

**July 12, 2016**

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 14 Pages*

**Report No.: 68933**

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

<b>SDG No.</b>	<b>Order No.</b>	<b>Client Sample ID (List Order)</b>	<b>Lot-Sa No.</b>	<b>Work Order</b>	<b>Report DB ID</b>	<b>Batch No.</b>
<b>W07528</b>	<b>F16-046</b>	<b>B35WH8</b>	<b>J6F280406-1</b>	<b>M8T441AE</b>	<b>9M8T4410</b>	<b>6180067</b>
		<b>B35WH8</b>	<b>J6F280406-1</b>	<b>M8T441AA</b>	<b>9M8T4410</b>	<b>6180068</b>
		<b>B35WH8</b>	<b>J6F280406-1</b>	<b>M8T441AC</b>	<b>9M8T4410</b>	<b>6180069</b>
		<b>B35WH8</b>	<b>J6F280406-1</b>	<b>M8T441AD</b>	<b>9M8T4410</b>	<b>6180070</b>



## Certificate of Analysis

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

July 12, 2016

Attention: Scot Fitzgerald

---

SAF Number	:	F16-042
Date SDG Closed	:	June 28, 2016
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W07528
Data Deliverable	:	10-Day / Summary

---

### CASE NARRATIVE

#### **I. Introduction**

On June 27, 2016, twelve samples were received at TestAmerica (TARL). Upon receipt, the samples were assigned laboratory ID numbers to correspond with the CH2M specific IDs. The Chain of Custody requested a 7 Day Turnaround Time (TAT). Due to the requested analysis the quickest agreeable TAT offered is 10 Calendar Days.

#### **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:

##### **Gamma Spectroscopy**

Gamma Spec (LL) by method RL-GAM-001

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  
July 12, 2016

---

**IV. Quality Control**

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

QC and sample results are reported in the same units.

**V. Comments**

**Gamma Spectroscopy**

Gamma Spec (LL) by method RL-GAM-001:

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

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:

 Digitally signed by  
Whitney Ritari  
Date: 2016.07.12  
17:47:50 -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

<b>Action Lev</b>	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.
<b>Batch</b>	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
<b>Bias</b>	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
<b>COC No</b>	Chain of Custody Number assigned by the Client or TestAmerica.
<b>Count Error (#s)</b>	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.
<b>CSU (#s) <i>u<sub>c</sub> Combined Standard Uncert.</i></b>	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<sub>c</sub> the combined standard uncertainty</i> . The uncertainty is absolute and in the same units as the result.
<b>(#s), Coverage Factor</b>	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
<b>CRDL (RL)</b>	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)
<b>Lc</b>	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.
<b>Lot-Sample No</b>	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.
<b>MDC MDA MDL</b>	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.
<b>Primary Detector</b>	The instrument identifier associated with the analysis of the sample aliquot.
<b>Ratio U-234/U-238</b>	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.
<b>Rst/MDC</b>	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.
<b>Rst/TotUcert</b>	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.
<b>Report DB No</b>	Sample Identifier used by the report system. The number is based upon the first five digits of the <b>Work Order</b> Number.
<b>RER</b>	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.
<b>SDG</b>	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
<b>Sum Rpt Alpha Spec Rst(s)</b>	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.
<b>Work Order</b>	The LIMS software assign test specific identifier.
<b>Yield</b>	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-046-003	PAGE 1 OF 1
COLLECTOR Kevin Patterson CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE C05	DATA TURNAROUND 7 Days / 7 Days
SAMPLING LOCATION 289-T, Influent Tank, Valve V12-Y30	PROJECT DESIGNATION 200W Pump & Treat - Treatment Plant Compliance Sampling - Water	FIELD LOGBOOK NO. HNF-N-49115	SAF NO. F16-046	AIR QUALITY <input type="checkbox"/>	ORIGINAL
ICE CHEST NO. N/A	ACTUAL SAMPLE DEPTH N/A	OFFSITE PROPERTY NO. N/A	COA 303700	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO TestAmerica Incorporated, Richland	BILL OF LADING/AIR BILL NO. N/A				

MATRIX*	PRESERVATION	HCl to pH <2	None	HNO3 to pH <2
POSSIBLE SAMPLE HAZARDS/ REMARKS *Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR/JATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1 - N/A	HOLDING TIME 6 Months	6 Months	6 Months	6 Months
SPECIAL HANDLING AND/OR STORAGE	TYPE OF CONTAINER P	P	G/P	G/P
	NO. OF CONTAINER(S) 1	1	1	4
	VOLUME 500ml	500ml	4L	1L
	SAMPLE ANALYSIS TC99_ETVDSK LSC; COMMON;	TRETIUM_DIST LSC; COMMON;	U235U_SEP_LE PS_LSS; COMMON;	GAMMA_LL COBALT_60_LL (Cobalt-60);

