

Analytical Data Package Prepared For

**Fluor Hanford Inc.**

Radiochemical Analysis By  
**TestAmerica**

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

Assigned Laboratory Code: TARL

Data Package Contains \_\_\_\_\_ Pages

Report No.: 39069

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. |
|---------|-----------|-------------------------------|-------------|------------|--------------|-----------|
| W05370  | F08-087   | B1TPJ5                        | J8D080108-1 | KKVQK1AD   | 9KKVQK10     | 8099360   |
|         |           | B1TPJ5                        | J8D080108-1 | KKVQK1AC   | 9KKVQK10     | 8099361   |
|         |           | B1TPJ5                        | J8D080108-1 | KKVQK1AA   | 9KKVQK10     | 8099362   |

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## Certificate of Analysis

Fluor Hanford, Inc.  
1200 Jadwin Ave.  
Richland, WA 99352

May 20, 2008

Attention: Steve Trent

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|                   |   |               |
|-------------------|---|---------------|
| SAF Number        | : | F08-087       |
| Date SDG Closed   | : | April 7, 2008 |
| Number of Samples | : | One (1)       |
| Sample Type       | : | Water         |
| SDG Number        | : | W05370        |
| Data Deliverable  | : | 45/45 Day     |

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### CASE NARRATIVE

#### I. Introduction

On April 7, 2008 one sample was received at TestAmerica for radiochemical analysis. Upon receipt, the sample was assigned to lot J8D080108 and assigned the following laboratory ID number to correspond with the Fluor Hanford (FH) specific ID:

| <u>FH ID#</u> | <u>STLR ID#</u> | <u>MATRIX</u> | <u>DATE OF RECEIPT</u> |
|---------------|-----------------|---------------|------------------------|
| B1TPJ5        | KKVQK           | WATER         | 4/7/08                 |

#### 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.

Fluor Hanford, Inc.  
May 20, 2008

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The requested analyses were:

**Gas Proportional Counting**  
Gross Alpha by method RICH-RC-5014  
Gross Beta by method RICH-RC-5014  
**Laser Induced Phosphorimetry**  
Total Uranium by method RICH-RC-5058

#### 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 RICH-RC-5014:

The LCS, batch blank, samples and sample duplicate (B1TPJ5) results are within contractual requirements.

###### Gross Beta by method RICH-RC-5014:

The LCS, batch blank, samples and sample duplicate (B1TPJ5) results are within contractual requirements.

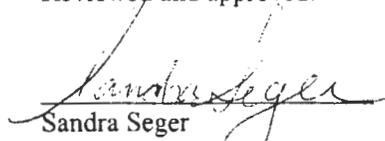
##### **Total Uranium**

###### Total Uranium by method RICH-RC-5058:

The LCS, batch blank, samples, sample duplicate (B1TPJ5), and sample matrix spike (B1TPJ5) 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                 | RICH-RC-5017                   |
| EPA 900.0                                   | Alpha & Beta                  | RICH-RC-5014                   |
| EPA 00-02                                   | Gross Alpha (Coprecipitation) | RICH-RC-5021                   |
| EPA 903.0                                   | Total Alpha Radium (Ra-226)   | RICH-RC-5027                   |
| EPA 903.1                                   | Ra-226                        | RICH-RC-5005                   |
| EPA 904.0                                   | Ra-228                        | RICH-RC-5005                   |
| EPA 905.0                                   | Sr-89/90                      | RICH-RC-5006                   |
| ASTM D5174                                  | Uranium                       | RICH-RC-5058                   |
| EPA 906.0                                   | Tritium                       | RICH-RC-5007                   |

**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,  $R = \text{constants} * f(x,y,z,...)$ . 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 $(\text{Result}/\text{Expected})-1$ 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>Total Uncert (#s)<br/><math>u_c</math> - Combined<br/>Uncertainty.</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, $u_c$ , the combined uncertainty. The uncertainty is absolute and in the same units as the result.   |
| <b>(#s), Coverage<br/>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%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgmdCnt}/\text{BkgmdCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$ . 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</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%. $MDC = (4.65 * \text{Sqrt}((\text{BkgmdCnt}/\text{BkgmdCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol})) * \text{IngrFct}$ . 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 Work Order Number.   |
| <b>RER</b>  | The equation Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2)]$ 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<br/>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.   |

**Sample Results Summary**

Date: 20-May-08

**TestAmerica TARL**

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

Report No. : 39069

SDG No: W05370

| Batch   | Client Id<br>Work Order | Parameter     | Result +- Uncertainty ( 2s) | Qual | Units | Tracer<br>Yield | MDC or<br>MDA | CRDL     | RPD  |
|---------|-------------------------|---------------|-----------------------------|------|-------|-----------------|---------------|----------|------|
| 8099361 | RICHRC5014              |               |                             |      |       |                 |               |          |      |
|         | B1TPJ5                  |               |                             |      |       |                 |               |          |      |
|         | KKVQK1AC                | ALPHA         | 2.71E+01 +- 5.72E+00        |      | pCi/L | 100%            | 1.31E+00      | 3.00E+00 |      |
|         | B1TPJ5 DUP              |               |                             |      |       |                 |               |          |      |
|         | KKVQK1AG                | ALPHA         | 3.62E+01 +- 7.05E+00        |      | pCi/L | 100%            | 1.82E+00      | 3.00E+00 | 28.7 |
| 8099362 | BETA_GPC                |               |                             |      |       |                 |               |          |      |
|         | B1TPJ5                  |               |                             |      |       |                 |               |          |      |
|         | KKVQK1AA                | BETA          | 1.97E+01 +- 3.93E+00        |      | pCi/L | 100%            | 2.76E+00      | 4.00E+00 |      |
|         | B1TPJ5 DUP              |               |                             |      |       |                 |               |          |      |
|         | KKVQK1AH                | BETA          | 1.74E+01 +- 3.16E+00        |      | pCi/L | 100%            | 2.87E+00      | 4.00E+00 | 11.9 |
| 8099360 | UTOT_KPA                |               |                             |      |       |                 |               |          |      |
|         | B1TPJ5                  |               |                             |      |       |                 |               |          |      |
|         | KKVQK1AD                | TOTAL-URANIUM | 3.51E+01 +- 4.13E+00        |      | pCi/L |                 | 5.59E-02      | 1.00E-01 |      |
|         | B1TPJ5 DUP              |               |                             |      |       |                 |               |          |      |
|         | KKVQK1AF                | TOTAL-URANIUM | 3.58E+01 +- 4.21E+00        |      | pCi/L |                 | 5.62E-02      | 1.00E-01 |      |
|         | No. of Results: 6       |               |                             |      |       |                 |               |          |      |

TestAmerica RPD - Relative Percent Difference.

