MARCH 16, 2010

Analytical Data Package Prepared For

Fluor Hanford

Radiochemical Analysis By

TestAmerica

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

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 43454

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.
W05849	L10-009	B243C4	J0C100474-1	LWG3G1AA	9LWG3G10	0069298
		B243C4	J0C100474-1	LWG3G2AC	9LWG3G20	0069299

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Certificate of Analysis

CH2M Hill Plateau Remediation Company
P.O. Box 1600
Richland, WA 99352

March 16, 2010

Attention: John Trechter

SAF Number	:	L10-009
Date SDG Closed	:	March 10, 2010
Number of Samples	:	One (1)
Sample Type	:	Water
SDG Number	:	W05549
Data Deliverable	:	4/4 Day

CASE NARRATIVE

I. Introduction

On March 10, 2010 TestAmerica received a request to analyze one water sample for radiochemical analysis. Upon receipt, the sample was assigned to lot J0C100474 and assigned the following laboratory ID number to correspond with the CH2M specific ID:

CH2M ID#	TARL ID#	MATRIX	DATE OF RECEIPT
B243C4	LWG3G	WATER	03/10/10

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.

March 16, 2010

The requested analyses were:

Gas Proportional Counting
Gross Alpha by method RL-GPC-001 (RICH-RC-5014)*
Gross Beta by method RL-GPC-001 (RICH-RC-5014)*

*SOP ID's changed effective 7-01-2008. Attached is a cross reference until SOP ID's are changed in all systems.

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
Gross Alpha by method RL-GPC-001 (RICH-RC-5014):
The LCS, batch blank, sample and sample duplicate (B243C4) results are within contractual requirements.

Gross Beta by method RL-GPC-001 (RICH-RC-5014):
The sample and sample duplicate (B243C4) were not within acceptance limits on the original count. The sample and sample duplicate were re-counted for acceptable results. Data is accepted. Except as noted; the LCS, batch blank, sample and sample duplicate (B243C4) 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:

Sandra Seger
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.

Isotope	Richland SOP #	Old Richland SOP #	Method Reference	Title
Metals	ARCHIVED	BHI-MT-0001	6010	ICP-AE SPECTROSCOPY, SPECTROMETRIC METHOD FOR TRACE ELEMENT ANALYSIS, METHOD 6010A FOR Bechtel
Asbestos	RL-ASB-001	N/A	NIOSH 7400	Fiber Counting by Phase Contrast Microscopy based on NIOSH 7400
Asbestos	RL-ASB-002	N/A	NIOSH 9002	Sample Prep and Analysis for Asbestos (bulk) by Polarized Light Microsopy based on NIOSH 9002
Metals	RL-MT-001	RICH-MT-0001	6010B	ICP-AES for TRACE ELEMENT ANALYSIS, METHOD 6010B
Metals	RL-MT-002	RICH-MT-0002	SW486 3050B	ACID DIGESTION FOR ICP ANALYSIS
Metals	RL-MT-003	RICH-MT-0003	NIOSH 7300	DIGESTION PREP based on METHOD NIOSH 7300
Prep - Bioassay	ARCHIVED	RICH-RB-0001		PREPARATION FOR RAPID BIOASSAY ANALYSES
Po	RL-ALP-007	RICH-RB-5001	NAS-NS-3037 HASL 300	DETERMINATION OF POLONIUM-210 IN URINE
Prep - Bioassay	RL-PRP-001	RICH-RB-5002	Mod Pu06 / HASL 300	PREPARATION OF URINE AND BLOOD SAMPLES
Prep - Bioassay	ARCHIVED	RICH-RB-5004	ASTM D1429-95	DETERMINATION OF SPECIFIC GRAVITY OF URINE
Th	RL-ALP-008	RICH-RB-5006	Mod Th01 / HASL 300	SEPARATION OF THORIUM FROM URINE AND FECAL SAMPLES
Sr	RL-GPC-005	RICH-RB-5007	Mod Sr02 / HASL 300 Mod 905.0 / EPA 600	DETERMINATION OF TOTAL STRONTIUM IN URINE
C14	RL-LSC-001	RICH-RB-5013	Mod H-02 / EPA 520	TRITIUM, CARBON-14, NICKEL-63 OR PHOSPHORUS-32 ANALYSIS IN URINE
H3	RL-LSC-001	RICH-RB-5013	Mod H-02 / EPA 520	TRITIUM, CARBON-14, NICKEL-63 OR PHOSPHORUS-32 ANALYSIS IN URINE
Ni63	RL-LSC-001	RICH-RB-5013	Mod H-02 / EPA 520	TRITIUM, CARBON-14, NICKEL-63 OR PHOSPHORUS-32 ANALYSIS IN URINE
P32	RL-LSC-001	RICH-RB-5013	Mod H-02 / EPA 520	TRITIUM, CARBON-14, NICKEL-63 OR PHOSPHORUS-32 ANALYSIS IN URINE
Pu	ARCHIVED	RICH-RB-5015	Pu11 / HASL 300	RAPID DETERMINATION OF PLUTONIUM IN FECES
S35	ARCHIVED	RICH-RB-5020	Hillebrand, Lundeell, Bright, Hoffman 1953	DETERMINATION OF SULFUR-35 IN URINE
Sr	RL-GPC-006	RICH-RB-5021	Mod Sr02 / HASL300 Mod 905.0 / EPA 600	DETERMINATION OF STRONTIUM IN FECES
Sr	ARCHIVED	RICH-RB-5022	Mod Sr02 / HASL300 Mod 905.0 / EPA 600	DETERMINATION OF TOTAL STRONTIUM IN URINE FOR RAPID ANALYSIS
Sr	ARCHIVED	RICH-RB-5031	Mod Sr02 / HASL300 Mod 905.0 / EPA 600	RAPID DETERMINATION OF TOTAL STRONTIUM IN FECES
H3	RL-LSC-003	RICH-RB-5034	7500-3 / SM	DETERMINATION OF TRITIUM IN URINE BY DISTILLATION
Alpha - Gross	ARCHIVED	RICH-RB-5035	Liquid Scintillation Anal/ Packard	DETERMINATION OF GROSS ALPHA IN NASAL SMEARS BY LIQUID SCINTILLATION COUNTING
Prep - Bioassay	RL-RPL-002	RICH-RB-5036	Pub 6490,6601 / PNL	PREPARATION OF SYNTHETIC URINE AND FECES USING RECIPES FROM HPS N13.30 PREFORMANCE TESTING
Prep - Bioassay	RL-PRP-002	RICH-RB-5037	LA-10300-M R200 ASTM D3865	PREPARATION OF FECAL SAMPLES USING HYDROFLUORIC ACID DIGESTION
Prep - Count	RL-ALP-016	RICH-RC-5003	G-03 / HASL 300	COPRECIPITATION OF SOME ACTINIDES ON NEODYMIUM FLUORIDE FOR ALPHA-PARTICLE SPECTROMETRY
H3	RL-LSC-004	RICH-RC-5004	H3 / EPA LV539	DETERMINATION OF TRITIUM IN AIR
Ra	RL-RA-001	RICH-RC-5005	903.1 / EPA 600	RADIUM-226 AND RADIUM-228 SEPARATION IN RADIOCHEMICAL MATRICES - ADAPTED FROM EPA 903.1 AND 904.0
Ra	RL-RA-001	RICH-RC-5005	904.0 / EPA 600	RADIUM-226 AND RADIUM-228 SEPARATION IN RADIOCHEMICAL MATRICES - ADAPTED FROM EPA 903.1 AND 904.0
Sr	RL-GPC-003	RICH-RC-5006	Mod Sr02 / HASL300 Mod 905.0 / EPA 600	STRONTIUM SEPARATION IN ENVIROMENTAL MATRICES
H3	RL-LSC-005	RICH-RC-5007	Mod '906.0 / EPA 600	SEPARATION OF TRITIUM IN WATER AND AQUEOUS COMPONENT OF WINE
Np	RL-ALP-013	RICH-RC-5009	NAS-NS-3060	DETERMINATION OF NEPTUNIUM-237 BY LIQUID-LIQUID EXTRACTION IN ALL MATRICES
Pu	RL-ALP-002	RICH-RC-5010	Pu11 / HASL 300	DETERMINATION OF ISOTOPIC PLUTONIUM IN ALL MATRICES

