title Page 1
Report Narrative 3
Data Qualifiers 5
Sample Summary 6
Method Summary 7
Method / Analyst Summary 8
Sample Results 9
Sample Datasheets 10
QC Results 36
Qc Reports 37
Qc Association Summary 42
Client Chain of Custody 44
Sample Receipt Checklist 47

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-51773-1

SDG #: JP0720
SAF#: RC-075

Date SDG Closed: February 4, 2014
Data Deliverable: 3 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1T843	280-51773-1	6010	6010B
J1T844	280-51773-2	6010	6010B
J1T845	280-51773-3	6010	6010B
J1T846	280-51773-4	6010	6010B
J1T847	280-51773-5	6010	6010B
J1T848	280-51773-6	6010	6010B
J1T849	280-51773-7	6010	6010B
J1T850	280-51773-8	6010	6010B
J1T851	280-51773-9	6010	6010B
J1T852	280-51773-10	6010	6010B
J1T853	280-51773-11	6010	6010B
J1T854	280-51773-12	6010	6010B
J1T855	280-51773-13	6010	6010B

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 2/4/2014 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0º C.

TOTAL METALS - SW846 6010B
Serial dilution of a digestate in batch 280-211346 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Aluminum, Barium, Chromium, Copper, Manganese and Zinc are present in the method blank associated with batch 280-211346. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

Iron, a common laboratory contaminant, is present at a level greater than the reporting limit in the method blank associated with batch 280-211346. As the associated sample amounts are twenty times greater than the method blank concentration, corrective action is deemed unnecessary.

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 J1T843; therefore, control limits are not applicable.

Boron was recovered outside the control limits in the Matrix Spike performed on sample J1T843, 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 J1T843 exhibited RPD data outside the control limits for Calcium 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.

DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Lab Section	Qualifier	Description
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.

SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-51773-1	J1T843	Solid	02/03/2014 1000	02/04/2014 0920
280-51773-2	J1T844	Solid	02/03/2014 0942	02/04/2014 0920
280-51773-3	J1T845	Solid	02/03/2014 0957	02/04/2014 0920
280-51773-4	J1T846	Solid	02/03/2014 0946	02/04/2014 0920
280-51773-5	J1T847	Solid	02/03/2014 0928	02/04/2014 0920
280-51773-6	J1T848	Solid	02/03/2014 0955	02/04/2014 0920
280-51773-7	J1T849	Solid	02/03/2014 0949	02/04/2014 0920
280-51773-8	J1T850	Solid	02/03/2014 0933	02/04/2014 0920
280-51773-9	J1T851	Solid	02/03/2014 0953	02/04/2014 0920
280-51773-10	J1T852	Solid	02/03/2014 0951	02/04/2014 0920
280-51773-11	J1T853	Solid	02/03/2014 0937	02/04/2014 0920
280-51773-12	J1T854	Solid	02/03/2014 0939	02/04/2014 0920
280-51773-13	J1T855	Solid	02/03/2014 0939	02/04/2014 0920

METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
Metals (ICP)	TAL DEN	SW846 6010B	
Preparation, Metals	TAL DEN		SW846 3050B
ASTM D-2216	TAL DEN	ASTM D-2216	

Lab References:

TAL DEN = TestAmerica Denver

Method References:

ASTM = ASTM International

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: 280-51773-1
Sdg Number: JP0720

Method	Analyst	Analyst ID
SW846 6010B	Harre, John K	JKH
ASTM D-2216	Hoefler, Alexandra F	AFH

SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T843**

Lab Sample ID: 280-51773-1
Client Matrix: Solid
% Moisture: 3.7

Date Sampled: 02/03/2014 1000
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.08 g
Analysis Date:	02/05/2014 1824			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3990	X	1.5	4.8
Antimony		0.37	U	0.37	0.58
Arsenic		1.5		0.63	0.96
Barium		53.6	X	0.073	0.48
Beryllium		0.032	U	0.032	0.19
Boron		0.94	U N	0.94	1.9
Cadmium		0.071	B	0.039	0.19
Calcium		7700	X M	13.6	48.1
Chromium		3.2	X	0.056	0.19
Cobalt		5.8	X	0.096	0.96
Copper		11.3	X	0.21	0.96
Iron		19800	X	3.7	4.8
Lead		2.4		0.26	0.48
Magnesium		2910	X	3.6	19.2
Manganese		220	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		5.8		0.12	3.8
Potassium		477		39.4	288
Selenium		0.83	U	0.83	0.96
Silicon		83.1		5.4	9.6
Silver		0.15	U	0.15	0.19
Sodium		184	M	56.7	115
Vanadium		44.8	X	0.090	1.9
Zinc		31.9	X	0.38	0.96