rptSTLRchSaSum  
mary2 V5.1.6  
A2002

QC Results Summary

Date: 20-May-08

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 39069

SDG No.: W05370

| Batch             | Work Order           | Parameter     | Result +- Uncertainty ( 2s) | Qual | Units | Tracer Yield | LCS Recovery | Bias | MDC MDA  |
|-------------------|----------------------|---------------|-----------------------------|------|-------|--------------|--------------|------|----------|
| <b>RICHRC5014</b> |                      |               |                             |      |       |              |              |      |          |
| 8099361           | BLANK QC,            |               |                             |      |       |              |              |      |          |
|                   | KKWWM1A              | ALPHA         | 1.59E-01 +- 5.62E-01        | U    | pCi/L | 100%         |              |      | 1.38E+00 |
| 8099361           | LCS,                 |               |                             |      |       |              |              |      |          |
|                   | KKWWM1A              | ALPHA         | 2.33E+01 +- 5.41E+00        |      | pCi/L | 100%         | 104%         | 0.0  | 9.28E-01 |
| <b>BETA_GPC</b>   |                      |               |                             |      |       |              |              |      |          |
| 8099362           | BLANK QC,            |               |                             |      |       |              |              |      |          |
|                   | KKWWP1AA             | BETA          | 1.69E+00 +- 1.32E+00        | U    | pCi/L | 100%         |              |      | 2.61E+00 |
| 8099362           | LCS,                 |               |                             |      |       |              |              |      |          |
|                   | KKWWP1AC             | BETA          | 2.42E+01 +- 3.92E+00        |      | pCi/L | 100%         | 109%         | 0.1  | 2.52E+00 |
| <b>UTOT_KPA</b>   |                      |               |                             |      |       |              |              |      |          |
| 8099360           | MATRIX SPIKE, B1TPJ5 |               |                             |      |       |              |              |      |          |
|                   | KKVQK1AE             | TOTAL-URANIUM | 6.01E+01 +- 7.06E+00        |      | pCi/L |              | 246%         | 1.5  | 5.62E-02 |
| 8099360           | BLANK QC,            |               |                             |      |       |              |              |      |          |
|                   | KKWWK1AA             | TOTAL-URANIUM | 0.00E+00 +- 0.00E+00        | U    | pCi/L |              |              |      | 5.59E-02 |
| 8099360           | LCS,                 |               |                             |      |       |              |              |      |          |
|                   | KKWWK1AD             | TOTAL-URANIUM | 2.23E+00 +- 2.27E-01        |      | pCi/L |              | 92%          | -0.1 | 5.62E-02 |
|                   | KKWWK1AC             | TOTAL-URANIUM | 2.31E+01 +- 2.71E+00        |      | pCi/L |              | 95%          | -0.1 | 5.64E-02 |
| No. of Results: 8 |                      |               |                             |      |       |              |              |      |          |

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.  
 rptSTLRchQcSummary V5.1.6 A2002 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: 20-May-08

Lab Name: TestAmerica  
Lot-Sample No.: J8D080108-1  
Client Sample ID: B1TPJ5

SDG: W05370  
Report No.: 39069  
COC No.: F08-087-023

Collection Date: 4/7/2008 9:18:00 AM  
Received Date: 4/7/2008 12:32:00 PM  
Matrix: WATER

Ordered by Client Sample ID, Batch No.

| Parameter       | Result          | Qual      | Count<br>Error ( 2 s) | Total<br>Uncert( 2 s) | MDC MDA,<br>Action Lev | Rpt Unit,<br>Lc | Yield<br>CRDL(RL)      | Rst/MDC,<br>Rst/TotUcert | Analysis,<br>Prep Date | Total Sa<br>Size | Aliquot<br>Size | Primary<br>Detector |
|-----------------|-----------------|-----------|-----------------------|-----------------------|------------------------|-----------------|------------------------|--------------------------|------------------------|------------------|-----------------|---------------------|
| Batch: 8099360  | UTOT_KPA        |           |                       |                       | Work Order: KKVQK1AD   |                 | Report DB ID: 9KKVQK10 |                          |                        |                  |                 |                     |
| TOTAL-URANIUM   | <b>3.51E+01</b> |           |                       | 4.1E+00               | 5.59E-02               | pCi/L           |                        | (627.6)                  | 5/14/08 09:06 a        |                  | 0.0251          | KPAW3               |
|                 |                 |           |                       |                       |                        |                 | 1.98E-02               | 1.00E-01                 |                        |                  | ML              |                     |
| Batch: 8099361  | RICHRC5014      |           |                       |                       | Work Order: KKVQK1AC   |                 | Report DB ID: 9KKVQK10 |                          |                        |                  |                 |                     |
| ALPHA           | <b>2.71E+01</b> |           | 4.2E+00               | 5.7E+00               | 1.31E+00               | pCi/L           | 100%                   | (20.7)                   | 5/9/08 03:01 p         |                  | 0.2001          | GPC10F              |
|                 |                 |           |                       |                       |                        |                 | 4.34E-01               | 3.00E+00                 |                        |                  | L               |                     |
| Batch: 8099362  | BETA_GPC        |           |                       |                       | Work Order: KKVQK1AA   |                 | Report DB ID: 9KKVQK10 |                          |                        |                  |                 |                     |
| BETA            | <b>1.97E+01</b> |           | 2.4E+00               | 3.9E+00               | 2.76E+00               | pCi/L           | 100%                   | (7.1)                    | 5/9/08 03:16 p         |                  | 0.2             | GPC28B              |
|                 |                 |           |                       |                       |                        |                 | 1.31E+00               | 4.00E+00                 |                        |                  | L               |                     |
| No. of Results: | 3               | Comments: |                       |                       |                        |                 |                        |                          |                        |                  |                 |                     |

## FORM II

Date: 20-May-08

## DUPLICATE RESULTS

Lab Name: TestAmerica  
 Lot-Sample No.: J8D080108-1  
 Client Sample ID: B1TPJ5 DUP