Isotope	Richland SOP #	Old Richland SOP #	Method Reference	Title
Po	RL-ALP-012	RICH-RC-5012	Po-01 / HASL 300 Mod U01 HASL 300	SEPARATION OF ISOTOPIC URANIUM AND POLONIUM-210 IN WATER, SOIL AND FILTERS
U	RL-ALP-012	RICH-RC-5012	Po-01 / HASL 300 Mod U01 / HASL 300	SEPARATION OF ISOTOPIC URANIUM AND POLONIUM-210 IN WATER, SOIL AND FILTERS
Prep - Soil	RL-PRP-003	RICH-RC-5013	Pu02A / HASL 300	PREPARATION OF SOIL SAMPLES
Alpha - Gross	RL-GPC-001	RICH-RC-5014	9310 / EPA SW846 900.0 / EPA 600	DETERMINATION OF GROSS ALPHA AND GROSS BETA IN WATER BY METHOD 9310
Beta - Gross	RL-GPC-001	RICH-RC-5014	9310 / EPA SW846 900.0 / EPA 600	DETERMINATION OF GROSS ALPHA AND GROSS BETA IN WATER BY METHOD 9310
Prep - Env	RL-KPA-001	RICH-RC-5015	ASTM / D5174-97	ENVIRONMENTAL SAMPLE PREPARATION FOR URANIUM BY LASER-INDUCED PHOSPHORESCENCE
Prep - Env	RL-PRP-004	RICH-RC-5016	Sr02 / HASL 300	PREPARATION OF ENVIRONMENTAL MATRICES
Gamma	RL-GAM-001	RICH-RC-5017	901.0 / HASL 300 ASTM D3649	PREPARATION OF ALL MATRICES FOR ANALYSIS BY GAMMA SPECTROSCOPY
Prep - Resin	RL-ALP-017	RICH-RC-5018	Mod Pu11 / Mod 300	ION-EXCHANGE PREPARATION
Prep - Soil	RL-PRP-005	RICH-RC-5019	D5259 / ASTM SW 846/3015/3051/3052	PREPARATION AND DISSOLUTION OF SEDIMENTS AND SOIL BY MICROWAVE BOMB DIGESTION
Alpha - Gross	RL-GPC-007	RICH-RC-5020	SM 7110B EPA 680	DETERMINATION OF GROSS ALPHA AND GROSS BETA IN SOIL, SHORELINE SOIL, FOOD AND VEGETATION
Beta - Gross	RL-GPC-007	RICH-RC-5020	SM 7110B EPA 680	DETERMINATION OF GROSS ALPHA AND GROSS BETA IN SOIL, SHORELINE SOIL, FOOD AND VEGETATION
Alpha - Gross	RL-GPC-002	RICH-RC-5021	00-02 EPA 520	DETERMINATION OF GROSS ALPHA ACTIVITY IN WATER BY COPRECIPITATION
C14	RL-LSC-008	RICH-RC-5022	EPA C-01 / EPA 520	CARBON 14 BY DIGESTION METHOD
Fe55	RL-LSC-016	RICH-RC-5023	R4-73-014 / EPA HASL 300	DETERMINATION OF IRON-55 AND IRON-59 IN WATER
Fe59	RL-LSC-016	RICH-RC-5023	R4-73-014 / EPA HASL 300	DETERMINATION OF IRON-55 AND IRON-59 IN WATER
H3	RL-LSC-007	RICH-RC-5024	H-3 by EE EPA LV539 / HASL 300	DETERMINATION OF LOW LEVEL TRITIUM IN WATER BY ELECTROLYTIC ENRICHMENT
I129	RL-GAM-002	RICH-RC-5025	R4-73-014I/EPA ASTM D2334 (Discontinued)	DETERMINATION OF IODINE-131 AND 129 IN WATER BY SOLVENT EXTRACTION METHOD
I131	RL-GAM-002	RICH-RC-5025	R4-73-014I/EPA ASTM D2334 (Discontinued)	DETERMINATION OF IODINE-131 AND 129 IN WATER BY SOLVENT EXTRACTION METHOD
Ra	RL-RA-002	RICH-RC-5027	Mod D2460/ ASTM 903.0 / EPA 600	DETERMINATION OF TOTAL RADIUM
Prep - Bioassay	RL-RPL-003	RICH-RC-5028	ICRP Publication 23	PREPARATION OF SYNTHETIC URINE AND FECES
U	RL-KPA-002	RICH-RC-5031	Mod U01 / HASL 300	SEPARATION OF TOTAL URANIUM IN WATER AND URINE
Prep - Soil	RL-PRP-006	RICH-RC-5032	Pu02A / HASL 300	COMPLETE DISSOLUTION BY MIXED ACIDS IN A TEFLON BEAKER
Solubility	ARCHIVED	RICH-RC-5035	Kalfward&Thomas PNL3716	DETERMINATION OF SOLUBILITY OF RADIOACTIVE PARTICLE CONSTITUENTS
Alpha - Gross	RL-GPC-008	RICH-RC-5036	ER100 / LANL	PREPARATION OF AIR FILTERS FOR GROSS ALPHA/BETA AND COMPOSITING AIR FILTERS
Beta - Gross	RL-GPC-008	RICH-RC-5036	ER100 / LANL	PREPARATION OF AIR FILTERS FOR GROSS ALPHA/BETA AND COMPOSITING AIR FILTERS
H3	RL-LSC-002	RICH-RC-5037	H-3 in Water/Tissue / LV 539	DETERMINATION OF TRITIUM BY CRYOGENIC DISTILLATION
Prep - Count	RL-ALP-015	RICH-RC-5039	G-03 / HASL 300 Anal Chem 1972	ELECTRODEPOSITION OF ACTINIDES
C14	RL-LSC-009	RICH-RC-5040	Mod C14 / EPA 680	DETERMINATION OF CARBON-14 BY BENZENE SYNTHESIS
Se79	RL-LSC-012	RICH-RC-5043	Selenium / NAS-NS-3030	RADIOCHEMICAL DETERMINATION OF SELENIUM-79
Prep - Env	RL-PRP-007	RICH-RC-5045	Mod Pu02 / HASL 300	PREPARATION OF MIXED BED RESINS AND PRE-FILTERS
C14	RL-LSC-010	RICH-RC-5046	EPA C-01 / EPA 520	DETERMINATION OF CARBON-14 IN GRAPHITE AND SOIL
C14	RL-LSC-011	RICH-RC-5047	Mod H-02 / EPA 520	DETERMINATION OF CARBON-14 IN WATER BY DIRECT COUNTING