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T844**

Lab Sample ID: 280-51773-2
Client Matrix: Solid
% Moisture: 4.3

Date Sampled: 02/03/2014 0942
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.17 g
Analysis Date:	02/05/2014 1834			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4600	X	1.4	4.5
Antimony		0.34	U	0.34	0.54
Arsenic		1.9		0.59	0.89
Barium		78.6	X	0.068	0.45
Beryllium		0.029	U	0.029	0.18
Boron		0.88	U	0.88	1.8
Cadmium		0.075	B	0.037	0.18
Calcium		6020	X	12.6	44.7
Chromium		5.2	X	0.052	0.18
Cobalt		8.4	X	0.089	0.89
Copper		12.8	X	0.19	0.89
Iron		25000	X	3.4	4.5
Lead		2.7		0.24	0.45
Magnesium		4390	X	3.3	17.9
Manganese		298	X	0.089	0.89
Molybdenum		0.23	U	0.23	1.8
Nickel		9.5		0.11	3.6
Potassium		591		36.6	268
Selenium		0.77	U	0.77	0.89
Silicon		147		5.1	8.9
Silver		0.14	U	0.14	0.18
Sodium		287		52.7	107
Vanadium		58.6	X	0.084	1.8
Zinc		40.3	X	0.36	0.89

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T845**

Lab Sample ID: 280-51773-3
Client Matrix: Solid
% Moisture: 3.5

Date Sampled: 02/03/2014 0957
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.17 g
Analysis Date:	02/05/2014 1836			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3810	X	1.4	4.4
Antimony		0.34	U	0.34	0.53
Arsenic		1.5		0.58	0.89
Barium		59.2	X	0.067	0.44
Beryllium		0.029	U	0.029	0.18
Boron		0.87	U	0.87	1.8
Cadmium		0.052	B	0.036	0.18
Calcium		8660	X	12.5	44.3
Chromium		13.5	X	0.051	0.18
Cobalt		7.1	X	0.089	0.89
Copper		11.3	X	0.19	0.89
Iron		21500	X	3.4	4.4
Lead		2.2		0.24	0.44
Magnesium		3760	X	3.3	17.7
Manganese		253	X	0.089	0.89
Molybdenum		0.23	U	0.23	1.8
Nickel		6.7		0.11	3.5
Potassium		504		36.3	266
Selenium		0.76	U	0.76	0.89
Silicon		95.9		5.0	8.9
Silver		0.14	U	0.14	0.18
Sodium		324		52.3	106
Vanadium		46.6	X	0.083	1.8
Zinc		33.4	X	0.35	0.89

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T846**

Lab Sample ID: 280-51773-4
Client Matrix: Solid
% Moisture: 3.2

Date Sampled: 02/03/2014 0946
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.15 g
Analysis Date:	02/05/2014 1839			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4040	X	1.4	4.5
Antimony		0.34	U	0.34	0.54
Arsenic		1.7		0.59	0.90
Barium		62.2	X	0.068	0.45
Beryllium		0.030	U	0.030	0.18
Boron		0.88	U	0.88	1.8
Cadmium		0.074	B	0.037	0.18
Calcium		4580	X	12.7	44.9
Chromium		6.1	X	0.052	0.18
Cobalt		7.7	X	0.090	0.90
Copper		9.9	X	0.19	0.90
Iron		19600	X	3.4	4.5
Lead		3.1		0.24	0.45
Magnesium		3510	X	3.3	18.0
Manganese		316	X	0.090	0.90
Molybdenum		0.23	U	0.23	1.8
Nickel		7.4		0.11	3.6
Potassium		527		36.8	270
Selenium		0.77	U	0.77	0.90
Silicon		105		5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		208		53.0	108
Vanadium		45.6	X	0.084	1.8
Zinc		32.7	X	0.36	0.90