SDG: W05370  
 Report No.: 39069  
 COC No.: F08-087-023

Collection Date: 4/7/2008 9:18:00 AM  
 Received Date: 4/7/2008 12:32:00 PM  
 Matrix: WATER

| Parameter      | Result,<br>Orig Rst | Qual | Count<br>Error ( 2 s) | Total<br>Uncert( 2 s) | MDC MDA,<br>Action Lev | Rpt Unit,<br>CRDL      | Yield | Rst/MDC,<br>Rst/TotUcert | Analysis,<br>Prep Date  | Total Sa<br>Size | Aliquot<br>Size | Primary<br>Detector |
|----------------|---------------------|------|-----------------------|-----------------------|------------------------|------------------------|-------|--------------------------|-------------------------|------------------|-----------------|---------------------|
| Batch: 8099360 | UTOT_KPA            |      |                       |                       | Work Order: KKVQK1AF   | Report DB ID: KKVQK1FR |       |                          | Orig Sa DB ID: 9KKVQK10 |                  |                 |                     |
| TOTAL-URANIUM  | 3.58E+01            |      |                       | 4.2E+00               | 5.62E-02               | pCi/L                  |       | (637.9)                  | 5/14/08 09:09 a         |                  | 0.025           | KPAW3               |
|                | 3.51E+01            |      | RPD 2.0               |                       |                        | 1.00E-01               |       | (17.)                    |                         |                  | ML              |                     |
| Batch: 8099361 | RICHRC5014          |      |                       |                       | Work Order: KKVQK1AG   | Report DB ID: KKVQK1GR |       |                          | Orig Sa DB ID: 9KKVQK10 |                  |                 |                     |
| ALPHA          | 3.62E+01            |      | 4.7E+00               | 7.1E+00               | 1.82E+00               | pCi/L                  | 100%  | (19.9)                   | 5/9/08 03:01 p          |                  | 0.2002          | GPC12A              |
|                | 2.71E+01            |      | RPD 28.7              |                       |                        | 3.00E+00               |       | (10.3)                   |                         |                  | L               |                     |
| Batch: 8099362 | BETA_GPC            |      |                       |                       | Work Order: KKVQK1AH   | Report DB ID: KKVQK1HR |       |                          | Orig Sa DB ID: 9KKVQK10 |                  |                 |                     |
| BETA           | 1.74E+01            |      | 2.3E+00               | 3.2E+00               | 2.87E+00               | pCi/L                  | 100%  | (6.1)                    | 5/9/08 03:16 p          |                  | 0.2003          | GPC28C              |
|                | 1.97E+01            |      | RPD 11.9              |                       |                        | 4.00E+00               |       | (11.)                    |                         |                  | L               |                     |

No. of Results: 3      Comments:

TestAmerica      RPD - Relative Percent Difference.

rptSTLRchDupV5.1      MDC|MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

.6 A2002

**FORM II**  
**BLANK RESULTS**

Date: 20-May-08

Lab Name: TestAmerica

SDG: W05370

Matrix: WATER

Report No. : 39069

| 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: 8099361    | RICHRC5014 |      |                   |                    | Work Order: KKWWM1AA | Report DB ID: KKWWM1AB |       |                       |                     |               |              |                  |
| ALPHA             | 1.59E-01   | U    | 5.6E-01           | 5.6E-01            | 1.38E+00             | pCi/L                  | 100%  | 0.12                  | 5/9/08 03:01 p      |               | 0.2002       | GPC12C           |
|                   |            |      |                   |                    | 5.53E-01             | 3.00E+00               |       | 0.57                  |                     |               | L            |                  |
| Batch: 8099362    | BETA_GPC   |      |                   |                    | Work Order: KKWWP1AA | Report DB ID: KKWWP1AB |       |                       |                     |               |              |                  |
| BETA              | 1.69E+00   | U    | 1.3E+00           | 1.3E+00            | 2.61E+00             | pCi/L                  | 100%  | 0.64                  | 5/9/08 03:16 p      |               | 0.2002       | GPC28D           |
|                   |            |      |                   |                    | 1.24E+00             | 4.00E+00               |       | (2.5)                 |                     |               | L            |                  |
| Batch: 8099360    | UTOT_KPA   |      |                   |                    | Work Order: KKWWK1AA | Report DB ID: KKWWK1AB |       |                       |                     |               |              |                  |
| TOTAL-URANIUM     | 0.00E+00   | U    |                   | 0.0E+00            | 5.59E-02             | pCi/L                  |       | 0.                    | 5/14/08 08:57 a     |               | 0.0251       | KPAW3            |
|                   |            |      |                   |                    | 1.98E-02             | 1.00E+00               |       | N/A                   |                     |               | ML           |                  |
| No. of Results: 3 |            |      | Comments:         |                    |                      |                        |       |                       |                     |               |              |                  |

10

**FORM II**  
**LCS RESULTS**

Date: 20-May-08

Lab Name: TestAmerica

SDG: W05370

Matrix: WATER

Report No.: 39069

| Parameter       | Result     | Count<br>Qual Error ( 2 s) | Total<br>Uncert( 2 s) | MDC MDA  | Report<br>Unit       | Yield       | Expected               | Expected<br>Uncert | Recovery,<br>Bias | Analysis,<br>Prep Date | Aliquot<br>Size | Primary<br>Detector |
|-----------------|------------|----------------------------|-----------------------|----------|----------------------|-------------|------------------------|--------------------|-------------------|------------------------|-----------------|---------------------|
| Batch: 8099361  | RICHRC5014 |                            |                       |          | Work Order: KKWWM1AC |             | Report DB ID: KKWWM1CS |                    |                   |                        |                 |                     |
| ALPHA           | 2.33E+01   | 3.2E+00                    | 5.4E+00               | 9.28E-01 | pCi/L                | 100%        | 2.24E+01               | 3.29E-01           | 104%              | 5/9/08 03:01 p         | 0.2004          | GPC12D              |
|                 |            |                            |                       |          |                      | Rec Limits: | 75                     | 125                | 0.0               |                        | L               |                     |
| Batch: 8099362  | BETA_GPC   |                            |                       |          | Work Order: KKWWP1AC |             | Report DB ID: KKWWP1CS |                    |                   |                        |                 |                     |
| BETA            | 2.42E+01   | 2.5E+00                    | 3.9E+00               | 2.52E+00 | pCi/L                | 100%        | 2.22E+01               | 2.56E-01           | 109%              | 5/9/08 03:16 p         | 0.2002          | GPC31A              |
|                 |            |                            |                       |          |                      | Rec Limits: | 70                     | 130                | 0.1               |                        | L               |                     |
| Batch: 8099360  | UTOT_KPA   |                            |                       |          | Work Order: KKWWK1AC |             | Report DB ID: KKWWK1CS |                    |                   |                        |                 |                     |
| TOTAL-URANIUM   | 2.31E+01   |                            | 2.7E+00               | 5.64E-02 | pCi/L                |             | 2.44E+01               | 2.09E-01           | 95%               | 5/14/08 09:02 a        | 0.0249          | KPAW3               |
|                 |            |                            |                       |          |                      | Rec Limits: | 75                     | 125                | -0.1              |                        | ML              |                     |
| Batch: 8099360  | UTOT_KPA   |                            |                       |          | Work Order: KKWWK1AD |             | Report DB ID: KKWWK1DS |                    |                   |                        |                 |                     |
| TOTAL-URANIUM   | 2.23E+00   |                            | 2.3E-01               | 5.62E-02 | pCi/L                |             | 2.43E+00               | 1.60E-02           | 92%               | 5/14/08 09:04 a        | 0.025           | KPAW3               |
|                 |            |                            |                       |          |                      | Rec Limits: | 75                     | 125                | -0.1              |                        | ML              |                     |
| No. of Results: | 4          | Comments:                  |                       |          |                      |             |                        |                    |                   |                        |                 |                     |

