

October 21, 2015

Analytical Data Package Prepared For
CH2M Hill Plateau Remediation

Radiochemical Analysis By
TestAmerica Inc

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

Assigned Laboratory Code: TARL

Data Package Contains 20 Pages

Report No.: 67420

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.
W07262	X16-001	B32TN9	J5J070416-2	M7PG31AC	9M7PG310	5280037
		B32TN9	J5J070416-2	M7PG31AA	9M7PG310	5280039
		B32TV3	J5J070416-1	M7PG21AC	9M7PG210	5280037
		B32TV3	J5J070416-1	M7PG21AA	9M7PG210	5280039
		B32TY9	J5J070416-4	M7PG61AA	9M7PG610	5280039
		B32V00	J5J070416-3	M7PG41AA	9M7PG410	5280039



Certificate of Analysis

CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – R3-60
Richland, WA 99352

October 21, 2015

Attention: Scot Fitzgerald

SAF Number	:	X16-001
Date SDG Closed	:	October 6, 2015
Number of Samples	:	Four (4)
Sample Type	:	Water
SDG Number	:	W07262
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On October 6, 2015, four samples were received at TestAmerica (TARL). Upon receipt, the samples were assigned laboratory ID numbers to correspond with the CH2M specific IDs.

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 analyses were:

Gas Proportional Counting
Strontium-90 by method RL-GPC-010
Liquid Scintillation Counting
Tritium by method RL-LSC-005

CH2M Hill Plateau Remediation Company
October 21, 2015

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

Gas Proportional Counting

Strontium-90 by method RL-GPC-010:

No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Liquid Scintillation Counting

Tritium by method RL-LSC-005:

No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of, explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager (or designee) and the laboratory's client services representative as verified by their signatures on this report.

Reviewed and approved:

 Digitally signed by
Whitney Ritari
Date: 2015.10.21
15:38:00 -07'00'

Whitney Ritari
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, $R = \text{constants} * f(x,y,z,\dots)$. 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/\sqrt{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) <i>u_c Combined Standard Uncert.</i>	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, <i>u_c the combined standard uncertainty</i> . 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.

October 21, 2015

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # X16-001-130			
Collector S.W. King/CHPRC		Contact/Requester Karen Waters-Husted		Telephone No. 509-376-4650			
SAF No. X16-001		Sampling Origin Hanford Site		Purchase Order/Charge Code 303271			
Project Title 100-BC-5 RI, OCTOBER 2015		Logbook No. HNF-N-506710/72		Ice Chest No. N/A			
Shipped To (Lab) TestAmerica Incorporated, Richland		Method of Shipment GOVERNMENT VEHICLE		Bill of Lading/Air Bill No. N/A			
Protocol CERCLA		Priority: 15 Days		Offsite Property No. N/A			
POSSIBLE SAMPLE HAZARDS/REMARKS ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1							
SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Submit deliverables & invoices to *CPP Sample Management.							
Sample No.	Filter	* Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B32TV3	N	OCT 06 2015	0912	1x1-L P	COMMON	6 Months	None
B32TV3	N	W	Y	3x1-L G/P	SRISO_SEP_PRECIP_GPC: COMMON	6 Months	HNO3 to pH <2



J5J070416
W07262

Relinquished By S.W. King/CHPRC	Print <i>[Signature]</i>	Received By CHRIS FULTON CHPRC	Sign <i>[Signature]</i>	Date/Time OCT 06 2015 1210	Matrix *
Relinquished By CHRIS FULTON CHPRC	Print <i>[Signature]</i>	Received By J. Friesz, TARI	Sign <i>[Signature]</i>	Date/Time OCT 06 2015 1440	S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WI = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Print	Received By	Sign	Date/Time	
Relinquished By	Print	Received By	Sign	Date/Time	
Disposal Method (e.g., Return to customer, per lab procedure, used in process)				Date/Time	
FINAL SAMPLE DISPOSITION				Date/Time	