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T847**

Lab Sample ID: 280-51773-5
Client Matrix: Solid
% Moisture: 7.1

Date Sampled: 02/03/2014 0928
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.10 g
Analysis Date:	02/05/2014 1850			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4630	X	1.5	4.9
Antimony		0.37	U	0.37	0.59
Arsenic		2.1		0.65	0.98
Barium		64.7	X	0.074	0.49
Beryllium		0.032	U	0.032	0.20
Boron		0.96	U	0.96	2.0
Cadmium		0.076	B	0.040	0.20
Calcium		5380	X	13.8	48.9
Chromium		4.5	X	0.057	0.20
Cobalt		7.9	X	0.098	0.98
Copper		13.1	X	0.21	0.98
Iron		22500	X	3.7	4.9
Lead		3.2		0.26	0.49
Magnesium		3880	X	3.6	19.6
Manganese		262	X	0.098	0.98
Molybdenum		0.25	U	0.25	2.0
Nickel		7.7		0.12	3.9
Potassium		654		40.1	294
Selenium		0.84	U	0.84	0.98
Silicon		188		5.5	9.8
Silver		0.16	U	0.16	0.20
Sodium		270		57.7	117
Vanadium		49.8	X	0.092	2.0
Zinc		39.0	X	0.39	0.98

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T848**

Lab Sample ID: 280-51773-6
Client Matrix: Solid
% Moisture: 3.7

Date Sampled: 02/03/2014 0955
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.16 g
Analysis Date:	02/05/2014 1853			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4630	X	1.4	4.5
Antimony		0.34	U	0.34	0.54
Arsenic		1.2		0.59	0.90
Barium		44.2	X	0.068	0.45
Beryllium		0.030	B	0.030	0.18
Boron		0.88	U	0.88	1.8
Cadmium		0.086	B	0.037	0.18
Calcium		11700	X	12.6	44.8
Chromium		8.2	X	0.052	0.18
Cobalt		4.3	X	0.090	0.90
Copper		8.3	X	0.19	0.90
Iron		12000	X	3.4	4.5
Lead		2.5		0.24	0.45
Magnesium		3440	X	3.3	17.9
Manganese		176	X	0.090	0.90
Molybdenum		0.23	U	0.23	1.8
Nickel		13.4		0.11	3.6
Potassium		589		36.7	269
Selenium		0.77	U	0.77	0.90
Silicon		123		5.1	9.0
Silver		0.14	U	0.14	0.18
Sodium		128		52.8	107
Vanadium		25.9	X	0.084	1.8
Zinc		22.0	X	0.36	0.90

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T849**

Lab Sample ID: 280-51773-7
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 02/03/2014 0949
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.17 g
Analysis Date:	02/05/2014 1855			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4260	X	1.4	4.4
Antimony		0.34	U	0.34	0.53
Arsenic		1.9		0.58	0.88
Barium		63.4	X	0.067	0.44
Beryllium		0.029	U	0.029	0.18
Boron		0.86	U	0.86	1.8
Cadmium		0.072	B	0.036	0.18
Calcium		6150	X	12.4	44.1
Chromium		4.3	X	0.051	0.18
Cobalt		7.2	X	0.088	0.88
Copper		10.8	X	0.19	0.88
Iron		22400	X	3.4	4.4
Lead		2.6		0.24	0.44
Magnesium		3570	X	3.3	17.6
Manganese		239	X	0.088	0.88
Molybdenum		0.23	U	0.23	1.8
Nickel		7.1		0.11	3.5
Potassium		510		36.2	265
Selenium		0.76	U	0.76	0.88
Silicon		122		5.0	8.8
Silver		0.14	U	0.14	0.18
Sodium		259		52.0	106
Vanadium		51.1	X	0.083	1.8
Zinc		34.7	X	0.35	0.88

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T850**

Lab Sample ID: 280-51773-8
Client Matrix: Solid
% Moisture: 4.0

Date Sampled: 02/03/2014 0933
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.11 g
Analysis Date:	02/05/2014 1857			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4810	X	1.5	4.7
Antimony		0.36	U	0.36	0.56
Arsenic		1.8		0.62	0.94
Barium		79.9	X	0.071	0.47
Beryllium		0.031	U	0.031	0.19
Boron		0.92	U	0.92	1.9
Cadmium		0.081	B	0.038	0.19
Calcium		7980	X	13.2	46.9
Chromium		4.3	X	0.054	0.19
Cobalt		7.5	X	0.094	0.94
Copper		13.3	X	0.20	0.94
Iron		22900	X	3.6	4.7
Lead		2.9		0.25	0.47
Magnesium		3990	X	3.5	18.8
Manganese		244	X	0.094	0.94
Molybdenum		0.24	U	0.24	1.9
Nickel		7.1		0.12	3.8
Potassium		694		38.5	282
Selenium		0.81	U	0.81	0.94
Silicon		140		5.3	9.4
Silver		0.15	U	0.15	0.19
Sodium		288		55.4	113
Vanadium		50.7	X	0.088	1.9
Zinc		37.6	X	0.37	0.94