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FORM II  
MATRIX SPIKE RESULTS

Date: 20-May-08

Lab Name: TestAmerica

SDG: W05370

Lot-Sample No.: J8D080108-1, B1TPJ5

Report No. : 39069

Matrix: WATER

| Parameter      | SpikeResult,<br>Orig Rst | Qual | Count<br>Error (2 s) | Total<br>Uncert( 2 s)  | MDC MDA  | Rpt Unit,<br>CRDL       | Yield | Rec-<br>overy | Exp-<br>ected | Exp<br>Uncert | Analysis,<br>Prep Date | Aliquot<br>Size | Analy Method,<br>Primary Detector |
|----------------|--------------------------|------|----------------------|------------------------|----------|-------------------------|-------|---------------|---------------|---------------|------------------------|-----------------|-----------------------------------|
| Batch: 8099360 | Work Order: KKVQK1AE     |      |                      | Report DB ID: KKVQK1EW |          | Orig Sa DB ID: 9KKVQK10 |       |               |               |               |                        |                 |                                   |
| TOTAL-URANIUM  | 6.01E+01                 |      |                      | 7.1E+00                | 5.62E-02 | pCi/L                   |       | 245.94%       | 2.44E+01      | 2.09E-01      | 5/14/08 09:08 a        | 0.025           | UTOT_KPA                          |
|                | 3.51E+01                 |      |                      |                        |          |                         |       |               |               |               |                        | ML              | KPAW3                             |

Number of Results: 1

Comments:

Lot No., Due Date: J8D080108; 05/22/2008
Client, Site: 108302; FLH HANFORD
QC Batch No., Method Test: 8099361; RALPHATH Alpha by GPC-Th
SDG, Matrix: W05370; WATER

1.0 COC

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

2.0 QC Batch

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

3.0 QC & Samples

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

4.0 Raw Data

4.1 Were results calculated in the correct units? Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

5.0 Other

5.1 Are all nonconformances included and noted? Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

5.4 Was transcription checked? Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

6.0 Comments on any No response:

First Level Review

Handwritten signature: Lisa Gustafson

Date

Handwritten date: 5/13/08



**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8099361

| Review Item   | Yes (✓) | No (✓) | NA (✓) |
|---|---------|--------|--------|
| <b>A. Sample Analysis</b>   |         |        |        |
| 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>B. QC Samples</b>  |         |        |        |
| 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?                                     | ✓       |        |        |
| <b>C. Other</b>   |         |        |        |
| 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: Erika Ford Date: 8/13/8

**Lot No., Due Date:** J8D080108; 05/22/2008  
**Client, Site:** 108302; FLH HANFORD  
**QC Batch No., Method Test:** 8099362; RBETA-SR Beta by GPC-Sr/Y  
**SDG, Matrix:** W05370; WATER

**1.0 COC**

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

✓ Yes No N/A

**2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

✓ Yes No N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

✓ Yes No N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

✓ Yes No N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

✓ Yes No N/A

**3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

✓ Yes No N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

✓ Yes No N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

✓ Yes No N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

✓ Yes No N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

✓ Yes No N/A

**4.0 Raw Data**

4.1 Were results calculated in the correct units? Yes No N/A

✓ Yes No N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

✓ Yes No N/A

4.3 Were Yields entered correctly? Yes No N/A

✓ Yes No N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

✓ Yes No N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

✓ Yes No N/A

**5.0 Other**

5.1 Are all nonconformances included and noted? Yes No N/A

✓ Yes No N/A

5.2 Are all required forms filled out? Yes No N/A

✓ Yes No N/A

5.3 Was the correct methodology used? Yes No N/A

✓ Yes No N/A

5.4 Was transcription checked? Yes No N/A

✓ Yes No N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

✓ Yes No N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

✓ Yes No N/A

6.0 Comments on any No response:

First Level Review Mia Gustafson Date 5/13/08

**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8099362

| Review Item   | Yes (✓) | No (✓) | NA (✓) |
|---|---------|--------|--------|
| <b>A. Sample Analysis</b>   |         |        |        |
| 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>B. QC Samples</b>  |         |        |        |
| 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?                                     | ✓       |        |        |
| <b>C. Other</b>   |         |        |        |
| 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: Erika Jond Date: 5/13/16

**Lot No., Due Date:** J8D080108; 05/22/2008  
**Client, Site:** 108302; FLH HANFORD  
**QC Batch No., Method Test:** 8099360; RUNAT UNat by KPA  
**SDG, Matrix:** W05370; WATER

**1.0 COC**

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

Yes  No  N/A

**2.0 QC Batch**

2.1 Do the Summary/Detailed Reports include a calculated result for each sample listed on the QC Batch Sheet? Yes No N/A

Yes  No  N/A

2.2 Are the QC appropriate for the analysis included in the batch? Yes No N/A

Yes  No  N/A

2.3 Is the Analytical Batch Worksheet complete; includes as appropriate, volumes, count times, etc? Yes No N/A

Yes  No  N/A

2.4 Does the Worksheets include a Tracer Vial label for each sample? Yes No N/A

Yes  No  N/A

**3.0 QC & Samples**

3.1 Is the blank results, yield, and MDA within contract limits? Yes No N/A

Yes  No  N/A

3.2 Is the LCS result, yield, and MDA within contract limits? Yes No N/A

Yes  No  N/A

3.3 Are the MS/MSD results, yields, and MDA within contract limits? Yes No N/A

Yes  No  N/A

3.4 Are the duplicate result, yields, and MDAs within contract limits? Yes No N/A

Yes  No  N/A

3.5 Are the sample yields and MDAs within contract limits? Yes No N/A

Yes  No  N/A

**4.0 Raw Data**

4.1 Were results calculated in the correct units? Yes No N/A

Yes  No  N/A

4.2 Were analysis volumes entered correctly? Yes No N/A

Yes  No  N/A

4.3 Were Yields entered correctly? Yes No N/A

Yes  No  N/A

4.4 Were spectra reviewed/meet contractual requirements? Yes No N/A

Yes  No  N/A

4.5 Were raw counts reviewed for anomalies? Yes No N/A

Yes  No  N/A

**5.0 Other**

5.1 Are all nonconformances included and noted? Yes No N/A

Yes  No  N/A

5.2 Are all required forms filled out? Yes No N/A

Yes  No  N/A

5.3 Was the correct methodology used? Yes No N/A

Yes  No  N/A

5.4 Was transcription checked? Yes No N/A

Yes  No  N/A

5.5 Were all calculations checked at a minimum frequency? Yes No N/A

Yes  No  N/A

5.6 Are worksheet entries complete and correct? Yes No N/A

Yes  No  N/A

6.0 Comments on any No response:

Level Review *[Signature]*

Date 5-19-8



**Data Review Checklist**  
**RADIOCHEMISTRY**  
 Second Level Review

Batch Number: 8099360

| Review Item   | Yes (✓) | No (✗) | NA (✓) |
|---|---------|--------|--------|
| <b>A. Sample Analysis</b>   |         |        | ✓      |
| 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>B. QC Samples</b>  |         |        |        |
| 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?                                     | ✓       |        |        |
| <b>C. Other</b>   |         |        | ✓      |
| 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: Erika Ord Date: 5/15/8