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October 21, 2015

CH2MHill Plateau Remediation Company		C.O.C. # X16-001-121	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		Page 1 of 1	
Collector S.W. King/CHPRC	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650	
SAF No. X16-001	Sampling Origin Hanford Site	Purchase Order/Charge Code 303271	
Project Title 100-BC-5 RI, OCTOBER 2015	Logbook No. HNF-N-506 <u>76 / 72</u>	Ice Chest No. N/A	
Shipped To (Lab) TestAmerica Incorporated, Richland	Method of Shipment GOVERNMENT VEHICLE	Bill of Lading/Air Bill No. N/A	
Protocol CERCLA	Priority: 15 Days	Offsite Property No. N/A	
POSSIBLE SAMPLE HAZARDS/REMARKS *** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1			
SPECIAL INSTRUCTIONS Hold Time Submit deliverables & invoices to *CPP Sample Management.		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Sample No. B32TN9	Filter N	Date OCT 06 2015	Time 0842
No/Type Container 1x1-LP	Sample Analysis JF 101715	Holding Time 6 Months	Preservative None
Filter N	No/Type Container 3x1-L G/P	Date OCT 06 2015	Time 1440
Sample No. B32TN9	Filter N	Date OCT 06 2015	Time 1440
Sample No. B32TN9	Filter N	Date OCT 06 2015	Time 1440
Sample No. B32TN9	Filter N	Date OCT 06 2015	Time 1440



J5J070416
W0262

Relinquished By S.W. King/CHPRC	Received By CHRIS FULTON CHPRC	Date/Time OCT 06 2015 1210	Date/Time OCT 06 2015 1210
Relinquished By CHRIS FULTON CHPRC	Received By J. Friesz, TARC	Date/Time OCT 06 2015 1440	Date/Time OCT 06 2015 1440
Relinquished By CHRIS FULTON CHPRC	Received By CHRIS FULTON CHPRC	Date/Time OCT 06 2015 1440	Date/Time OCT 06 2015 1440
Relinquished By CHRIS FULTON CHPRC	Received By CHRIS FULTON CHPRC	Date/Time OCT 06 2015 1440	Date/Time OCT 06 2015 1440

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

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

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CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector	S.W. King/CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	X16-001	Sampling Origin	Hanford Site	Purchase Order/Charge Code	303271
Project Title	100-BC-5 RI, OCTOBER 2015	Logbook No.	HNF-N-506710 72	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	15 Days	Offsite Property No.	N/A

POSSIBLE SAMPLE HAZARDS/REMARKS
 ** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS Hold Time
 Submit deliverables & invoices to ^CPP Sample Management.

Total Activity Exemption: Yes No

Sample No.	Filter	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B32V00	N	OCT 06 2015	0855	1x1-L P	906.0_TRITIUM_LSC: COMMON MTPG4	6 Months	None

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 W07262

Relinquished By	S.W. King/CHPRC	Printed	Chris Fulton	Signature	[Signature]	Date/Time	1210
Relinquished By	CHRIS FULTON CHPRC	Date/Time	OCT 06 2015	Received By	J. Friesz, TARL	Date/Time	1440
Relinquished By	[Signature]	Date/Time	OCT 06 2015	Received By	[Signature]	Date/Time	1210
Relinquished By	[Signature]	Date/Time	OCT 06 2015	Received By	[Signature]	Date/Time	1440

Matrix *

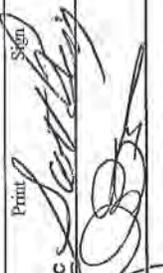
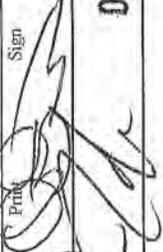
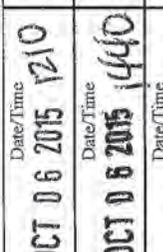
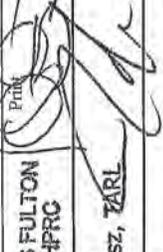
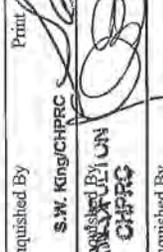
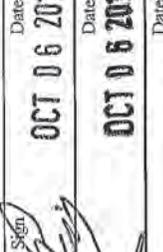
S	=	Soil	DS	=	Drum Solids
SE	=	Sediment	DL	=	Drum Liquids
SO	=	Solid	T	=	Tissue
SL	=	Sludge	WI	=	Wipe
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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October 21, 2015

J5J670416
W67262

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		C.O.C. # X16-001-141
Collector s.w. King/CHPRC		Contact/Requester Karen Waters-Husted		Telephone No. 509-376-4650
SAF No. X16-001		Sampling Origin Hanford Site		Purchase Order/Charge Code 303271
Project Title 100-BC-5 RL, OCTOBER 2015		Logbook No. HNF-N-506 <i>Ne/72</i>		Ice Chest No. N/A
Shipped To (Lab) TestAmerica Incorporated, Richland		Method of Shipment GOVERNMENT VEHICLE		Bill of Lading/Air Bill No. N/A
Protocol CERCLA		Priority: 15 Days		Offsite Property No. N/A
POSSIBLE SAMPLE HAZARDS/REMARKS *** ** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA, Dangerous Goods Regulations but are not releasable per DOE Order 458.1		SPECIAL INSTRUCTIONS Hold Time Submit deliverables & invoices to ^CPP Sample Management.		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample No. B32TY9	Filter N	# W	Date OCT 06 2015	Time 0700
No/Type Container 1x1-LP		Sample Analysis COMMON		Holding Time 6 Months
No/Type Container 1x1-LP		Sample Analysis MTSG		Preservative None