Isotope	Richland SOP #	Old Richland SOP #	Method Reference	Title
H3	RL-LSC-006	RICH-RC-5048	H-3 in Water/Tissue / LV 539	TRITIUM PREPARATION IN MILK SAMPLES
I131	ARCHIVED	RICH-RC-5049	HASL 300 (1983)	DETERMINATION OF IODINE-131 IN MILK BY BATCH ION-EXCHANGE
U	RL-KPA-003	RICH-RC-5058	D5174 / ASTM	DETERMINATION OF URANIUM BY PHOSPHORESCENCE ANALYSIS
Np	RL-ALP-006	RICH-RC-5064	EXT Chromatography	SEPARATION OF NEPTUNIUM BY EXTRACTION CHROMATOGRAPHY
Tc	RL-LSC-014	RICH-RC-5065	EXT Chromatography Mod RP550 / DOE0089T	DETERMINATION OF TECHNETIUM-99 BY EXTRACTION CHROMATOGRAPHY
U	RL-ALP-004	RICH-RC-5067	EXT Chromatography Mod RP725 / DOE0089T	SEPARATION OF URANIUM BY EXTRACTION CHROMATOGRAPHY
Prep - Env	RL-PRP-008	RICH-RC-5068	Mod ER100 / LA10300	PREPARATION OF SOIL, VEGETATION AND AIR FILTERS BY MIXED STRONG ACID LEACHING
Ni63	RL-LSC-017	RICH-RC-5069	EXT Chromatography Mod RP300 / DOE0089T	SEPARATION OF Ni-63 BY EXTRACTION CHROMATOGRAPHY
Sr - Yt	RL-GPC-004	RICH-RC-5071	Mod Sr02 / HASL300 Mod 905.0 / EPA 600	YTTRIUM-90 SEPARATION FOR STRONTIUM-90 DETERMINATION IN ALL MATRICES
Am	RL-ALP-003	RICH-RC-5072	Mod RP 725 / DOE0089T EXT Chromatography	SEPARATION OF AMERICIUM, CURIUM, AND URANIUM BY EXTRACTION CHROMATOGRAPHY
Cm	RL-ALP-003	RICH-RC-5072	Mod RP 725 / DOE0089T EXT Chromatography	SEPARATION OF AMERICIUM, CURIUM, AND URANIUM BY EXTRACTION CHROMATOGRAPHY
U	RL-ALP-003	RICH-RC-5072	EXT Chrom Mod RP725 & 800 / DOE0089T	SEPARATION OF AMERICIUM, CURIUM, AND URANIUM BY EXTRACTION CHROMATOGRAPHY
Fe	RL-LSC-015	RICH-RC-5074	EXT Chromatography ModFe55/PNL-ALO-435	SEPARATION OF IRON AND NICKEL BY EXTRACTION CHROMATOGRAPHY
Ni	RL-LSC-015	RICH-RC-5074	EXT Chromatography ModFe55/PNL-ALO-435	SEPARATION OF IRON AND NICKEL BY EXTRACTION CHROMATOGRAPHY
Pb	RL-ALP-011	RICH-RC-5076	EXT Chromatography	DETERMINATION OF LEAD-210 BY EXTRACTION CHROMATOGRAPHY
Prep - Soil	RL-PRP-009	RICH-RC-5077	Mod ER100 / LA10300	PREPARATION OF SMALL SOIL SAMPLES FOR GAMMA SPEC AND/OR RADIOCHEM ANAL BY ACID DIGESTION
Tc	RL-LSC-013	RICH-RC-5078	Tc01 / HASL 300	SEPARATION OF TECHNETIUM-99 IN ALL MATRICES
U	RL-ALP-009	RICH-RC-5079	EXT Chromatography Mod RP725 / DOE0089T	DETERMINATION OF ISOTOPIC URANIUM IN ALL MATRICES
Am	RL-ALP-010	RICH-RC-5080	Am03/Pu11HASL 300 NAS-NS-3006	SEQUENTIAL SEPARATION OF PLUTONIUM AND AMERICIUM
Pu	RL-ALP-010	RICH-RC-5080	Am03 HASL 300 Pu11 / HASL 300	SEQUENTIAL SEPARATION OF PLUTONIUM AND AMERICIUM
Rn	RL-LSC-019	RICH-RC-5082	913.0 / EPA	DETERMINATION OF RADON-222 - ADAPTED FROM METHOD 913.0
Th	RL-ALP-005	RICH-RC-5084	Mod Th01 / HASL 300 Anal Chim Acta 1982	DETERMINATION OF THORIUM ISOTOPIC IN ENVIRONMENTAL MATRICES
Prep - Count	RL-ALP-014	RICH-RC-5085	Morrison & Freiser NAS-NS-3050	ANHYDROUS ETHER EXTRACTION OF URANIUM
Prep - Urine	RL-PRP-010	RICH-RC-5086	AnalyticaChemActa1992 RP800 / DOE00089T	URINE AND WATER SAMPLE PREPARATION BY CALCIUM PHOSPHATE PRECIPITATION
Prep - Water	RL-PRP-010	RICH-RC-5086	AnalyticaChemActa1992 RP800 / DOE00089T	URINE AND WATER SAMPLE PREPARATION BY CALCIUM PHOSPHATE PRECIPITATION
Pu	RL-ALP-001	RICH-RC-5087	AnalyticaChemActa1992 RP800 / DOE00089T	DETERMINATION OF PLUTONIUM BY EXTRACTION CHROMATOGRAPHY
Coliform	RL-WC-001	RICH-WC-5001	9222B	DETERMINATION OF TOTAL COLIFORM: MULTIPLE TUBE FERMENTATION TECHNIQUE
Coliform	RL-WC-002	RICH-WC-5002	9131	TOTAL COLIFORMS BY MEMBRANE FILTRATION
Cr6+	RL-WC-003	RICH-WC-5003	7196A, SW846	DETERMINATION OF HEXAVALENT CHROMIUM [Cr(VI)] IN WATER, SOIL, AND SIMILAR MATRICES
Cr6+	RL-WC-004	RICH-WC-5005	3060 / SW846	DETERMINATION OF HEXAVALENT CHROMIUM (CrVI) IN SOLID MATRICES WITH ALKALINE DIGESTION
Coliform	RL-WC-005	RICH-WC-5007	9223	TOTAL COLIFORM BY THE COLILERT METHOD