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T851**

Lab Sample ID: 280-51773-9
Client Matrix: Solid
% Moisture: 2.5

Date Sampled: 02/03/2014 0953
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.18 g
Analysis Date:	02/05/2014 1900			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4240	X	1.3	4.3
Antimony		0.33	U	0.33	0.52
Arsenic		1.1		0.57	0.87
Barium		29.5	X	0.066	0.43
Beryllium		0.071	B	0.029	0.17
Boron		0.85	U	0.85	1.7
Cadmium		0.069	B	0.036	0.17
Calcium		2570	X	12.3	43.5
Chromium		10.1	X	0.050	0.17
Cobalt		3.0	X	0.087	0.87
Copper		6.6	X	0.19	0.87
Iron		8080	X	3.3	4.3
Lead		1.9		0.23	0.43
Magnesium		3310	X	3.2	17.4
Manganese		131	X	0.087	0.87
Molybdenum		0.23	U	0.23	1.7
Nickel		14.2		0.11	3.5
Potassium		551		35.6	261
Selenium		0.75	U	0.75	0.87
Silicon		93.6		4.9	8.7
Silver		0.14	U	0.14	0.17
Sodium		123		51.3	104
Vanadium		16.0	X	0.082	1.7
Zinc		16.7	X	0.35	0.87

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T852**

Lab Sample ID: 280-51773-10
Client Matrix: Solid
% Moisture: 3.7

Date Sampled: 02/03/2014 0951
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.04 g
Analysis Date:	02/05/2014 1902			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4200	X	1.5	5.0
Antimony		0.38	U	0.38	0.60
Arsenic		1.8		0.66	1.0
Barium		51.3	X	0.076	0.50
Beryllium		0.033	U	0.033	0.20
Boron		0.98	U	0.98	2.0
Cadmium		0.088	B	0.041	0.20
Calcium		9070	X	14.1	49.9
Chromium		7.6	X	0.058	0.20
Cobalt		6.6	X	0.10	1.0
Copper		10.8	X	0.22	1.0
Iron		19700	X	3.8	5.0
Lead		2.7		0.27	0.50
Magnesium		3690	X	3.7	20.0
Manganese		245	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		8.6		0.12	4.0
Potassium		970		41.0	300
Selenium		0.86	U	0.86	1.0
Silicon		79.9		5.7	10
Silver		0.16	U	0.16	0.20
Sodium		164		58.9	120
Vanadium		52.4	X	0.094	2.0
Zinc		32.2	X	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T853**

Lab Sample ID: 280-51773-11
Client Matrix: Solid
% Moisture: 3.7

Date Sampled: 02/03/2014 0937
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.03 g
Analysis Date:	02/05/2014 1905			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		4740	X	1.6	5.0
Antimony		0.38	U	0.38	0.60
Arsenic		1.1		0.67	1.0
Barium		61.6	X	0.077	0.50
Beryllium		0.033	U	0.033	0.20
Boron		0.99	U	0.99	2.0
Cadmium		0.069	B	0.041	0.20
Calcium		4170	X	14.2	50.4
Chromium		4.2	X	0.058	0.20
Cobalt		6.0	X	0.10	1.0
Copper		12.2	X	0.22	1.0
Iron		18700	X	3.8	5.0
Lead		2.5		0.27	0.50
Magnesium		3280	X	3.7	20.2
Manganese		187	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		6.4		0.12	4.0
Potassium		385		41.3	302
Selenium		0.87	U	0.87	1.0
Silicon		87.3		5.7	10.1
Silver		0.16	U	0.16	0.20
Sodium		280		59.5	121
Vanadium		37.6	X	0.095	2.0
Zinc		27.6	X	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T854**