*Jefferson*  
*W01528*  
*Due 7-5-16*  
*M8T44*



CHAIN OF POSSESSION		SIGN / PRINT NAMES		SPECIAL INSTRUCTIONS TRVL-16-158	
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC	DATE/TIME JUN 27 2016 1415	RECEIVED BY/STORED IN SSU-1	DATE/TIME JUN 27 2016 1415		
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC	DATE/TIME JUN 28 2016 0815	RECEIVED BY/STORED IN Lesly West CHPRC	DATE/TIME JUN 28 2016 0815		
RELINQUISHED BY/REMOVED FROM Kevin Patterson CHPRC	DATE/TIME JUN 28 2016 1050	RECEIVED BY/STORED IN J. Bock, TARL	DATE/TIME JUN 28 2016 1050		
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 6/16/2016		FSR ID = FSR32904		TRVL NUM = TRVL-16-158	
6 of 14				A-6003-618 (REV 2)	

July 12, 2016

TestAmerica

Sample Check-in List

THE LEADER IN ENVIRONMENTAL TESTING

Date/Time Received: 6-28-14/1050 Container GM Screen Result: (Airlock) 0 cpm Initials [B] Sample GM Screen Result (Sample Receiving) 0 cpm Initials [B]

Client: FLH SDG #: W07528 SAF #: F14-046 NA [ ]

Lot Number: JLF280406

Chain of Custody # F14-046-003

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: 4.9 C/IC NA [ ]
4. Vermiculite/packing materials is NA [B] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [B] No [ ]

6. Number of samples received (Each sample may contain multiple bottles): 1

7. Containers received: 2 x 500mlp; 4x4p; 1x4p

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: 6-28-14

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

[Signature] No action necessary; process as is

Project Manager [Signature] Date 6/28/16

Sample Results Summary

Date: 12-Jul-16

TestAmerica Inc TARL

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

Report No. : 68933

SDG No: W07528

Batch	Client Id Work Order	Parameter	Result +- CSU ( 2 s)	Qual	Units	Tracer Yield	MDL	CRDL	RPD
<b>6180069 GAMMA_GS</b>									
<b>B35WH8</b>									
	M8T441AC	CO-60	-1.62E-01 +- 1.8E+00	U	pCi/L		3.29E+00	2.50E+01	
<b>B35WH8 DUP</b>									
	M8T441AK	CO-60	7.16E-02 +- 2.2E+00	U	pCi/L		4.01E+00	2.50E+01	-518.3
<b>6180070 I129LL_SEP_LEPS_GS</b>									
<b>B35WH8</b>									
	M8T441AD	I129	-3.48E-01 +- 3.6E-01	U	pCi/L	94%	5.66E-01	1.00E+00	
<b>B35WH8 DUP</b>									
	M8T441AL	I129	5.07E-02 +- 3.5E-01	U	pCi/L	96%	5.57E-01	1.00E+00	-268.2
<b>6180067 TC99_ETVDSK_LSC</b>									
<b>B35WH8</b>									
	M8T441AE	tc-99	5.99E+01 +- 6.3E+00		pCi/L	100%	9.64E+00	5.00E+01	
<b>B35WH8 DUP</b>									
	M8T441AG	tc-99	5.78E+01 +- 6.2E+00		pCi/L	100%	9.61E+00	5.00E+01	3.5
<b>6180068 TRITIUM_DIST_LSC</b>									
<b>B35WH8</b>									
	M8T441AA	H-3	2.88E+03 +- 2.9E+02		pCi/L	100%	3.53E+02	7.00E+02	
<b>B35WH8 DUP</b>									
	M8T441AJ	H-3	2.79E+03 +- 2.9E+02		pCi/L	100%	3.55E+02	7.00E+02	3.2
<b>No. of Results: 8</b>									