Sample Results Summary

Date: 16-Mar-10

TestAmerica TARL

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

Report No. : 43454

SDG No: W05849

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDC or MDA	CRDL	RPD
0069298 GADGPC									
B243C4									
	LWG3G1AA	ALPHA	5.09E-01 +- 5.6E-01	U	pCi/L	100%	9.46E-01	3.00E+00	
B243C4 DUP									
	LWG3G1AD	ALPHA	2.92E-01 +- 4.8E-01	U	pCi/L	100%	1.00E+00	3.00E+00	54.3
0069299 GBDPC									
B243C4									
	LWG3G2AC	BETA	1.18E+00 +- 1.4E+00	U	pCi/L	100%	2.84E+00	4.00E+00	
B243C4 DUP									
	LWG3G2AE	BETA	1.51E+00 +- 1.3E+00	U	pCi/L	100%	2.64E+00	4.00E+00	24.3

No. of Results: 4

TestAmerica

rptSTLRchSaSummary2 V5.2.5
A2002

RPD - Relative Percent Difference.

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

QC Results Summary

Date: 16-Mar-10

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 43454

SDG No.: W05849

Batch Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDC|MDA
GADGPC								
0069298 BLANK QC,								
LWHD81AA	ALPHA	2.30E-01 +- 4.6E-01	U	pCi/L	100%			1.03E+00
0069298 LCS,								
LWHD81AC	ALPHA	1.99E+01 +- 5.0E+00		pCi/L	100%	87%	-0.1	9.88E-01
GBDPC								
0069299 BLANK QC,								
LWHED1AA	BETA	1.72E+00 +- 1.4E+00	U	pCi/L	100%			2.83E+00
0069299 LCS,								
LWHED1AC	BETA	2.57E+01 +- 4.1E+00		pCi/L	100%	113%	0.1	2.57E+00

No. of Results: 4

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 or Total Uncert or not identified by gamma scan software.

FORM I

SAMPLE RESULTS

Date: 16-Mar-10

Lab Name:	TestAmerica	**SDG:**	W05849	**Collection Date:**	3/10/2010 9:38:00 AM
Lot-Sample No.:	J0C100474-1	**Report No. :**	43454	**Received Date:**	3/10/2010 10:35:00 AM
Client Sample ID:	B243C4	**COC No. :**	L10-009-006	**Matrix:**	WATER LIQUID

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 0069298	GADGPC			**Work Order:**	LWG3G1AA		**Report DB ID:**	9LWG3G10				
ALPHA	***5.09E-01***	U	5.5E-01	5.6E-01	9.46E-01	pCi/L	100%	*0.54*	3/12/10 11:33 a		0.2001	GPC10A
						3.35E-01	3.00E+00	*(1.8)*			L	
Batch: 0069299	GBDPC			**Work Order:**	LWG3G2AC		**Report DB ID:**	9LWG3G20				
BETA	***1.18E+00***	U	1.4E+00	1.4E+00	2.84E+00	pCi/L	100%	*0.42*	3/15/10 12:46 p		0.2001	GPC26A
						1.35E+00	4.00E+00	*(1.7)*			L	

No. of Results: 2 **Comments:**

MARCH 16, 2010

TestAmerica
rptSTLRchSample
V5.2.5 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 or Total Uncert or not identified by gamma scan software.

FORM II

Date: 16-Mar-10

DUPLICATE RESULTS

Lab Name:	TestAmerica	**SDG:**	W05849	**Collection Date:**	3/10/2010 9:38:00 AM
Lot-Sample No.:	J0C100474-1	**Report No. :**	43454	**Received Date:**	3/10/2010 10:35:00 AM
Client Sample ID:	B243C4 DUP	**COC No. :**	L10-009-006	**Matrix:**	WATER LIQUID

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 0069298 GADGPC				**Work Order:** LWG3G1AD		**Report DB ID:** LWG3G1DR			**Orig Sa DB ID:** 9LWG3G10			
ALPHA	2.92E-01	U	4.8E-01	4.8E-01	1.00E+00	pCi/L	100%	0.29	3/12/10 11:33 a		0.2	GPC10B
	5.09E-01	U	**RPD**	**54.3**		3.00E+00		(1.2)			L	
Batch: 0069299 GBDPC				**Work Order:** LWG3G2AE		**Report DB ID:** LWG3G2ER			**Orig Sa DB ID:** 9LWG3G20			
BETA	1.51E+00	U	1.3E+00	1.3E+00	2.64E+00	pCi/L	100%	0.57	3/15/10 12:46 p		0.2001	GPC26B
	1.18E+00	U	**RPD**	**24.3**		4.00E+00		(2.3)			L	

No. of Results: 2 **Comments:**

MARCH 16, 2010

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 or Total Uncert or not identified by gamma scan software.

FORM II

BLANK RESULTS

Date: 16-Mar-10

Lab Name: TestAmerica

Matrix: WATER

SDG: W05849

Report No. : 43454

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA ,	Rpt Unit, CRDL	Yield	Rst/MDC, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 0069298	GADGPC			**Work Order:**	LWHD81AA		**Report DB ID:**	LWHD81AB				
ALPHA	2.30E-01	U	4.6E-01	4.6E-01	1.03E+00	pCi/L	100%	0.22	3/12/10 11:33 a		0.2001	GPC10C
					3.82E-01	3.00E+00		1.			L	
Batch: 0069299	GBDPC			**Work Order:**	LWHED1AA		**Report DB ID:**	LWHED1AB				
BETA	1.72E+00	U	1.4E+00	1.4E+00	2.83E+00	pCi/L	100%	0.61	3/12/10 11:30 a		0.2001	GPC27C
					1.35E+00	4.00E+00		(2.4)			L	

No. of Results: 2 **Comments:**

MARCH 16, 2010

TestAmerica
rptSTLRchBlank
V5.2.5 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 or Total Uncert or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 16-Mar-10

Lab Name: TestAmerica

Matrix: WATER

SDG: W05849

Report No. : 43454

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDC|MDA	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 0069298	GADGPC			**Work Order:**	LWHD81AC		**Report DB ID:**	LWHD81CS					
ALPHA	1.99E+01		2.9E+00	5.0E+00	9.88E-01	pCi/L	100%	2.28E+01	2.3E-01	87%	3/12/10 11:33 a	0.2001	GPC10D
							Rec Limits:	70	130	-0.1		L	
Batch: 0069299	GBDPC			**Work Order:**	LWHED1AC		**Report DB ID:**	LWHED1CS					
BETA	2.57E+01		2.5E+00	4.1E+00	2.57E+00	pCi/L	100%	2.26E+01	1.1E+00	113%	3/12/10 11:30 a	0.2002	GPC27D
							Rec Limits:	70	130	0.1		L	