Lab Sample ID: 280-51773-12
Client Matrix: Solid
% Moisture: 3.2

Date Sampled: 02/03/2014 0939
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.08 g
Analysis Date:	02/05/2014 1907			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3700	X	1.5	4.8
Antimony		0.36	U	0.36	0.57
Arsenic		1.7		0.63	0.96
Barium		59.6	X	0.073	0.48
Beryllium		0.032	U	0.032	0.19
Boron		0.94	U	0.94	1.9
Cadmium		0.057	B	0.039	0.19
Calcium		4980	X	13.5	47.8
Chromium		3.5	X	0.055	0.19
Cobalt		8.2	X	0.096	0.96
Copper		11.6	X	0.21	0.96
Iron		23600	X	3.6	4.8
Lead		2.5		0.26	0.48
Magnesium		3490	X	3.5	19.1
Manganese		297	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		6.1		0.12	3.8
Potassium		422		39.2	287
Selenium		0.82	U	0.82	0.96
Silicon		95.4		5.4	9.6
Silver		0.15	U	0.15	0.19
Sodium		255		56.4	115
Vanadium		58.8	X	0.090	1.9
Zinc		35.7	X	0.38	0.96

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Client Sample ID: **J1T855**

Lab Sample ID: 280-51773-13
Client Matrix: Solid
% Moisture: 3.1

Date Sampled: 02/03/2014 0939
Date Received: 02/04/2014 0920

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-211744	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0			Initial Weight/Volume:	1.08 g
Analysis Date:	02/05/2014 1909			Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		3520	X	1.5	4.8
Antimony		0.36	U	0.36	0.57
Arsenic		1.7		0.63	0.96
Barium		74.7	X	0.073	0.48
Beryllium		0.032	U	0.032	0.19
Boron		0.94	U	0.94	1.9
Cadmium		0.058	B	0.039	0.19
Calcium		4650	X	13.5	47.8
Chromium		2.6	X	0.055	0.19
Cobalt		7.7	X	0.096	0.96
Copper		11.6	X	0.21	0.96
Iron		23400	X	3.6	4.8
Lead		2.2		0.26	0.48
Magnesium		3440	X	3.5	19.1
Manganese		246	X	0.096	0.96
Molybdenum		0.25	U	0.25	1.9
Nickel		5.5		0.12	3.8
Potassium		475		39.2	287
Selenium		0.82	U	0.82	0.96
Silicon		89.8		5.4	9.6
Silver		0.15	U	0.15	0.19
Sodium		214		56.4	115
Vanadium		51.6	X	0.090	1.9
Zinc		35.0	X	0.38	0.96

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T843**

Lab Sample ID: 280-51773-1
Client Matrix: Solid

Date Sampled: 02/03/2014 1000
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T844**

Lab Sample ID: 280-51773-2
Client Matrix: Solid

Date Sampled: 02/03/2014 0942
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.3		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T845**

Lab Sample ID: 280-51773-3
Client Matrix: Solid

Date Sampled: 02/03/2014 0957
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.5		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

General Chemistry

Client Sample ID: **J1T846**

Lab Sample ID: 280-51773-4
Client Matrix: Solid

Date Sampled: 02/03/2014 0946
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.2		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T847**

Lab Sample ID: 280-51773-5
Client Matrix: Solid

Date Sampled: 02/03/2014 0928
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	7.1		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T848**

Lab Sample ID: 280-51773-6
Client Matrix: Solid

Date Sampled: 02/03/2014 0955
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T849**

Lab Sample ID: 280-51773-7
Client Matrix: Solid

Date Sampled: 02/03/2014 0949
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.1		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

General Chemistry

Client Sample ID: **J1T850**

Lab Sample ID: 280-51773-8
Client Matrix: Solid

Date Sampled: 02/03/2014 0933
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	4.0		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

General Chemistry

Client Sample ID: **J1T851**

Lab Sample ID: 280-51773-9
Client Matrix: Solid

Date Sampled: 02/03/2014 0953
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	2.5		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

General Chemistry

Client Sample ID: **J1T852**

Lab Sample ID: 280-51773-10
Client Matrix: Solid

Date Sampled: 02/03/2014 0951
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

General Chemistry

Client Sample ID: **J1T853**

Lab Sample ID: 280-51773-11
Client Matrix: Solid

Date Sampled: 02/03/2014 0937
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.7		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

General Chemistry

Client Sample ID: **J1T854**

Lab Sample ID: 280-51773-12
Client Matrix: Solid

Date Sampled: 02/03/2014 0939
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.2		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