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

Date: 12-Jul-16

Report No. : 68933

SDG No.: W07528

Batch	Work Order	Parameter	Result +- CSU ( 2 s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
<b>GAMMA_GS</b>									
6180069	BLANK QC, M8T7K1AA	CO-60	5.68E-01 +- 1.6E+00	U	pCi/L				3.15E+00
6180069	LCS, M8T7K1AC	CO-60	3.78E+01 +- 8.1E+00		pCi/L		95%	0.0	4.01E+00
<b>I129LL_SEP_LEPS_GS</b>									
6180070	BLANK QC, M8T7L1AA	I129	7.65E-02 +- 2.8E-01	U	pCi/L	97%			5.49E-01
6180070	LCS, M8T7L1AC	I129	1.57E+01 +- 2.0E+00		pCi/L	97%	82%	-0.2	5.17E-01
<b>TC99_ETVDSK_LSC</b>									
6180067	MATRIX SPIKE, B35WH8 M8T441AF	tc-99	5.47E+02 +- 2.0E+01		pCi/L	100%	98%	0.0	9.59E+00
6180067	BLANK QC, M8T7H1AA	tc-99	-1.64E+00 +- 4.4E+00	U	pCi/L	100%			9.68E+00
6180067	LCS, M8T7H1AC	tc-99	9.50E+01 +- 7.1E+00		pCi/L	100%	89%	-0.1	9.42E+00
<b>TRITIUM_DIST_LSC</b>									
6180068	MATRIX SPIKE, B35WH8 M8T441AH	H-3	1.30E+03 +- 4.8E+02		pCi/L	100%	87%	-0.1	4.12E+02
6180068	BLANK QC, M8T7J1AA	H-3	2.07E+02 +- 1.8E+02	U	pCi/L	100%			3.63E+02
6180068	LCS, M8T7J1AC	H-3	2.50E+03 +- 2.8E+02		pCi/L	100%	92%	-0.1	3.62E+02
<b>No. of Results: 10</b>									

TestAmerica Inc Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTLRchQcSummary V5.6 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**  
**SAMPLE RESULTS**

Date: 12-Jul-16

Lab Name: TestAmerica Inc  
 Lot-Sample No.: J6F280406-1  
 Client Sample ID: B35WH8

SDG: W07528  
 Report No.: 68933  
 COC No.: F16-046-003  
 Matrix: WATER

Collection Date: 6/27/2016 1:32:00 PM

Received Date: 6/28/2016 10:50:00 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: 6180067 TC99_ETVDSK_LSC												
tc-99	5.99E+01		5.7E+00	6.3E+00	9.64E+00	pCi/L	100%	(6.2)	7/2/16 11:31 p		0.126	LSC10
							4.63E+00	5.00E+01	(19.1)			
Batch: 6180068 TRITIUM_DIST_LSC												
H-3	2.88E+03		2.4E+02	2.9E+02	3.53E+02	pCi/L	100%	(8.2)	7/1/16 01:25 p		0.00501	LSC10
							1.68E+02	7.00E+02	(19.6)			
Batch: 6180069 GAMMA_GS												
CO-60	-1.62E-01	U	1.8E+00	1.8E+00	3.29E+00	pCi/L		-0.05	7/8/16 10:13 a		1.9881	GER13\$1
							1.66E+00	2.50E+01	-0.18			
Batch: 6180070 I129LL_SEP_LEPS_GS												
I129	-3.48E-01	U	3.6E-01	3.6E-01	5.66E-01	pCi/L	94%	-0.61	7/11/16 01:03 p		2.0017	LEP4\$1
							2.69E-01	1.00E+00	-(2.)			

No. of Results: 4      Comments:

10 of 14

TestAmerica Inc MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rpt\$TLRchSample U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.  
 V16 A2002

FORM II

Date: 12-Jul-16

DUPLICATE RESULTS

Lab Name: TestAmerica Inc  
 Lot-Sample No.: J6F280406-1  
 Client Sample ID: B35WH8 DUP

SDG: W07528  
 Report No.: 68933  
 COC No.: F16-046-003  
 Matrix: WATER

Collection Date: 6/27/2016 1:32:00 PM  
 Received Date: 6/28/2016 10:50:00 AM

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: 6180067	TC99_ETVDSK_LSC		Work Order: M8T441AG	Report DB ID: M8T441GR	Orig Sa DB ID: 9M8T4410							
tc-99	5.78E+01		5.7E+00	6.2E+00	9.61E+00	pCi/L	100%	(6.)	7/3/16 01:40 a		0.1267	LSC10
	5.99E+01		RPD 3.5		5.00E+01			(18.7)			L	
Batch: 6180068	TRITIUM_DIST_LSC		Work Order: M8T441AJ	Report DB ID: M8T441JR	Orig Sa DB ID: 9M8T4410							
H-3	2.79E+03		2.4E+02	2.9E+02	3.55E+02	pCi/L	100%	(7.8)	7/1/16 04:15 p		0.00502	LSC10
	2.88E+03		RPD 3.2		7.00E+02			(19.2)			L	
Batch: 6180069	GAMMA_GS		Work Order: M8T441AK	Report DB ID: M8T441KR	Orig Sa DB ID: 9M8T4410							
CO-60	7.16E-02	U	2.2E+00	2.2E+00	4.01E+00	pCi/L	0.02		7/8/16 01:52 p		1.9881	GER12\$1
	-1.62E-01	U	RPD -518.3		2.50E+01			0.07			L	
Batch: 6180070	1129LL_SEP_LEPS_GS		Work Order: M8T441AL	Report DB ID: M8T441LR	Orig Sa DB ID: 9M8T4410							
1129	5.07E-02	U	3.5E-01	3.5E-01	5.57E-01	pCi/L	96%	0.09	7/11/16 01:03 p		1.8526	LEP5\$1
	-3.48E-01	U	RPD -268.2		1.00E+00			0.29			L	