TESTAMERICA

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|   |   |  |  |                                  |                        |   |                             |  |   |  |  |  |  |  |  |  |
|---|---|--|--|----------------------------------|------------------------|---|-----------------------------|--|---|--|--|--|--|--|--|--|
| Fluor Hanford Inc.  |   | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST   |  |                                  |                        |   | F08-087-023                 | PAGE 1 OF 1  |   |  |  |  |  |  |  |  |
| <b>COLLECTOR</b><br>NCO Sampler   |   | <b>COMPANY CONTACT</b><br>Trent, Steve   |  | <b>TELEPHONE NO.</b><br>373-5869 |                        | <b>PROJECT COORDINATOR</b><br>TRENT, SJ   |                             | <b>PRICE CODE</b> 7N                                     | <b>DATA TURNAROUND</b><br>45 Days / 45 Days |  |  |  |  |  |  |  |
| <b>SAMPLING LOCATION</b><br>D-C6351-M   |   | <b>PROJECT DESIGNATION</b><br>Aquifer Tube Installation Sampling and Analysis in the 300-FF-5 OU |  |                                  |                        | <b>SAF NO.</b><br>F08-087                 |                             | <b>AIR QUALITY</b> <input type="checkbox"/>              |   |  |  |  |  |  |  |  |
| <b>ICE CHEST NO.</b>  |   | <b>FIELD LOGBOOK NO.</b>   |  | <b>ACTUAL SAMPLE DEPTH</b>       |                        | <b>COA</b><br>122612E510                  |                             | <b>METHOD OF SHIPMENT</b><br>GOVERNMENT VEHICLE          |   |  |  |  |  |  |  |  |
| <b>SHIPPED TO</b><br>TestAmerica Incorporated, Richland   |   | <b>OFFSITE PROPERTY NO.</b><br>N/A   |  |                                  |                        | <b>BILL OF LADING/AIR BILL NO.</b><br>N/A |                             |  |   |  |  |  |  |  |  |  |
| <b>MATRIX*</b><br>A=Air<br>DL=Drum<br>Liquids<br>DS=Drum<br>Solids<br>L=Liquid<br>O=Oil<br>S=Soil<br>SE=Sediment<br>T=Tissue<br>V=Vegetation<br>W=Water<br>WI=Wipe<br>X=Other | <b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b><br>Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993) |  | <b>PRESERVATION</b>                    |                                  | HNO3 to pH <2          | HNO3 to pH <2                             | None                        |  |   |  |  |  |  |  |  |  |
|   |   |  | <b>TYPE OF CONTAINER</b>               |                                  | G/P                    | G/P                                       | P                           |  |   |  |  |  |  |  |  |  |
|   |   |  | <b>NO. OF CONTAINER(S)</b>             |                                  | 1                      | 1   | 1                           |  |   |  |  |  |  |  |  |  |
|   |   |  | <b>VOLUME</b>                          |                                  | 1000mL                 | 500mL                                     | 20mL                        |  |   |  |  |  |  |  |  |  |
|   |   |  | <b>SPECIAL HANDLING AND/OR STORAGE</b> |                                  | <b>SAMPLE ANALYSIS</b> |   | Gross Alpha;<br>Gross Beta; | Total Uranium;   | Activity Scan;                              |  |  |  |  |  |  |  |
| <b>SAMPLE NO.</b>   | <b>MATRIX*</b>  | <b>SAMPLE DATE</b>   | <b>SAMPLE TIME</b>                     |                                  |                        |   |                             |  |   |  |  |  |  |  |  |  |
| B1TPJ5  | WATER   | 4/7/08   | 0918                                   | ✓                                | ✓                      | ✓   |                             |  |   |  |  |  |  |  |  |  |
|   | 500mL # 029038<br>1000mL # 023688   |  |  |                                  |                        |   |                             |  |   |  |  |  |  |  |  |  |
| <b>CHAIN OF POSSESSION</b>  |   |  |  | <b>SIGN/ PRINT NAMES</b>         |                        |   |                             | <b>SPECIAL INSTRUCTIONS</b>                              |   |  |  |  |  |  |  |  |
| RELINQUISHED BY/REMOVED FROM  |   | DATE/TIME  |  | RECEIVED BY/STORED IN            |                        | DATE/TIME                                 |                             | J8D08D108<br>W05370<br>DUE 5 23 08<br>KKVQK<br>Pw 4/8/08 |   |  |  |  |  |  |  |  |
| P. D. [Signature] / [Signature]   |   | 4/7/08 1232  |  | R. [Signature] / [Signature]     |                        | 4/7/08 1232                               |                             |  |   |  |  |  |  |  |  |  |
| 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                                 |                             |  |   |  |  |  |  |  |  |  |
| <b>LABORATORY SECTION</b>   |   | <b>RECEIVED BY</b>   |  |                                  |                        | <b>TITLE</b>                              |                             |  |   |  |  |  |  |  |  |  |
| <b>FINAL SAMPLE DISPOSITION</b>   |   | <b>DISPOSAL METHOD</b>   |  |                                  |                        | <b>DISPOSED BY</b>                        |                             |  |   |  |  |  |  |  |  |  |



### Sample Check-in List

Date/Time Received: 4708 1232 GM Screen Result 0.1K

Client: FLH SDG #: W05370 NA [ ] SAF #: F08-087 NA [ ]

Work Order Number: J8D080108 Chain of Custody # F08-087-023

Shipping Container ID: \_\_\_\_\_ Air Bill # \_\_\_\_\_

- 1. Custody Seals on shipping container intact? NA [ ] Yes  No [ ]
- 2. Custody Seals dated and signed? NA [ ] Yes  No [ ]
- 3. Chain of Custody record present? NA [ ] Yes  No [ ]
- 4. Cooler Temperature: \_\_\_\_\_ NA  5. Vermiculite/packing materials is NA  Wet [ ] Dry [ ]
- 6. Number of samples in shipping container: 1
- 7. Sample holding times exceeded? NA  Yes [ ] No [ ]
- 8. Samples have:
  - Tape \_\_\_\_\_ Hazard Lables \_\_\_\_\_
  - Custody Seals \_\_\_\_\_ Appropriate Sample Lables \_\_\_\_\_
- 9. Samples are:
  - In Good Condition \_\_\_\_\_ Leaking \_\_\_\_\_
  - Broken \_\_\_\_\_ Have Air Bubbles \_\_\_\_\_
 (Only for samples requiring no head space.)
- 10. Sample pH taken? NA [ ] pH<2  pH>2 [ ] pH>9 [ ] Amount HNO<sub>3</sub> Added \_\_\_\_\_
- 11. Sample Location, Sample Collector Listed? \*  
\*For documentation only. No corrective action needed.
- 12. Were any anomalies identified in sample receipt? Yes [ ] No
- 13. Description of anomalies (include sample numbers): \_\_\_\_\_