General Chemistry

Client Sample ID: **J1T855**

Lab Sample ID: 280-51773-13
Client Matrix: Solid

Date Sampled: 02/03/2014 0939
Date Received: 02/04/2014 0920

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	3.1		%	0.10	0.10	1.0	D-2216

Analysis Batch: 280-211376 Analysis Date: 02/04/2014 1358 DryWt Corrected: N

QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Method Blank - Batch: 280-211346

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-211346/1-A	Analysis Batch:	280-211744	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	02/05/2014 1820	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	2.32	B	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.0850	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
Calcium	14.1	U	14.1	50.0
Chromium	0.0620	B	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Copper	0.275	B	0.22	1.0
Iron	12.58		3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	3.7	U	3.7	20.0
Manganese	0.162	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
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.476	B	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Lab Control Sample - Batch: 280-211346

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-211346/2-A	Analysis Batch:	280-211744	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	02/05/2014 1822	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	185.0	93	82 - 116	
Antimony	50.0	47.45	95	82 - 110	
Arsenic	100	95.52	96	85 - 110	
Barium	200	202.4	101	87 - 112	
Beryllium	5.00	4.79	96	84 - 114	
Boron	100	92.91	93	80 - 120	
Cadmium	10.0	9.65	97	87 - 110	
Calcium	5000	4734	95	82 - 114	
Chromium	20.0	19.77	99	84 - 114	
Cobalt	50.0	47.64	95	87 - 110	
Copper	25.0	24.03	96	88 - 110	
Iron	100	100.4	100	87 - 120	
Lead	50.0	47.34	95	86 - 110	
Magnesium	5000	4768	95	90 - 110	
Manganese	50.0	46.96	94	88 - 110	
Molybdenum	100	98.45	98	86 - 110	
Nickel	50.0	47.87	96	87 - 110	
Potassium	5000	4970	99	89 - 110	
Selenium	200	186.3	93	83 - 110	
Silicon	1000	108.5	11	10 - 70	
Silver	5.00	4.86	97	87 - 114	
Sodium	5000	5202	104	90 - 112	
Vanadium	50.0	48.88	98	88 - 110	
Zinc	50.0	47.84	96	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Matrix Spike - Batch: 280-211346

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-51773-1	Analysis Batch:	280-211744	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.00 g
Analysis Date:	02/05/2014 1831	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	3990		208	6039	987	50 - 200	4
Antimony	0.37	U	51.9	27.88	54	20 - 200	
Arsenic	1.5		104	83.84	79	76 - 111	
Barium	53.6		208	256.7	98	52 - 159	
Beryllium	0.032	U	5.19	4.02	77	72 - 105	
Boron	0.94	U	104	80.82	78	80 - 120	N
Cadmium	0.071	B	10.4	8.88	85	40 - 130	
Calcium	7700		5190	15420	149	43 - 165	
Chromium	3.2		20.8	24.01	100	70 - 200	
Cobalt	5.8		51.9	50.49	86	72 - 106	
Copper	11.3		26.0	33.66	86	37 - 187	
Iron	19800		104	27750	7620	70 - 200	4
Lead	2.4		51.9	43.54	79	70 - 200	
Magnesium	2910		5190	9042	118	64 - 145	
Manganese	220		51.9	377.6	303	40 - 200	4
Molybdenum	0.25	U	104	86.22	83	75 - 103	
Nickel	5.8		51.9	50.27	86	61 - 126	
Potassium	477		5190	5147	90	56 - 172	
Selenium	0.83	U	208	161.5	78	76 - 104	
Silicon	83.1		1040	490.9	39	20 - 200	
Silver	0.15	U	5.19	4.51	87	75 - 141	
Sodium	184		5190	5287	98	78 - 111	
Vanadium	44.8		51.9	118.9	143	50 - 169	
Zinc	31.9		51.9	84.86	102	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Duplicate - Batch: 280-211346