No. of Results: 2 **Comments:**

MARCH 16, 2010

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist

MARCH 16, 2010

RADIOCHEMISTRY, First Level Review

3/15/2010 11:38:53 AM

Lot No., Due Date: J0C100474; 03/15/2010

Client, Site: 1378399; RUS TEDF HANFORD

QC Batch No., Method Test: 0069298; RALPHA-A Alpha by GPC-Am

SDG, Matrix: W05849; WATER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?			✓

3.0 QC & Samples

	Yes	No	N/A
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?	✓		
3.5 Are the sample yields and MDAs within contract limits?	✓		

4.0 Raw Data

	Yes	No	N/A
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		

5.0 Other

	Yes	No	N/A
5.1 Are all nonconformances included and noted?			✓
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:

First Level Review Lisa Anderson **Date** 3/15/10

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

MARCH 16, 2010

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 00069298

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

Comments on any "No" response: _____

Second Level Review: Jodie G Date: 3/15/10

LS-038B, Rev. 10, 9/07

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Data Review/Verification Checklist
MARCH 16, 2010
RADIOCHEMISTRY, First Level Review

3/15/2010 2:02:55 PM

Lot No., Due Date: J0C100474; 03/15/2010
Client, Site: 1378399; RUS TEDF HANFORD
QC Batch No., Method Test: 0069299; RBETA-SR Beta by GPC-Sr/Y
SDG, Matrix: W05849; WATER

1.0 COC

	Yes	No	N/A
1.1 Is the ICOC page complete; includes all applicable analysis, dates, SOP numbers, and revisions?	✓		

2.0 QC Batch

	Yes	No	N/A
2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet?	✓		
2.2 Are the QC appropriate for the analysis included in the batch?	✓		
2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc?	✓		
2.4 Does the Worksheets include a Tracer Vial label for each sample?			✓

3.0 QC & Samples

	Yes	No	N/A
3.1 Is the blank results, yield, and MDA within contract limits?	✓		
3.2 Is the LCS result, yield, and MDA within contract limits?	✓		
3.3 Are the MS/MSD results, yields, and MDA within contract limits?			✓
3.4 Are the duplicate result, yields, and MDAs within contract limits?		✓	
3.5 Are the sample yields and MDAs within contract limits?	✓		

4.0 Raw Data

	Yes	No	N/A
4.1 Were results calculated in the correct units?	✓		
4.2 Were analysis volumes entered correctly?	✓		
4.3 Were Yields entered correctly?			✓
4.4 Were spectra reviewed/meet contractual requirements?			✓
4.5 Were raw counts reviewed for anomalies?	✓		

5.0 Other

	Yes	No	N/A
5.1 Are all nonconformances included and noted?	✓		
5.2 Are all required forms filled out?	✓		
5.3 Was the correct methodology used?	✓		
5.4 Was transcription checked?	✓		
5.5 Were all calculations checked at a minimum frequency?	✓		
5.6 Are worksheet entries complete and correct?	✓		

6.0 Comments on any No response:
NCM 10-15723

First Level Review Lisa Anderson **Date** 3/15/10

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

MARCH 16, 2010

Data Review Checklist
RADIOCHEMISTRY
Second Level Review

Batch Number: 0069299

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

Comments on any "No" response: _____

Second Level Review: Jodie G Date: 3/15/10

LS-038B, Rev. 10, 9/07

Clouseau Nonconformance Memo

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

NCM #: **10-15723**
NCM Initiated By: Lisa Antonson
Date Opened: 03/15/2010
Date Closed:

Classification: **Anomaly**
Status: **PMREVIEW**
Production Area: Environmental - Prep
Tests: Beta by GPC-Sr/Y
Lot #'s (Sample #'s): J0C100000 (299), J0C100474 (1),
QC Batches: 0069299,

Nonconformance: Dups not within acceptance limits
Subcategory: Other (explanation required)

Problem Description / Root Cause

Name	Date	Description
Lisa Antonson	03/15/2010	The dups were out in the original count. A recount brought them within limits.

Corrective Action

Name	Date	Corrective Action
Lisa Antonson	03/15/2010	The sample and dup were recounted.

Client Notification Summary

Client	Project Manager	Notified	Response	How Notified	Note

Response	Response Note

Quality Assurance Verification

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

Approval History

Date Approved	Approved By	Position

CH2MHill P' ı Remediation Company

CHAIN OF CUSTODY/S .E ANALYSIS REQUEST

L10-009-006 PAGE ıF 1

COLLECTOR: Blan Kenship	COMPANY CONTACT: BOWMAN, MW	TELEPHONE NO.: 373-9379	PROJECT COORDINATOR: BOWMAN, MW
SAMPLING LOCATION: Valve 60H-224	PROJECT DESIGNATION: ETF Verification Tank Indicator FY2010		SAF NO.: L10-009
ICE CHEST NO.: #2025E-23	FIELD LOGBOOK NO.: 10-03 Pg. 25	ACTUAL SAMPLE DEPTH:	COA: 400776CA40
SHIPPED TO: TestAmerica Incorporated, Richland	OFFSITE PROPERTY NO.: RUS1		BILL OF LADING/AIR BILL NO.: SDG W05849 JOC100474

PRICE CODE: WSCF4DA

AIR QUALITY: ☐

DATA TURNAROUND: 4 Days / 4 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

MATRIX*
OL = OTHER LIQUID
OS = OTHER SOLID
S = SOIL
W = WATER

SPECIAL HANDLING AND/OR STORAGE

POSSIBLE SAMPLE HAZARDS/ REMARKS

~~Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)~~ OPS: Sample may contain small amounts of corrosive preservatives. MSDS numbers: HCI #039256, NaOH #042214; HN03 #039255; H2S04 #039254. Handle with proper PPE per POP-65J-002 and AJHA EL-688.

MWB 3-10-10

SAMPLE NO.	LAB ID	MATRIX*	SAMPLE DATE	SAMPLE TIME	NO./TYPE CONTAINER(S)	ANALYSIS	PRESERVATION
B243C4		W	3/10/10	0935	1X250mL aG	TOC;	H2SO4 to pH <2/Cool~4C
B243C4		W	3/10/10	0937	1X1L aG	Anions; Conductivity;	Cool~4C
B243C4		W	3/10/10	0938	1X1L P	Gross alpha/gross beta;	HNO3 to pH <2
B243C4		W	3/10/10	0936	1X60mL G/P	Rad Screen;	None
B243C4PCS		W	~~MWB 3-10-10~~		0X1L P	Anions;	None

JOC100474

LWG3G

The following container(s) sample bottles contain RADIOACTIVE MATERIAL at concentrations that are not regulated for transportation per 49 CFR 173.403 but are not releasable per DOE Order 5400.5

SRW per telecon MWB 3-10-10

MARCH 16, 2010

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Blan Kenship [signature]	3/10/10 0945	Lee Schooley [signature]	3/10/10 0945
Lee Schooley [signature]	3/10/10 1035	[signature]	3.10.10 1035

SPECIAL INSTRUCTIONS

TARL: ETF Tank Release 4-day turnaround for samples.

