

December 23, 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 16 Pages

Report No.: 67874

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.
W07344	F13-002	B31T80	J5L090414-1	M703E1AA	9M703E10	5344012
		B31T80	J5L090414-1	M703E1AC	9M703E10	5344014
		B31T80	J5L090414-1	M703E1AD	9M703E10	5344015



Certificate of Analysis

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

December 23, 2015

Attention: Scot Fitzgerald

SAF Number	:	F13-002
Date SDG Closed	:	December 9, 2015
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W07344
Data Deliverable	:	15-Day / Summary

CASE NARRATIVE

I. Introduction

On December 9, 2015, one sample was received at TestAmerica (TARL). Upon receipt, the sample was assigned laboratory ID numbers to correspond with the CH2M specific IDs.

II. Sample Receipt

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

III. Analytical Results/Methodology

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

The requested analyses were:

Gamma Spectroscopy

Iodine-129 (LL) by method RL-GAM-002

Liquid Scintillation Counting

Technetium-99 by TEVA method RL-LSC-014

Tritium by method RL-LSC-005

CH2M Hill Plateau Remediation Company
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IV. Quality Control

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

QC and sample results are reported in the same units.

V. Comments

Gamma Spectroscopy

Iodine-129 (LL) by method RL-GAM-002:

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

Liquid Scintillation Counting

Technetium-99 by TEVA method RL-LSC-014:

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

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:



Whitney Ritari
Project Manager

Digitally signed by
Whitney Ritari
Date: 2015.12.23
12:37:51 -08'00'

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.

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F13-002-1262	PAGE 1 OF 1
COLLECTOR K.C. Patterson/CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE 7C	DATA TURNAROUND 15 Days / 15 Days
SAMPLING LOCATION 289TB, 299-W12-3, Valve V03-YE18	PROJECT DESIGNATION 200W Pump & Treat - Extraction Well Water Sampling	FIELD LOGBOOK NO. HNF-N-49115	SAF NO. F13-002	AIR QUALITY	METHOD OF SHIPMENT GOVERNMENT VEHICLE
ICE CHEST NO. (N/A)	ACTUAL SAMPLE DEPTH (N/A)	OFFSITE PROPERTY NO. (N/A)	COA 303111	ORIGINAL	
SHIPPED TO TestAmerica Incorporated, Richland		BILL OF LADING/AIR BILL NO. (N/A)			

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	None	None	HCl to pH <2
A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/TATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. N/A	HOLDING TIME	6 Months	6 Months	6 Months
		TYPE OF CONTAINER	G/P	P	P
		NO. OF CONTAINER(S)	2	1	1
		VOLUME	4L	1L	500ml
		SAMPLE ANALYSIS	1129LL_SEP_LE PS_GS_LL; COMMON;	TRITIUM_DIST LSC; COMMON;	TC99_ETVDSK LSC; COMMON;
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	DATE/TIME	DATE/TIME
BQT80	WATER	DEC 08 2015	1250	DEC 08 2015	1300

m703E
J5L090414
W07344

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS TRVL-16-034	
RELINQUISHED BY/REMOVED FROM K.C. Patterson/CHPRC	DATE/TIME DEC 08 2015 1310	RECEIVED BY/STORED IN SSU#1	DATE/TIME DEC 08 2015 1300		
RELINQUISHED BY/REMOVED FROM SSU#1	DATE/TIME DEC 09 2015 0800	RECEIVED BY/STORED IN T.L. BACON/CHPRC	DATE/TIME DEC 09 2015 0400		
RELINQUISHED BY/REMOVED FROM T.L. BACON/CHPRC	DATE/TIME DEC 09 2015 0950	RECEIVED BY/STORED IN J. Friesz, TARI	DATE/TIME DEC 09 2015 0950		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	
PRINTED ON 12/2/2015	FSR ID = FSR11498	TRVL NUM = TRVL-16-034		A-6003-618 (REV 2)	