Sample Custodian: [Signature] Date: 4708

| Client Sample ID | Analysis Requested | Condition | Comments/Action |
|------------------|--------------------|-----------|-----------------|
|                  |                    |           |                 |
|                  |                    |           |                 |

Client Informed on \_\_\_\_\_ by \_\_\_\_\_ Person Contacted \_\_\_\_\_

[ ] No action necessary, process as is.

Project Manager \_\_\_\_\_ Date \_\_\_\_\_

TESTAMERICA

5/7/2008 1:29:56 PM

Sample Preparation/Analysis

Balance Id:1120482733

108302, Fluor Hanford Inc  
Management Federal Servi

Waste

AZ Gross Alpha PrpRC5014  
TZ Gross Alpha by GPC using Th-230 curve  
01 STANDARD TEST SET

Pipet #: 245

AnalyDueDate: 05/19/2008 W5370

Sep1 DT/Tm Tech:

Batch: 8099361 WATER pCi/L  
SEQ Batch, Test: None

PM, Quote: SS , 29754

Sep2 DT/Tm Tech:

Prep Tech: HarrisD Beck J



| Work Order, Lot, Sample Date/Time                       | 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 KKVQK-1-AC<br>J8D080108-1-SAMP<br>04/07/2008 09:18    | 200.10g,in     |                          |                          | 1.5            | 22.6            | 50             | 12F         | 15 28                        | 5/7/08/ks              |           |
|   |                |                          |                          |                |                 |                |             |                              |                        |           |
|   |                |                          | AmtRec: VIAL20,500MLP,LP | #Containers: 3 |                 |                | Scr:        | Alpha: 3.60E-07 uCi/Sa       | Beta: -5.43E-08 uCi/Sa |           |
| 2 KKVQK-1-AG-X<br>J8D080108-1-DUP<br>04/07/2008 09:18   | 200.20g,in     |                          |                          |                | 22.8            |                | 12A         |                              |                        |           |
|   |                |                          |                          |                |                 |                |             |                              |                        |           |
|   |                |                          | AmtRec: VIAL20,500MLP,LP | #Containers: 3 |                 |                | Scr:        | Alpha: 3.60E-07 uCi/Sa       | Beta: -5.43E-08 uCi/Sa |           |
| 3 KKWWM-1-AA-B<br>J8D080000-361-BLK<br>04/07/2008 09:18 | 200.20g,in     |                          |                          |                | 0.3             |                | 12C         |                              |                        |           |
|   |                |                          |                          |                |                 |                |             |                              |                        |           |
|   |                |                          | AmtRec:                  | #Containers: 1 |                 |                | Scr:        | Alpha:                       | Beta:                  |           |
| 4 KKWWM-1-AC-C<br>J8D080000-361-LCS<br>04/07/2008 09:18 | 200.40g,in     |                          |                          |                | 1.0             |                | 12D         |                              |                        |           |
|   |                |                          |                          |                |                 |                |             |                              |                        |           |
|   |                |                          | AmtRec:                  | #Containers: 1 |                 |                | Scr:        | Alpha:                       | Beta:                  |           |

Comments: pH 2.0 out 5/7/08

All Clients for Batch:  
108302, Fluor Hanford Inc Waste Management Federal Servi, SS , 29754

KKVQK1AC-SAMP Constituent List:  
ALPHA RDL:3 pCi/L LCL: UCL: RPD:  
KKWWM1AA-BLK:  
ALPHA RDL:3 pCi/L LCL: UCL: RPD:  
KKWWM1AC-LCS:  
Am-241 RDL: pCi/L LCL:70 UCL:130 RPD:20  
KKVQK1AC-SAMP Calc Info:

21

TESTAMERICA

5/7/2008 1:29:57 PM

Sample Preparation/Analysis

Balance Id:1120482733

AZ Gross Alpha PrpRC5014  
 TZ Gross Alpha by GPC using Th-230 curve  
 01 STANDARD TEST SET

Pipet #:

AnalyDueDate: 05/19/2008

Sep1 DT/Tm Tech:

Batch: 8099361

pCi/L

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: ,HarrisD



| Work Order, Lot, Sample Date/Time | 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: A  
 KKWWM1AA-BLK:  
 Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: A  
 KKWWM1AC-LCS:  
 Uncert Level (#s): 2    Decay to SaDt: Y    Blk Subt.: N    Sci.Not.: Y    ODRs: A

Approved By \_\_\_\_\_ Date: \_\_\_\_\_

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5/13/2008 12:29:15 PM

# ICOC Fraction Transfer/Status Report

ByDate: 5/14/2007, 5/18/2008, Batch: '8099361', User: 'ALL Order By DateTimeAccepting

| Q  | Batch   | Work Ord | CurStatus | Accepting                     | Comments                |
|----|---------|----------|-----------|-------------------------------|-------------------------|
|    | 8099361 |          |           |                               |                         |
| AC |         | Rev1C    | HarrisD   | 5/7/2008 1:26:16 PM           |                         |
| SC |         |          | wagarr    | IsBatched 4/8/2008 3:12:43 PM | ICOC_RADCALC v4.8.32    |
| SC |         |          | HarrisD   | InPrep 5/7/2008 1:26:16 PM    | RICH-RC-5014 Revision 7 |
| SC |         |          | HarrisD   | Prep1C 5/7/2008 1:30:00 PM    | RICH-RC-5014 REVISION 7 |
| SC |         |          | BockJ     | InPrep2 5/8/2008 8:37:13 AM   | RICH-RC-5014 REVISION 7 |
| SC |         |          | BockJ     | Prep2C 5/9/2008 1:39:41 PM    | RICH-RC-5014 REVISION 7 |
| SC |         |          | ClarkR    | InCnt1 5/9/2008 2:04:44 PM    | RICH-RD-0003 REVISION 5 |
| SC |         |          | DAWKINSO  | CalcC 5/9/2008 9:25:54 PM     | RICH-RD-0003 REVISION 5 |
| SC |         |          | antonsoni | Rev1C 5/13/2008 12:29:10 PM   | RICH-RC-0002 REV 8      |
| AC |         |          | HarrisD   | 5/7/2008 1:30:00 PM           |                         |
| AC |         |          | BockJ     | 5/8/2008 8:37:13 AM           |                         |
| AC |         |          | BockJ     | 5/9/2008 1:39:41 PM           |                         |
| AC |         |          | ClarkR    | 5/9/2008 2:04:44 PM           |                         |
| AC |         |          | DAWKINSO  | 5/9/2008 9:25:54 PM           |                         |
| AC |         |          | antonsoni | 5/13/2008 12:29:10            |                         |

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa.