TARL: Rad levels expected to be < 2 pCi/L.

TARL: Create a second sample, B243C4PCS, and perform anion by IC analysis on a check standard at the following concentrations (ug/L): chloride = 1000; nitrate as N = 100; nitrite as N = 100; sulfate = 10,000.

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

MARCH 16, 2010

LEF SAMPLE FIELD RECORD

SAMPLING EVENT

ampling Event: ETF Verification Tank If Other, specify sample location: _____

SAMPLING INFORMATION

SAF #	COC #	Sample #(s)	Sample Type
L10-009	L10-009-006	B243C4	Grab
	_____	B243C4PCS	QC - PCS
	_____	_____	___
	_____	_____	___
	_____	_____	___
	_____	_____	___
	_____	_____	___

LERF/ETF SAMPLING

Tank/basin/drum being sampled and plant data:

LERF Basin ___ 42; ___ 43; ___ 44; Level _____ft SWRT Tank ___ A; ___ B; Level _____%

Surge Tank Level _____% Concentrate Tank ___ A; ___ B; Level _____%

Verification Tank ___ A; ✓ B; ___ C; Level 92 % Powder Drum Number _____

ETF operations impacting sampling (specify):

Data completed by (print): Blan Kensho Date: 3/10/10

TEDF SAMPLING

Sampler Type: Sigma Streamline

Containers placed by (print) _____ Sampler Start Date/Time _____ ICS setting _____

Containers removed by (print) _____ Sampler End Date/Time _____

TEDF plant data at time of sampling: pH _____ Conductivity _____uS/cm

TEDF operations impacting sampling (specify):

Was there sufficient volume in the composite sampler to fill all the sample bottles on the COC? _____Yes _____No

Data completed by (print): _____ Date: _____

ADDITIONAL SAMPLING/PLANT INFORMATION

Provide any additional information concerning sampling and sample handling:

If samples were stored in refrigerator, the temperature reading is _____

Additional information completed by (print): _____ Date: _____

MARCH 16, 2010

GENERATOR KNOWLEDGE INFORMATION

Chain of Custody Number L10-009-006 CACN/COA 132139/CA40 Customer Identification Number SAF # L10-009

2. List generator knowledge or description of process that produced sample. Or list description of sample source:
Samples are treated effluent from ZP-1 and UP-1 groundwaters. Per WAC 173-303-071(3)(1), samples are exempt from dangerous waste requirements, including waste designation. The waste codes below are for information only and may apply to secondary wastes from sample analysis.

MSDS Available? (•) No ( ) Yes Hanford MSDS No. _____

3. List all waste codes and constituents associated with the waste or media that was sampled, regardless of CERCLA status.

a) Does the sample contain any of the following listed waste codes?

By checking "unknown" the customer understands that no knowledge is available following a careful search.

	List Federal Waste Code(s):	List Constituent(s):			
P Codes:			( ) Yes	(•) No	( ) Unknown
U Codes:			( ) Yes	(•) No	( ) Unknown
K Codes:			( ) Yes	(•) No	( ) Unknown
F Codes:	F001-F005		(•) Yes	( ) No	( ) Unknown

b) List applicable characteristic waste codes, flash point, pH, constituents, and concentrations as appropriate.

D001:	☐ FP <100°F	☐ FP ≥100 <140°F	☐ DOT Oxidizer	( ) Yes	(•) No	( ) Unknown
D002:	☐ pH ≤2	☐ pH ≥12.5	☐ Solid Corrosive (WSC2)	( ) Yes	(•) No	( ) Unknown
D003:	☐ Cyanide	☐ Sulfide	☐ Water Reactive	☐ Other _____	( ) Yes	(•) No	( ) Unknown
D004-D043 (Identify applicable waste codes and concentrations):				(i.e., peroxide former, explosive, air reactive)	( ) Yes	(•) No	( ) Unknown

c) If characteristic, list any known underlying hazardous constituents (UHCs) reasonably expected to be present, and their concentrations that may be present above the LDR treatment standard (40 CFR 268.48):

NA

d) List any known Land Disposal Restrictions (LDR) subcategories, if applicable (40 CFR 268.40):

NA

e) List any applicable Washington State dangerous waste codes: (not required if federally regulated)

WT01:	( ) Yes	(•) No	( ) Unknown
WT02:	( ) Yes	(•) No	( ) Unknown
W001:	( ) Yes	(•) No	( ) Unknown

List constituents and concentrations:

(*State mixture rule for ignitability)

WP01:	( ) Yes	(•) No	( ) Unknown
WP02:	( ) Yes	(•) No	( ) Unknown
WP03:	( ) Yes	(•) No	( ) Unknown
F003:*	( ) Yes	(•) No	( ) Unknown

4. Is this material TSCA regulated for PCBs? ( ) Yes (•) No ( ) Unknown ( ) Analysis Requested

List concentration if applicable: _____

If yes, what is the source of the PCBs? (see TSCA PCB Hanford Site User Guide, DOE/RL-2001-50)

☐ PCB Liquid Waste ☐ PCB Bulk Product Waste ☐ PCB Transformer ≥500 ppm ☐ Unknown
☐ PCB Remediation Waste ☐ PCB R&D Waste ☐ PCB contaminated electrical equipment (capacitor/ballast) <500 ppm
☐ PCB Spill Material ☐ PCB Item ☐ Other PCB Waste (list) _____

5. Is this material TRU? ( ) Yes (•) No ( ) Unknown

6. ACCURACY OF INFORMATION

Based on my inquiry of those individuals immediately responsible for obtaining this information, that to the best of my knowledge, the information entered in this document is true, accurate, and complete.

Print & Sign Mark Bowman Mark Bowman Date 2-9-10

A-6002-990 (08/03)

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sample Check-in List

1035 Am

Date/Time Received: 3.10.10 @ GM Screen Results (out) .7 (in) 1.0 Initials [✓]

Client: RUS1 SDG #: W05849 NA [ ] SAF #: L10-009 NA [ ]

Work Order Number: JOC100474 Chain of Custody # L10-009-006

Shipping Container ID: hand delivery NA [✓] Air Bill # _____ NA [✓]

2025E-23

Item 1 through 5 for shipping container only. Initial appropriate response.