6016

Date/Time Received: 12-9-15/0950 Container GM Screen Result: (Airlock) 0 cpm Initials [B]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials [B]

Client: FLH SDG #: W07344 SAF #: F13-002 NA []

Lot Number: J5L090414

Chain of Custody # F13-002-1242

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

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

- 1. Custody Seals on shipping container intact? Yes [] No [] No Custody Seal [B]]
- 2. Custody Seals dated and signed? Yes [] No [] No Custody Seal [B]]
- 3. Cooler temperature: 3.5 °C Ice NA [B]]
- 4. Vermiculite/packing materials is NA [B]] Wet [] Dry []

Item 5 through 16 for samples. Initial appropriate response.

- 5. Chain of Custody record present? Yes [B]] No []
- 6. Number of samples received (Each sample may contain multiple bottles): 1
- 7. Containers received: 1x500 mL; 1x4L; 2x4L

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

11. Samples: [B] 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 [B]] 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 [B]]

14. Description of anomalies (include sample numbers): NA [B]] _____

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

16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: [Signature] Date: 12-9-15

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

[X] No action necessary; process as is
Project Manager: [Signature] Date: 12-9-15

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Sample Results Summary

Date: 23-Dec-15

TestAmerica Inc TARL

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

Report No. : 67874

SDG No: W07344

Batch	Client Id Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
5344014	I129LL_SEP_LEPS_GS								
	B31T80								
	M703E1AC I129		4.59E-01 +- 3.6E-01	U	pCi/L	85%	7.29E-01	1.00E+00	
	B33Y89 DUP								
	M70X81AG I129		6.30E-01 +- 4.5E-01		pCi/L	86%	5.63E-01	1.00E+00	79.2
5344012	TRITIUM_DIST_LSC								
	B31T80								
	M703E1AA H-3		9.43E+02 +- 1.8E+02		pCi/L	100%	3.04E+02	4.00E+02	
	B33Y89 DUP								
	M70X81AF H-3		3.08E+03 +- 2.5E+02		pCi/L	100%	3.03E+02	4.00E+02	2.6
5344015	TC99_ETVDSK_LSC								
	B31T80								
	M703E1AD Tc-99		2.53E+02 +- 1.1E+01		pCi/L	100%	9.14E+00	1.50E+01	
	B33Y77 DUP								
	M70X61AE Tc-99		4.91E+03 +- 1.2E+02		pCi/L	100%	9.13E+00	1.50E+01	2.0
	No. of Results:	6							

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

Date: 23-Dec-15

Report No. : 67874

SDG No.: W07342

Batch	Work Order	Parameter	Result +- CSU (2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
I129LL_SEP_LEPS_GS									
5344014	BLANK QC,								
	M70431AA	I129	-1.08E-01 +- 2.6E-01	U	pCi/L	89%			4.54E-01
5344014	LCS,								
	M70431AC	I129	1.72E+01 +- 2.3E+00		pCi/L	92%	91%	-0.1	8.42E-01
TRITIUM_DIST_LSC									
5344012	MATRIX SPIKE, B33Y94								
	M70X91AF	H-3	1.44E+03 +- 4.0E+02		pCi/L	100%	96%	0.0	3.54E+02
5344012	BLANK QC,								
	M70411AA	H-3	6.05E+01 +- 1.5E+02	U	pCi/L	100%			3.10E+02
5344012	LCS,								
	M70411AC	H-3	2.66E+03 +- 2.4E+02		pCi/L	100%	95%	-0.1	3.10E+02
TC99_ETVDSK_LSC									
5344015	MATRIX SPIKE, B33Y89								
	M70X81AH	Tc-99	5.16E+02 +- 2.1E+01		pCi/L	100%	96%	0.0	9.25E+00
5344015	BLANK QC,								
	M70451AA	Tc-99	2.64E+00 +- 4.1E+00	U	pCi/L	100%			9.19E+00
5344015	LCS,								
	M70451AC	Tc-99	1.05E+02 +- 7.2E+00		pCi/L	100%	97%	0.0	9.17E+00
No. of Results: 8									