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-51773-1	Analysis Batch:	280-211744	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-211346	Lab File ID:	25A3020514.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.04 g
Analysis Date:	02/05/2014 1829	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	02/05/2014 0830				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	3990		4556	13	40	
Antimony	0.37	U	0.38	NC	40	U
Arsenic	1.5		1.81	17	30	
Barium	53.6		57.83	8	30	
Beryllium	0.032	U	0.033	NC	30	U
Boron	0.94	U	0.98	NC	30	U
Cadmium	0.071	B	0.0619	14	30	B
Calcium	7700		16350	72	30	M
Chromium	3.2		3.77	16	40	
Cobalt	5.8		7.38	24	30	
Copper	11.3		11.28	0.3	30	
Iron	19800		22300	12	40	
Lead	2.4		2.80	14	40	
Magnesium	2910		3215	10	30	
Manganese	220		276.8	23	40	
Molybdenum	0.25	U	0.26	NC	30	U
Nickel	5.8		6.39	9	30	
Potassium	477		450.7	6	40	
Selenium	0.83	U	0.86	NC	30	U
Silicon	83.1		121.9	38	40	
Silver	0.15	U	0.16	NC	30	U
Sodium	184		267.5	37	30	M
Vanadium	44.8		52.85	16	30	
Zinc	31.9		33.57	5	40	

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

Duplicate - Batch: 280-211376

Method: D-2216
Preparation: N/A

Lab Sample ID:	280-51773-1	Analysis Batch:	280-211376	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:	02/04/2014 1358	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	3.7	3.3	9	20	

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
Metals					
Prep Batch: 280-211346					
LCS 280-211346/2-A	Lab Control Sample	T	Solid	3050B	
MB 280-211346/1-A	Method Blank	T	Solid	3050B	
280-51773-1	J1T843	T	Solid	3050B	
280-51773-1DU	Duplicate	T	Solid	3050B	
280-51773-1MS	Matrix Spike	T	Solid	3050B	
280-51773-2	J1T844	T	Solid	3050B	
280-51773-3	J1T845	T	Solid	3050B	
280-51773-4	J1T846	T	Solid	3050B	
280-51773-5	J1T847	T	Solid	3050B	
280-51773-6	J1T848	T	Solid	3050B	
280-51773-7	J1T849	T	Solid	3050B	
280-51773-8	J1T850	T	Solid	3050B	
280-51773-9	J1T851	T	Solid	3050B	
280-51773-10	J1T852	T	Solid	3050B	
280-51773-11	J1T853	T	Solid	3050B	
280-51773-12	J1T854	T	Solid	3050B	
280-51773-13	J1T855	T	Solid	3050B	
Analysis Batch:280-211744					
LCS 280-211346/2-A	Lab Control Sample	T	Solid	6010B	280-211346
MB 280-211346/1-A	Method Blank	T	Solid	6010B	280-211346
280-51773-1	J1T843	T	Solid	6010B	280-211346
280-51773-1DU	Duplicate	T	Solid	6010B	280-211346
280-51773-1MS	Matrix Spike	T	Solid	6010B	280-211346
280-51773-2	J1T844	T	Solid	6010B	280-211346
280-51773-3	J1T845	T	Solid	6010B	280-211346
280-51773-4	J1T846	T	Solid	6010B	280-211346
280-51773-5	J1T847	T	Solid	6010B	280-211346
280-51773-6	J1T848	T	Solid	6010B	280-211346
280-51773-7	J1T849	T	Solid	6010B	280-211346
280-51773-8	J1T850	T	Solid	6010B	280-211346
280-51773-9	J1T851	T	Solid	6010B	280-211346
280-51773-10	J1T852	T	Solid	6010B	280-211346
280-51773-11	J1T853	T	Solid	6010B	280-211346
280-51773-12	J1T854	T	Solid	6010B	280-211346
280-51773-13	J1T855	T	Solid	6010B	280-211346

Report Basis
T = Total

Client: Washington Closure Hanford

Job Number: 280-51773-1
Sdg Number: JP0720

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-211376					
280-51773-1	J1T843	T	Solid	D-2216	
280-51773-1DU	Duplicate	T	Solid	D-2216	
280-51773-2	J1T844	T	Solid	D-2216	
280-51773-3	J1T845	T	Solid	D-2216	
280-51773-4	J1T846	T	Solid	D-2216	
280-51773-5	J1T847	T	Solid	D-2216	
280-51773-6	J1T848	T	Solid	D-2216	
280-51773-7	J1T849	T	Solid	D-2216	
280-51773-8	J1T850	T	Solid	D-2216	
280-51773-9	J1T851	T	Solid	D-2216	
280-51773-10	J1T852	T	Solid	D-2216	
280-51773-11	J1T853	T	Solid	D-2216	
280-51773-12	J1T854	T	Solid	D-2216	
280-51773-13	J1T855	T	Solid	D-2216	

Report Basis
T = Total