No. of Results: 4      Comments:

11014

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.  
 rps TLRchDupV5.  
 6/22/2002 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: 12-Jul-16

Lab Name: TestAmerica Inc      SDG: W07528  
 Matrix: WATER      Report No.: 68933

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
<b>Batch: 6180068</b> TRITIUM_DIST_LSC												
H-3	2.07E+02	U	1.6E+02	1.8E+02	3.63E+02	pCi/L	100%	0.57	7/1/16 08:29 p	0.00501	L	LSC10
					1.73E+02	4.00E+02		(2.3)				
<b>Batch: 6180069</b> GAMMA_GS												
CO-60	5.68E-01	U	1.6E+00	1.6E+00	3.15E+00	pCi/L		0.18	7/8/16 01:53 p	2.0005	L	GER13\$1
					1.59E+00	2.50E+01		0.71				
<b>Batch: 6180070</b> I129LL_SEP_LEPS_GS												
I129	7.65E-02	U	2.8E-01	2.8E-01	5.49E-01	pCi/L	97%	0.14	7/11/16 03:50 p	2.0012	L	LEP4\$1
					2.69E-01	1.00E+00		0.54				
<b>Batch: 6180067</b> TC99_ETVDSK_LSC												
tc-99	-1.64E+00	U	3.9E+00	4.4E+00	9.68E+00	pCi/L	100%	-0.17	7/3/16 02:45 a	0.1255	L	LSC10
					4.64E+00	1.50E+01		-0.74				

No. of Results: 4      Comments:

TestAmerica Inc      MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.  
 rptS TLRchBlank      U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.  
 V16 A2002

FORM II  
Date: 12-Jul-16

LCS RESULTS

Lab Name: TestAmerica Inc

SDG: W07528

Matrix: WATER

Report No. : 68933

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
<b>Batch: 6180068</b>													
TRITIUM_DIST_LSC													
H-3	2.50E+03		2.3E+02	2.8E+02	3.62E+02	pCi/L	100%	2.70E+03	8.11E+01	92%	7/1/16 09:54 p	0.00501	LSC10
Rec Limits: 80 120 -0.1													
Work Order: M8T7J1AC Report DB ID: M8T7J1CS													
<b>Batch: 6180069</b>													
GAMMA_GS													
CO-60	3.78E+01		8.1E+00	8.1E+00	4.01E+00	pCi/L	97%	3.97E+01	3.39E-01	95%	7/8/16 05:20 p	2.0007	GER12\$1
Rec Limits: 80 120 0.0													
Work Order: M8T7K1AC Report DB ID: M8T7K1CS													
<b>Batch: 6180070</b>													
1129LL_SEP_LEPS_GS													
1129	1.57E+01		2.0E+00	2.0E+00	5.17E-01	pCi/L	97%	1.91E+01	3.08E-01	82%	7/11/16 03:51 p	2.0015	LEP5\$1
Rec Limits: 80 120 -0.2													
Work Order: M8T7L1AC Report DB ID: M8T7L1CS													
<b>Batch: 6180067</b>													
TC99_ETVDSK_LSC													
tc-99	9.50E+01		6.5E+00	7.1E+00	9.42E+00	pCi/L	100%	1.06E+02	6.27E-01	89%	7/3/16 03:49 a	0.129	LSC10
Rec Limits: 80 120 -0.1													
Work Order: M8T7H1AC Report DB ID: M8T7H1CS													

No. of Results: 4 Comments:

13

FORM II  
Date: 12-Jul-16

MATRIX SPIKE RESULTS

Lab Name: TestAmerica Inc SDG: W07528 Matrix: WATER  
 Lot-Sample No.: J6F280406-1, B35WH8 Report No.: 68933

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
<b>Batch: 6180067</b>											
tc-99	5.47E+02	1.4E+01	2.0E+01	9.59E+00	pCi/L	100%	98.12%	5.57E+02	7/3/16 12:35 a	0.1269	TC99_ETVDSK_LSC
	5.99E+01							3.30E+00		L	LSC10
<b>Batch: 6180068</b>											
H-3	1.30E+03	3.0E+02	4.8E+02	4.12E+02	pCi/L	100%	86.52%	1.50E+03	7/1/16 02:50 p	0.00429	TRITIUM_DIST_LSC
	2.88E+03							4.51E+01		L	LSC10

Number of Results: 2

Comments:

TestAmerica Inc RER - Replicate Error Ratio = (S-D)/[sqrt((sq(TPUs)+sq(TPUd)))] as defined by ICPT BOA.  
 rptS TLRchMs Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 V06 A2002