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: 23-Dec-15

SAMPLE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5L090414-1
 Client Sample ID: B31T80

SDG: W07344
 Report No.: 67874
 COC No.: F13-002-1262

Collection Date: 12/8/2015 12:50:00 PM
 Received Date: 12/9/2015 9:50:00 AM
 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: 5344012												
TRITIUM_DIST_LSC												
H-3	9.43E+02		1.6E+02	1.8E+02	3.04E+02	pCi/L	100%	(3.1)	12/17/15 10:53 a		0.00503	LSC9
							1.45E+02	4.00E+02	(10.6)			
Batch: 5344014												
I129LL_SEP_LEPS_GS												
I129	4.59E-01	U	3.6E-01	3.6E-01	7.29E-01	pCi/L	85%	0.63	12/21/15 10:53 a		2.0336	LEP481
							3.10E-01	1.00E+00	(2.6)			
Batch: 5344015												
TC99_ETVDSK_LSC												
Tc-99	2.53E+02		9.2E+00	1.1E+01	9.14E+00	pCi/L	100%	(27.6)	12/17/15 01:48 a		0.1267	LSC8
							4.38E+00	1.50E+01	(46.)			

No. of Results: 3 Comments:

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FORM II

Date: 23-Dec-15

DUPLICATE RESULTS

Lab Name: TestAmerica Inc
 Lot-Sample No.: J5L080434-1
 Client Sample ID: B33Y77 DUP

SDG: W07342
 Report No.: 67874
 COC No.: F15-005-544
 Matrix: WATER

Collection Date: 12/8/2015 10:25:00 AM

Received Date: 12/8/2015 2:45:00 PM

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: 5344015	TC99_ETVDSK_LSC				Work Order: M70X61AE	Report DB ID: M70X61ER			Orig Sa DB ID: 9M70X610			
Tc-99	4.91E+03		3.7E+01	1.2E+02	9.13E+00	pCi/L	100%	(538.)	12/16/15 10:15 a		0.1266	LSC8
	4.82E+03		RPD 2.0			1.50E+01		(85.3)			L	

No. of Results: 1 Comments:

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FORM II

Date: 23-Dec-15

DUPLICATE RESULTS

Lab Name: TestAmerica Inc **SDG:** W07342 **Collection Date:** 12/8/2015 9:35:00 AM
Lot-Sample No.: J5L080434-3 **Report No.:** 67874 **Received Date:** 12/8/2015 2:45:00 PM
Client Sample ID: B33Y89 DUP **COC No.:** F15-005-556 **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: 5344012	TRITIUM_DIST_LSC											
H-3	3.08E+03		2.2E+02	2.5E+02	3.03E+02	pCi/L	100%	(10.2)	12/17/15 04:03 a	9M70X810	0.00502	LSC9
	3.16E+03		RPD 2.6			4.00E+02		(24.8)			L	
Batch: 5344014	1129LL_SEP_LEPS_GS											
1129	6.30E-01		4.5E-01	4.5E-01	5.63E-01	pCi/L	86%	(1.1)	12/18/15 12:49 p	9M70X810	1.9988	LEP4\$1
	2.73E-01	U	RPD 79.2			1.00E+00		(2.8)			L	

No. of Results: 2 Comments:

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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
BLANK RESULTS**

Date: 23-Dec-15

Lab Name: **TestAmerica Inc** SDG: **W07342**
 Matrix: **WATER** Report No.: **67874**