Relinquished By S.W. King/CHPRC	Print 	Date/Time OCT 06 2015 1210	Received By CHRIS FULTON CHPRC	Print 	Date/Time OCT 06 2015 1210	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By CHRIS FULTON CHPRC	Print 	Date/Time OCT 06 2015 1440	Received By J. Friesz, EARL	Print 	Date/Time OCT 06 2015 1440	
Relinquished By CHRIS FULTON CHPRC	Print 	Date/Time OCT 06 2015 1440	Received By J. Friesz, EARL	Print 	Date/Time OCT 06 2015 1440	
Relinquished By CHRIS FULTON CHPRC		Date/Time OCT 06 2015 1440	Received By J. Friesz, EARL		Date/Time OCT 06 2015 1440	
Relinquished By CHRIS FULTON CHPRC		Date/Time OCT 06 2015 1440	Received By J. Friesz, EARL		Date/Time OCT 06 2015 1440	
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By		
PRINTED ON 9/28/2015		FSR ID = FSR5370		A-6004-842 (REV 2)		

Date/Time Received: 10/6/15 1440 Container GM Screen Result: (Airlock) 0 cpm Initials [J]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials [J]

Client: PGW SDG #: W07262 SAF #: X16-001 NA []

Lot Number: J5J070416

Chain of Custody # X16-001-130; 121; 143; 141

Shipping Container ID or Air Bill Number : _____ NA [J]

Samples received inside shipping container/cooler/box Yes [J] 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 [J]
- 2. Custody Seals dated and signed? Yes [] No [] No Custody Seal [J]
- 3. Cooler temperature: 94° SW ICE NA []
- 4. Vermiculite/packing materials is NA [J] Wet [] Dry []

Item 5 through 16 for samples. Initial appropriate response.

- 5. Chain of Custody record present? Yes [J] No [] 4
- 6. Number of samples received (Each sample may contain multiple bottles): _____
- 7. Containers received: 10 x 1p

- 8. Sample holding times exceeded? NA [] Yes [] No [J]
- 9. Samples have: _____ tape _____ hazard labels J custody seals _____ appropriate sample labels
- 10. Matrix: _____ A (FLT, Wipe, Solid, Soil) J (Water) _____ S (Air, Niosh 7400) _____ T (Biological, Ni-63)

11. Samples: J 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 [J] No [] NA []
(If acidification is necessary go to pH area & document sample ID, initial pH, amount of HNO₃ added and pH after addition on table)
- 13. Were any anomalies identified in sample receipt? Yes [] No [J]
- 14. Description of anomalies (include sample numbers): NA [J] _____

15. Sample Location, Sample Collector Listed on COC? * Yes [J] No []
*For documentation only. No corrective action needed.

16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: [Signature] Date: 10/6/15

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

JMP No action necessary; process as is
Project Manager Whitney M. Bitari Date 10/7/15

October 21, 2015

Sample Results Summary

Date: 21-Oct-15

TestAmerica Inc TARL

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

Report No. : 67420

SDG No: W07262

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5280037	SRISO_SEP_PRECIP_GPC								
	B32TN9								
	M7PG31AC	STRONTIUM	8.81E-01 +- 4.6E-01		pCi/L	83%	5.78E-01	2.00E+00	
	B32TV3								
	M7PG21AC	STRONTIUM	1.98E-01 +- 3.5E-01	U	pCi/L	82%	5.86E-01	2.00E+00	
	B32TV3 DUP								
	M7PG21AD	STRONTIUM	-2.16E-01 +- 3.2E-01	U	pCi/L	84%	6.14E-01	2.00E+00	-4599.0
5280039	906.0_H3_LSC								
	B32TN9								
	M7PG31AA	H-3	5.73E+02 +- 1.8E+02		pCi/L	100%	3.26E+02	4.00E+02	
	B32TV3								
	M7PG21AA	H-3	4.61E+03 +- 3.2E+02		pCi/L	100%	3.28E+02	4.00E+02	
	B32TV3 DUP								
	M7PG21AF	H-3	4.75E+03 +- 3.2E+02		pCi/L	100%	3.26E+02	4.00E+02	2.9
	B32TY9								
	M7PG61AA	H-3	2.13E+02 +- 1.7E+02	U	pCi/L	100%	3.53E+02	4.00E+02	
	B32V00								
	M7PG41AA	H-3	2.01E+03 +- 2.3E+02		pCi/L	100%	3.33E+02	4.00E+02	
	No. of Results: 8								

October 21, 2015

QC Results Summary
TestAmerica Inc TARL
Ordered by Method, Batch No, QC Type,.