TESTAMERICA

5/7/2008 1:37:07 PM

**Sample Preparation/Analysis**

Balance Id:1120482733

108302, Fluor Hanford Inc  
Management Federal Servi

Waste

BC Gross Beta PrpRC5014  
S8 Gross Beta by GPC using Sr/Y-90 curve  
5I CLIENT: HANFORD

Pipet #: *245*

AnalyDueDate: 05/19/2008 *WDS370*

Sep1 DT/Tm Tech:

Batch: 8099362 WATER pCi/L  
SEQ Batch, Test: None

PM, Quote: SS , 29754

Sep2 DT/Tm Tech:

Prep Tech: *HarrisD / Beck*



| Work Order, Lot, Sample Date/Time  | 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 KKVQK-1-AA<br>J8D080108-1-SAMP<br>04/07/2008 09:18   | 200.00g,in     |                          |                                     | 1.5       | 50.1            | 100            | 28B         | 1604                         |                       | <i>17/08 PL</i> |
| <p>AmtRec: VIAL20,500MLP,LP #Containers: 3</p> <p>Scr: Alpha: 3.60E-07 uCi/Sa Beta: -5.43E-08 uCi/Sa</p> |                |                          |                                     |           |                 |                |             |                              |                       |                 |
| 2 KKVQK-1-AH-X<br>J8D080108-1-DUP<br>04/07/2008 09:18  | 200.30g,in     |                          |                                     |           | 49.0            |                | 28C         |                              |                       |                 |
| <p>AmtRec: VIAL20,500MLP,LP #Containers: 3</p> <p>Scr: Alpha: 3.60E-07 uCi/Sa Beta: -5.43E-08 uCi/Sa</p> |                |                          |                                     |           |                 |                |             |                              |                       |                 |
| 3 KKWWP-1-AA-B<br>J8D080000-362-BLK<br>04/07/2008 09:18  | 200.20g,in     |                          |                                     |           | 0.4             |                | 26D         |                              |                       |                 |
| <p>AmtRec: #Containers: 1</p> <p>Scr: Alpha: Beta:</p>   |                |                          |                                     |           |                 |                |             |                              |                       |                 |
| 4 KKWWP-1-AC-C<br>J8D080000-362-LCS<br>04/07/2008 09:18  | 200.20g,in     |                          | BESB3245<br>04/02/08,pd<br>08/08/05 |           | 0.7             |                | 71A         |                              |                       |                 |
| <p>AmtRec: #Containers: 1</p> <p>Scr: Alpha: Beta:</p>   |                |                          |                                     |           |                 |                |             |                              |                       |                 |

Comments: *PH 2.0 OUT 5/7/08*

All Clients for Batch:  
108302, Fluor Hanford Inc Waste Management Federal Servi, SS , 29754

KKVQK1AA-SAMP Constituent List:  
 BETA RDL:4 pCi/L LCL: UCL: RPD:  
 KKWWP1AA-BLK:  
 BETA RDL:4 pCi/L LCL: UCL: RPD:  
 KKWWP1AC-LCS:  
 Sr-90 RDL: pCi/L LCL:70 UCL:130 RPD:20  
 KKVQK1AA-SAMP Calc Info:

24

TESTAMERICA

5/7/2008 1:37:08 PM

## Sample Preparation/Analysis

Balance Id:1120482733

BC Gross Beta PrpRC5014  
 S8 Gross Beta by GPC using Sr/Y-90 curve  
 5I CLIENT: HANFORD

Pipet #:

AnalyseDueDate: 05/19/2008

Sep1 DT/Tm Tech:

Batch: 8099362  
 SEQ Batch, Test: None

pCi/L

Sep2 DT/Tm Tech:

Prep Tech: ,HarrisD



| Work Order, Lot,<br>Sample Date/Time | Total<br>Amt/Unit | Initial Aliquot<br>Amt/Unit | QC Tracer<br>Prep Date | Dish<br>Size | Ppt or<br>Geometry | Count<br>Time Min | Detector<br>Id | Count On   Off<br>(24hr) Circle | CR Analyst,<br>Init/Date | Comments: |
|--------------------------------------|-------------------|-----------------------------|------------------------|--------------|--------------------|-------------------|----------------|---------------------------------|--------------------------|-----------|
| Uncert Level (#s): 2                 |                   | Decay to SaDt: Y            | Blk Subt.: N           | Sci.Not.: Y  | ODRs: B            |                   |                |                                 |                          |           |
| KKWWP1AA-BLK:                        |                   |                             |                        |              |                    |                   |                |                                 |                          |           |
| Uncert Level (#s): 2                 |                   | Decay to SaDt: Y            | Blk Subt.: N           | Sci.Not.: Y  | ODRs: B            |                   |                |                                 |                          |           |
| KKWWP1AC-LCS:                        |                   |                             |                        |              |                    |                   |                |                                 |                          |           |
| Uncert Level (#s): 2                 |                   | Decay to SaDt: Y            | Blk Subt.: N           | Sci.Not.: Y  | ODRs: B            |                   |                |                                 |                          |           |
| Approved By _____                    |                   |                             |                        |              |                    |                   |                |                                 | Date: _____              |           |

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5/13/2008 11:38:43 AM

# ICOC Fraction Transfer/Status Report

ByDate: 5/14/2007, 5/18/2008, Batch: '8099362', User: \*ALL Order By DateTimeAccepting

| Q Batch | Work Ord | CurStatus | Accepting           | Comments                |
|---------|----------|-----------|---------------------|-------------------------|
| 8099362 |          |           |                     |                         |
| AC      | Rev1C    | HarrisD   | 5/7/2008 1:34:24 PM |                         |
| SC      |          | wagarr    | IsBatched           | 4/8/2008 3:12:43 PM     |
| SC      |          | HarrisD   | InPrep              | 5/7/2008 1:34:24 PM     |
| SC      |          | HarrisD   | Prep1C              | 5/7/2008 1:37:10 PM     |
| SC      |          | BockJ     | InPrep2             | 5/8/2008 8:37:21 AM     |
| SC      |          | BockJ     | Prep2C              | 5/9/2008 1:40:10 PM     |
| SC      |          | ClarkR    | InCnt1              | 5/9/2008 2:05:16 PM     |
| SC      |          | BlackCL   | CalcC               | 5/12/2008 6:04:43 AM    |
| SC      |          | antonsoni | Rev1C               | 5/13/2008 11:38:38 AM   |
| IAC     |          | HarrisD   | 5/7/2008 1:37:10 PM | ICOC_RADCALC v4.8.32    |
| IAC     |          | BockJ     | 5/8/2008 8:37:21 AM | RICH-RC-5014 Revision 7 |
| AC      |          | BockJ     | 5/9/2008 1:40:10 PM | RICH-RC-5014 REVISION 7 |
| AC      |          | ClarkR    | 5/9/2008 2:05:16 PM | RICH-RC-5014 REVISION 7 |
| AC      |          | BlackCL   | 5/12/2008 6:04:43   | RICH-RD-0003 REVISION 5 |
| AC      |          | antonsoni | 5/13/2008 11:38:38  | RICH-RD-0003 REVISION 5 |
|         |          |           |                     | RICH-RC-0002 REV 8      |