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: 5344012 TRITIUM_DIST_LSC Work Order: M70411AA Report DB ID: M70411AB												
H-3	6.05E+01	U	1.3E+02	1.5E+02	3.10E+02	pCi/L	100%	0.2	12/17/15 12:15 p	0.00503	L	LSC9
					1.48E+02	4.00E+02		0.83				
Batch: 5344014 I129LL_SEP_LEPS_GS Work Order: M70431AA Report DB ID: M70431AB												
I129	-1.08E-01	U	2.6E-01	2.6E-01	4.54E-01	pCi/L	89%	-0.24	12/21/15 11:02 a	2.0194	L	LEP5\$1
					2.05E-01	1.00E+00		-0.84				
Batch: 5344015 TC99_ETVDSK_LSC Work Order: M70451AA Report DB ID: M70451AB												
Tc-99	2.64E+00	U	3.9E+00	4.1E+00	9.19E+00	pCi/L	100%	0.29	12/17/15 02:50 a	0.1263	L	LSC8
					4.40E+00	1.50E+01		(1.3)				

No. of Results: 3 Comments:

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FORM II
LCS RESULTS

Date: 23-Dec-15

Lab Name: TestAmerica Inc

SDG: W07342

Matrix: WATER

Report No.: 67874

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: 5344012													
	TRITIUM_DIST_LSC			Work Order: M70411AC			Report DB ID: M70411CS						
H-3	2.66E+03		2.1E+02	2.4E+02	3.10E+02	pCi/L	100%	2.80E+03	8.41E+01	95%	12/17/15 01:37 p	0.00503	LSC9
							Rec Limits:	70	130	-0.1		L	
Batch: 5344014													
	1129LL_SEP_LEPS_GS			Work Order: M70431AC			Report DB ID: M70431CS						
1129	1.72E+01		2.3E+00	2.3E+00	8.42E-01	pCi/L	92%	1.90E+01	3.07E-01	91%	12/21/15 12:59 p	2.0206	LEP4\$1
							Rec Limits:	70	130	-0.1		L	
Batch: 5344015													
	TC99_ETVDSK_LSC			Work Order: M70451AC			Report DB ID: M70451CS						
Tc-99	1.05E+02		6.6E+00	7.2E+00	9.17E+00	pCi/L	100%	1.09E+02	6.40E-01	97%	12/17/15 03:52 a	0.127	LSC8
							Rec Limits:	70	130	0.0		L	

No. of Results: 3 Comments:

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FORM II

Date: 23-Dec-15

MATRIX SPIKE RESULTS

Lab Name: TestAmerica Inc SDG: W07342 Matrix: WATER
 Lot-Sample No.: J5L080434-3, B33Y89 Report No.: 67874

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: 5344015	Work Order: M70X81AH	Report DB ID: M70X81HW	Report DB ID: M70X81HW			Orig Sa DB ID: 9M70X810					
Tc-99	5.16E+02	1.4E+01	2.1E+01	9.25E+00	pCi/L	100%	95.77%	5.39E+02	12/16/15 12:19 p	0.126	TC99_ETVDSK_LSC
	1.13E+02							3.08E+00		L	LSC8

Number of Results: 1

Comments:

December 23, 2015

FORM II

Date: 23-Dec-15

MATRIX SPIKE RESULTS

Lab Name: TestAmerica Inc SDG: W07342 Matrix: WATER
 Lot-Sample No.: J5L080434-4, B33Y94 Report No.: 67874

Parameter	SpikeResult, Orig Rst	Count Error (2 s)	CSU (2 s)	MDC MDA	Rpt Unit	Yield	Recovery	Expected, Uncert	Analysis, Prep Date	Aliquot Size	Analy Method, Primary Detector
Batch: 5344012	Work Order: M70X91AF	Report DB ID: M70X91FW	Report DB ID: M70X91FW			Orig Sa DB ID: 9M70X910					
H-3	1.44E+03	2.7E+02	4.0E+02	3.54E+02	pCi/L	100%	95.54%	1.50E+03	12/17/15 06:47 a	0.00431	TRITIUM_DIST_LSC
	2.96E+03							4.51E+01		L	LSC9

Number of Results: 1

Comments:

December 23, 2015