Date: 21-Oct-15

Report No. : 67420

SDG No.: W07262

Batch	Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
SRISO_SEP_PRECIP_GPC									
5280037	BLANK QC,								
	M7PN81AA	STRONTIUM	-1.15E-01 +- 3.3E-01	U	pCi/L	79%			6.29E-01
5280037	LCS,								
	M7PN81AC	STRONTIUM	6.14E+00 +- 1.6E+00		pCi/L	95%	91%	-0.1	5.89E-01
906.0_H3_LSC									
5280039	MATRIX SPIKE, B32TV3								
	M7PG21AE	H-3	1.18E+03 +- 5.0E+02		pCi/L	100%	78%	-0.2	3.81E+02
5280039	BLANK QC,								
	M7PPE1AA	H-3	3.02E+02 +- 1.7E+02	U	pCi/L	100%			3.50E+02
5280039	LCS,								
	M7PPE1AC	H-3	2.96E+03 +- 2.7E+02		pCi/L	100%	106%	0.1	3.44E+02
No. of Results: 5									

TestAmerica Inc Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.4.1 A2002 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

Date: 21-Oct-15

SAMPLE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5J070416-2
 Client Sample ID: B32TN9

SDG: W07262
 Report No.: 67420
 COC No.: X16-001-121
 Matrix: WATER

Collection Date: 10/6/2015 8:42:00 AM

Received Date: 10/6/2015 2:40:00 PM

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/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5280037 SRISO_SEP_PRECIP_GPC Work Order: M7PG31AC Report DB ID: 9M7PG310												
STRONTIUM	8.81E-01		4.2E-01	4.6E-01	5.78E-01	pCi/L	83%	(1.5)	10/13/15 11:20 a		1.0019	GPC32B
							2.61E-01	2.00E+00			L	
Batch: 5280039 906.0_H3_LSC Work Order: M7PG31AA Report DB ID: 9M7PG310												
H-3	5.73E+02		1.6E+02	1.8E+02	3.26E+02	pCi/L	100%	(1.8)	10/11/15 01:16 a		0.00502	LSC04
							1.55E+02	4.00E+02			L	

No. of Results: 2 Comments:

October 21, 2015

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TestAmerica Inc MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRLchSample U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
 V5.4.1 A2002

FORM I

Date: 21-Oct-15

SAMPLE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5J070416-1
 Client Sample ID: B32TV3

SDG: W07262
 Report No.: 67420
 COC No.: X16-001-130
 Matrix: WATER

Collection Date: 10/6/2015 9:12:00 AM

Received Date: 10/6/2015 2:40:00 PM

Matrix: WATER

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/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 5280037 SRISO_SEP_PRECIP_GPC Work Order: M7PG21AC Report DB ID: 9M7PG210												
STRONTIUM	1.98E-01	U	3.5E-01	3.5E-01	5.86E-01	pCi/L	82%	0.34	10/13/15 11:20 a		0.9911	GPC31D
							2.65E-01	2.00E+00	(1.1)		L	
Batch: 5280039 906.0_H3_LSC Work Order: M7PG21AA Report DB ID: 9M7PG210												
H-3	4.61E+03		2.7E+02	3.2E+02	3.28E+02	pCi/L	100%	(14.1)	10/10/15 09:07 p		0.00503	LSC4
							1.56E+02	4.00E+02	(29.2)		L	

No. of Results: 2 Comments:

October 21, 2015

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TestAmerica Inc MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRLchSample U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
 V5.4.1 A2002

FORM I

Date: 21-Oct-15

SAMPLE RESULTS

Lab Name: TestAmerica Inc
Lot-Sample No.: J5J070416-4
Client Sample ID: B32TY9

SDG: W07262
Report No.: 67420
COC No.: X16-001-141
Collection Date: 10/6/2015 7:00:00 AM
Received Date: 10/6/2015 2:40:00 PM
Matrix: WATER