1. Custody Seals on shipping container intact? Yes [✓] No [ ] No Custody Seal [ ]
2. Custody Seals dated and signed? Yes [✓] No [ ] No Custody Seal [ ]
3. Chain of Custody record present? Yes [✓] No [ ]
4. Cooler temperature: on ice NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [✓]

Item 6 through 10 for samples. Initial appropriate response.

6. Number of samples in shipping container (Each sample may contain multiple bottles): 1
7. Sample holding times exceeded? NA [ ] Yes [ ] No [✓]
8. Samples have:
   - ___ tape
   - ✓ custody seals
   - ___ hazard labels
   - ✓ appropriate sample labels
9. Samples are:
   - ✓ in good condition
   - ___ broken
   - ___ leaking
   - ___ have air bubbles (Only for samples requiring head space)
10. Sample pH taken? NA [ ] pH<2 [✓] pH>2 [ ] pH>9 [ ] Amount of HNO3 Added _____
11. Sample Location, Sample Collector Listed? * Yes [✓] No [ ]
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
13. Description of anomalies (include sample numbers): NA [✓] _____

see other side for additional comments

Sample Custodian: [signature] Date: 3-10-10 @ 1035am

Client Informed on N/A by N/A Person contacted N/A

[✓] No action necessary; process as is.

Project Manager [signature] Date 3/10/10

LS-023, Rev. 10, 10/09

3/11/2010 1:49:45 PM

Sample Preparation/Analysis

PRIORITY

1378399, Fluor Hanford Inc , Fluor
Hanford Inc

AZ Gross Alpha Prp GPC001
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

Balance Id:1120482733
Pipet #: _____

AnalyDueDate: 03/15/2010 WO58849

Sep1 DT/Tm Tech:

Batch: 0069298 WATER pCi/L PM, Quote: SS , 81939
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl | Beck 9

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 LWG3G-1-AA J0C100474-1-SAMP 03/10/2010 09:38		200.10g,in AmtRec: 1XLP,1X60ML	#Containers: 2	1.5	0.4	50	10it Scr:	1159 Alpha:	3/12/10 m Beta:	
2 LWG3G-1-AD-X J0C100474-1-DUP 03/10/2010 09:38		200.00g,in AmtRec: 1XLP,1X60ML	#Containers: 2		0.5		10B Scr:	Alpha:	Beta:	
3 LWHD8-1-AA-B J0C100000-298-BLK 03/10/2010 13:47 pd		200.10g,in AmtRec:	#Containers: 1		0.8		10C Scr:	Alpha:	Beta:	
4 LWHD8-1-AC-C J0C100000-298-LCS 03/10/2010 13:47 pd		200.10g,in AmtRec:	ASD4895 12/02/09,pd 04/04/05 r #Containers: 1		0.6		10D Scr:	Alpha:	Beta:	

MARCH 16, 2010

Comments:

All Clients for Batch:
1378399, Fluor Hanford Inc Fluor Hanford Inc , SS , 81939

LWG3G1AA-SAMP Constituent List:

ALPHA	RDL:3	pCi/L	LCL:	UCL:	RPD:
LWHD81AA-BLK:					
ALPHA	RDL:3	pCi/L	LCL:	UCL:	RPD:
LWHD81AC-LCS:					
Am-241	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

LWG3G1AA-SAMP Calc Info:

24 04 32

Sample Preparation/Analysis

AZ Gross Alpha Prp GPC001
S7 Gross Alpha by GPC using Am-241 curve
5I CLIENT: HANFORD

PRIORITY

Balance Id:1120482733

Pipet #: _____

AnalyDueDate: 03/15/2010

Sep1 DT/Tm Tech:

Batch: 0069298 pCi/L
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl

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

```
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
LWHD81AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
LWHD81AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

Approved By _____ Date: _____

MARCH 16, 2010

MARCH 16, 2010

ICOC Fraction Transfer/Status Report

ByDate: 3/15/2009, 3/20/2010, Batch: '0069298', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
0069298						
AC		Rev1C	Barcotl	3/11/2010 1:50:30 PM		
SC			WagarR	IsBatched	3/10/2010 1:46:39 PM	ICOC_RADCALC v4.8.37
SC			Barcotl	InPrep	3/11/2010 1:50:30 PM	RL-PRP-004 REVISION 0
SC			BockJ	InPrep2	3/11/2010 2:12:25 PM	RL-GPC-001 REVISION 0
SC			BockJ	Prep2C	3/12/2010 10:30:23 AM	RL-GPC-001 REVISION 0
SC			ClarkR	InCnt1	3/12/2010 10:36:04 AM	RL-CI-006 REVISION 0
SC			ClarkR	CalcC	3/12/2010 12:44:01 PM	RL-CI-006 REVISION 0
SC			antonsonl	Rev1C	3/15/2010 11:37:19 AM	RL-DR-001 REV 0
AC			BockJ	3/11/2010 2:12:25 PM		
AC			BockJ	3/11/2010 2:12:38 PM		
AC			BockJ	3/12/2010 10:30:23		
AC			ClarkR	3/12/2010 10:36:04		
AC			ClarkR	3/12/2010 12:44:01		
AC			antonsonl	3/15/2010 11:37:19		

AC: Accepting Entry; SC: Status Change

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

RE-COUNT REQUEST

DUE DATE 3/15/10

CUSTOMER fluor

ANALAYSIS ~~Beta~~ LMA 3/15/10 Beta

MATRIX water

LOT NUMBER JOC100474

SAMPLE DELIVERY GROUP

OLD BATCH NUMBER 0069999

NEW BATCH NUMBER

	LAB SAMPLE ID	CLIENT ID	REASON FOR REQUEST & ANALYSIS COMMENTS
2cs	1) LWG36	IAC	0.2 100 min count time
2cs	2) LWG36	IAC X	0.2
	3)		
	4)		
	5)		
	6)		
	7)		
	8)		
	9)		
	10)		
	11)		
	12)		
	13)		
	14)		
	15)		
	16)		
	17)		
	18)		
	19)		
	20)		

RC-126, 12/07, Rev 5

3/15/2010 1:06:08 PM

Sample Preparation/Analysis

1378399, Fluor Hanford Inc , Fluor
Hanford Inc

AnalyDueDate: 03/15/2010

BC Gross Beta Prp GPC001
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Balance Id:1120482733

Pipet #: _____

Sep1 DT/Tm Tech:

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl

Batch: 0069299 **WATER** **pCi/L** **PM, Quote: SS , 81939**
SEQ Batch, Test: None All Tests: 0069298 AZS7, 0069299 BCS8,

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 LWG3G-1-AC J0C100474-1-SAMP 03/10/2010 09:38		200.10g,in AmtRec: 1XLP,1X60ML	#Containers: 2					Scr:	Alpha: -3.31E-05 uCi/Sa	Beta: -7.70E-05 uCi/Sa
2 LWG3G-1-AE-X J0C100474-1-DUP 03/10/2010 09:38		200.10g,in AmtRec: 1XLP,1X60ML	#Containers: 2					Scr:	Alpha: -3.31E-05 uCi/Sa	Beta: -7.70E-05 uCi/Sa
3 LWG3G-2-AC J0C100474-1-SAMP 03/10/2010 09:38		200.10g AmtRec: 1XLP,1X60ML	#Containers: 2	0.2	100	26A	1339	Scr:	Alpha: -3.31E-05 uCi/Sa	Beta: -7.70E-05 uCi/Sa
4 LWG3G-2-AE-X J0C100474-1-DUP 03/10/2010 09:38		200.10g AmtRec: 1XLP,1X60ML	#Containers: 2	0.2		26B		Scr:	Alpha: -3.31E-05 uCi/Sa	Beta: -7.70E-05 uCi/Sa
5 LWHED-1-AA-B J0C100000-299-BLK 03/10/2010 13:47 pd		200.10g,in AmtRec:	#Containers: 1					Scr:	Alpha:	Beta:
6 LWHED-1-AC-C J0C100000-299-LCS 03/10/2010 13:47 pd		200.20g,in AmtRec:	BESB3510 09/25/09,pd 10/01/01,r #Containers: 1					Scr:	Alpha:	Beta:

3/15/10

MARCH 16, 2010

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3/11/2010 1:43:12 PM

Sample Preparation/Analysis

Balance Id:1120482733

1378399, Fluor Hanford Inc , Fluor
Hanford Inc

BC Gross Beta Prp GPC001
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

PRIORITY

Pipet #: _____

AnalyDueDate: 03/15/2010 WO5849

Sep1 DT/Tm Tech:

Batch: 0069299 WATER pCi/L PM, Quote: SS , 81939
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl Beck

Work Order, Lot, Sample DateTime	Total Amt/Unit	Initial Aliquot Amt/Unit	QC Tracer Prep Date	Dish Size	Ppt or Geometry	Count Time Min	Detector Id	Count On | Off (24hr) Circle	CR Analyst, Init/Date	Comments:
1 LWG3G-1-AC J0C100474-1-SAMP 03/10/2010 09:38	AmtRec: 1XLP,1X60ML	200.10g,in	#Containers: 2	1.5	0.2	100	27A Scr:	1217 Alpha:	3/12/10 km Beta:	
2 LWG3G-1-AE-X J0C100474-1-DUP 03/10/2010 09:38	AmtRec: 1XLP,1X60ML	200.10g,in	#Containers: 2		0.2		27B Scr:	Alpha:	Beta:	
3 LWHED-1-AA-B J0C100000-299-BLK 03/10/2010 13:47 pd	AmtRec:	200.10g,in	#Containers: 1		0		27C Scr:	Alpha:	Beta:	
4 LWHED-1-AC-C J0C100000-299-LCS 03/10/2010 13:47 pd	AmtRec:	200.20g,in	BESB3510 09/25/09,pd 10/01/01,r #Containers: 1		0.4		27D Scr:	Alpha:	Beta:	

MARCH 16, 2010

Comments:

```
All Clients for Batch:
   1378399, Fluor Hanford Inc                    Fluor Hanford Inc          ,  SS , 81939

LWG3G1AC-SAMP Constituent List:
  BETA        RDL:4          pCi/L     LCL:        UCL:        RPD:
LWHED1AA-BLK:
  BETA        RDL:4          pCi/L     LCL:        UCL:        RPD:
LWHED1AC-LCS:
  Sr-90       RDL:           pCi/L     LCL:70      UCL:130     RPD:20
LWG3G1AC-SAMP Calc Info:
```

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Sample Preparation/Analysis

BC Gross Beta Prp GPC001
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Balance Id:1120482733
Pipet #: _____
Sep1 DT/Tm Tech:
Sep2 DT/Tm Tech:
Prep Tech: ,Barcotl

AnalyDueDate: 03/15/2010

Batch: 0069299 pCi/L
SEQ Batch, Test: None

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

Comments:

All Clients for Batch:
1378399, Fluor Hanford Inc Fluor Hanford Inc , SS , 81939

LWG3G1AC-SAMP Constituent List:

BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:
LWHED1AA-BLK:					
BETA	RDL:4	pCi/L	LCL:	UCL:	RPD:
LWHED1AC-LCS:					
Sr-90	RDL:	pCi/L	LCL:70	UCL:130	RPD:20

LWG3G1AC-SAMP Calc Info:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
LWHED1AA-BLK:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B
LWHED1AC-LCS:
Uncert Level (#s).: 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By _____ Date: _____

MARCH 16, 2010

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Sample Preparation/Analysis

PRIORITY

BC Gross Beta Prp GPC001
S8 Gross Beta by GPC using Sr/Y-90 curve
5I CLIENT: HANFORD

Balance Id:1120482733

Pipet #: _____

AnalyDueDate: 03/15/2010

Sep1 DT/Tm Tech:

Batch: 0069299 pCi/L
SEQ Batch, Test: None

Sep2 DT/Tm Tech:

Prep Tech: ,Barcotl

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

```
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
LWHED1AA-BLK:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
LWHED1AC-LCS:
    Uncert Level (#s).: 2     Decay to SaDt: Y     Blk Subt.: N     Sci.Not.: Y     ODRs: B
```

Approved By _____ Date: _____

MARCH 16, 2010

MARCH 16, 2010

ICOC Fraction Transfer/Status Report

ByDate: 3/15/2009, 3/20/2010, Batch: '0069299', User: *ALL Order By DateTimeAccepting

Q Batch	Work Ord	CurStatus	Accepting			Comments
0069299						
AC		Rev1C	**Barcotl**	3/11/2010 1:43:30 PM		
SC			WagarR	IsBatched	3/10/2010 1:46:39 PM	ICOC_RADCALC v4.8.37
SC			Barcotl	InPrep	3/11/2010 1:43:30 PM	RL-PRP-004 REVISION 0
SC			BockJ	InPrep2	3/11/2010 2:12:20 PM	RL-GPC-001 REVISION 0
SC			BockJ	Prep2C	3/12/2010 10:30:20 AM	RL-GPC-001 REVISION 0
SC			ClarkR	InCnt1	3/12/2010 10:36:08 AM	RL-CI-006 REVISION 0
SC			ClarkR	CalcC	3/12/2010 1:05:30 PM	RL-CI-006 REVISION 0
SC			BlackCL	CalcC	3/15/2010 1:54:42 PM	RL-CI-006 REVISION 0
SC			antonsonl	Rev1C	3/15/2010 2:01:49 PM	RL-DR-001 REV 0
AC			**BockJ**	3/11/2010 2:12:20 PM		
AC			**BockJ**	3/12/2010 10:30:20		
AC			**ClarkR**	3/12/2010 10:36:08		
AC			**ClarkR**	3/12/2010 1:05:30 PM		
AC			**BlackCL**	3/15/2010 1:54:42 PM		
AC			**antonsonl**	3/15/2010 2:01:49 PM		

AC: Accepting Entry; SC: Status Change