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: 5280039	906.0_H3_LSC				Work Order: M7PG61AA	Report DB ID: 9M7PG610						
H-3	2.13E+02	U	1.5E+02	1.7E+02	3.53E+02 pCi/L	1.68E+02	100%	0.6	10/11/15 04:03 a		0.00502	LSC4
						4.00E+02	(2.5)				L	

No. of Results: 1 Comments:

October 21, 2015

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TestAmerica Inc MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rptSTLRLchSample U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.
V5.4.1 A2002

FORM II

Date: 21-Oct-15

DUPLICATE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5J070416-1
 Client Sample ID: B32TV3 DUP

SDG: W07262
 Report No.: 67420
 COC No.: X16-001-130
 Matrix: WATER

Collection Date: 10/6/2015 9:12:00 AM

Received Date: 10/6/2015 2:40:00 PM

Matrix: WATER

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: 5280037	SRISO_SEP_PRECIP_GPC											
STRONTIUM	-2.16E-01	U	3.1E-01	3.2E-01	6.14E-01	pCi/L	84%	M7PG21DR	Orig Sa DB ID: 9M7PG210 10/13/15 11:20 a		1.0123	GPC32A
	1.98E-01	U	RPD	-4599.0		2.00E+00					L	
Batch: 5280039	906.0_H3_LSC											
H-3	4.75E+03		2.7E+02	3.2E+02	3.26E+02	pCi/L	100%	M7PG21FR	Orig Sa DB ID: 9M7PG210 10/10/15 11:53 p		0.00502	LSC4
	4.61E+03		RPD	2.9		4.00E+02					L	

No. of Results: 2 Comments:

October 21, 2015

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TestAmerica Inc RPD - Relative Percent Difference.
 MDC(MDA),Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLrchDupV5.
 4.1 A2002 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: 21-Oct-15

BLANK RESULTS

Lab Name: TestAmerica Inc

SDG: W07262

Matrix: WATER

Report No.: 67420

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: 5280039 906.0_H3_LSC												
H-3	3.02E+02	U	1.5E+02	1.7E+02	3.50E+02	pCi/L	100%	0.86	10/11/15 05:27 a	0.00503	L	LSC4
					1.66E+02	4.00E+02		(3.5)				
Batch: 5280037 SRISO_SEP_PRECIP_GPC												
STRONTIUM	-1.15E-01	U	3.3E-01	3.3E-01	6.29E-01	pCi/L	79%	-0.18	10/13/15 11:20 a	1.0009	L	GPC32C
					2.85E-01	2.00E+00		-0.69				

No. of Results: 2 Comments:

October 21, 2015

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FORM II
LCS RESULTS

Date: 21-Oct-15

Lab Name: TestAmerica Inc

SDG: W07262

Matrix: WATER

Report No. : 67420

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: 5280039													
H-3	906.0_H3_LSC		2.4E+02	2.7E+02	3.44E+02	pCi/L	100%	2.78E+03	8.3E+01	106%	10/11/15 06:51 a	0.00502	LSC4
Work Order: M7PPE1AC Report DB ID: M7PPE1CS													
Rec Limits: 70 130 0.1													
Batch: 5280037													
STRONTIUM	SRISO_SEP_PRECIP_GPC		7.5E-01	1.6E+00	5.89E-01	pCi/L	95%	6.76E+00	2.6E-01	91%	10/13/15 11:20 a	1.0008	GPC32D
Work Order: M7PN81AC Report DB ID: M7PN81CS													
Rec Limits: 70 130 -0.1													

No. of Results: 2 Comments:

October 21, 2015

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FORM II

Date: 21-Oct-15

MATRIX SPIKE RESULTS

Lab Name: TestAmerica Inc SDG: W07262 Matrix: WATER
Lot-Sample No.: J5J070416-1, B32TV3 Report No.: 67420

Parameter	SpikeResult, Orig Rst	Count Error (2 s)	CSU (2 s)	MDC MDA	Rpt Unit	Yield	Rec-covery	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 5280039	Work Order: M7PG21AE	Report DB ID: M7PG21EW	Report DB ID: M7PG21EW	Orig Sa DB ID: 9M7PG210							
H-3	1.18E+03	3.2E+02	5.0E+02	3.81E+02	pCi/L	100%	78.24%	1.50E+03	10/10/15 10:30 p	0.00431	906.0_H3_LSC
	4.61E+03							4.5E+01		L	LSC4

Number of Results: 1

Comments:

October 21, 2015

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TestAmerica Inc RER - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.
rptSTLrChMs Bias - (Result/Expected)-1 as defined by ANSI N13.30.
V5.4.1 A2002