AC: Accepting Entry; SC: Status Change

TestAmerica Richland

Richland Wa

TESTAMERICA

5/7/2008 11:11:58 AM

Sample Preparation/Analysis

Balance Id:1120482733

108302. Fluor Hanford Inc  
Management Federal Servi

Waste

DH UNat Laser PrpRC5015  
SS Total Uranium by KPA

Pipet #: \_\_\_\_\_

AnalyDueDate: 05/19/2008 **WDS370**

5I CLIENT: HANFORD

Sep1 DT/Tm Tech:

Batch: 8099360 WATER pCi/L

PM, Quote: SS , 29754

Sep2 DT/Tm Tech:

SEQ Batch, Test: None

Prep Tech: HarrisD 'Bock J.



| Work Order, Lot, Sample Date/Time   | Total Amt/Unit | Initial Aliquot Amt/Unit | QC Tracer Prep Date                 | Count Time Min | Detector Id | Count On   Off (24hr) Circle | CR Analyst, Init/Date | Comments: |
|---|----------------|--------------------------|-------------------------------------|----------------|-------------|------------------------------|-----------------------|-----------|
| 1 KKVQK-1-AD<br>J8D080108-1-SAMP<br>04/07/2008 09:18  | 25.10g,in      |                          |                                     |                |             |                              |                       |           |
| <p>AmtRec: VIAL20,500MLP,LP #Containers: 3 Scr: Alpha: 3.60E-07 uCi/Sa Beta: -5.43E-08 uCi/Sa</p> |                |                          |                                     |                |             |                              |                       |           |
| 2 KKVQK-1-AE-S<br>J8D080108-1-MS<br>04/07/2008 09:18  | 25.00g,in      |                          | UNSF4192<br>03/26/08,pd<br>02/01/05 |                |             |                              |                       |           |
| <p>AmtRec: VIAL20,500MLP,LP #Containers: 3 Scr: Alpha: 3.60E-07 uCi/Sa Beta: -5.43E-08 uCi/Sa</p> |                |                          |                                     |                |             |                              |                       |           |
| 3 KKVQK-1-AF-X<br>J8D080108-1-DUP<br>04/07/2008 09:18   | 25.00g,in      |                          |                                     |                |             |                              |                       |           |
| <p>AmtRec: VIAL20,500MLP,LP #Containers: 3 Scr: Alpha: 3.60E-07 uCi/Sa Beta: -5.43E-08 uCi/Sa</p> |                |                          |                                     |                |             |                              |                       |           |
| 4 KKWWK-1-AA-B<br>J8D080000-360-BLK<br>04/07/2008 09:18   | 25.10g,in      |                          |                                     |                |             |                              |                       |           |
| <p>AmtRec: #Containers: 1 Scr: Alpha: Beta:</p>   |                |                          |                                     |                |             |                              |                       |           |
| 5 KKWWK-1-AC-C<br>J8D080000-360-LCS<br>04/07/2008 09:18   | 24.90g,in      |                          | UNSF4193<br>03/26/08,pd<br>02/01/05 |                |             |                              |                       |           |
| <p>AmtRec: #Containers: 1 Scr: Alpha: Beta:</p>   |                |                          |                                     |                |             |                              |                       |           |
| 6 KKWWK-1-AD-C<br>J8D080000-360-LCS<br>04/07/2008 09:18   | 25.00g,in      |                          | UNSC2270<br>03/26/08,pd<br>02/02/05 |                |             |                              |                       |           |
| <p>AmtRec: #Containers: 1 Scr: Alpha: Beta:</p>   |                |                          |                                     |                |             |                              |                       |           |

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TESTAMERICA

5/7/2008 11:12:00 AM

Sample Preparation/Analysis

Balance Id:1120482733

DH UNat\_Laser PrpRC5015  
SS Total Uranium by KPA  
5I CLIENT: HANFORD

Pipet #:

AnalyDueDate: 05/19/2008

Sep1 DT/Tm Tech:

Batch: 8099360  
SEQ Batch, Test: None

pCi/L

Sep2 DT/Tm Tech:

Prep Tech: ,HarrisD



| Work Order, Lot,<br>Sample Date/Time | Total<br>Amt/Unit | Initial Aliquot<br>Amt/Unit | QC Tracer<br>Prep Date | Count<br>Time Min | Detector<br>Id | Count On   Off<br>(24hr) Circle | CR Analyst,<br>Init/Date | Comments: |
|--------------------------------------|-------------------|-----------------------------|------------------------|-------------------|----------------|---------------------------------|--------------------------|-----------|
|--------------------------------------|-------------------|-----------------------------|------------------------|-------------------|----------------|---------------------------------|--------------------------|-----------|

Comments:

PHC20 OUT 5/7/08

All Clients for Batch:

108302, Fluor Hanford Inc

Waste Management Federal Servi, SS , 29754

KKVQK1AD-SAMP Constituent List:

Uranium RDL:0.1 pCi/L LCL: UCL: RPD:

KKVQK1AE-MS Constituent List:

KKWWK1AA-BLK:

Uranium RDL:0.1 pCi/L LCL: UCL: RPD:

KKWWK1AC-LCS:

Uranium RDL:0.1 pCi/L LCL:70 UCL:130 RPD:20

KKWWK1AD-LCS:

Uranium RDL:0.1 pCi/L LCL:70 UCL:130 RPD:20

KKVQK1AD-SAMP Calc Info:

Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

KKVQK1AE-MS Calc Info:

Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

KKWWK1AA-BLK:

Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

KKWWK1AC-LCS:

Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

KKWWK1AD-LCS:

Uncert Level (#s): 2 Decay to SaDt: Y Blk Subt.: N Sci.Not.: Y ODRs: B

Approved By

Date:

28

5/15/2008 1:20:21 PM

# ICOC Fraction Transfer/Status Report

ByDate: 5/16/2007, 5/20/2008, Batch: '8099360', User: \*ALL Order By DateTimeAccepting

| Q Batch        | Work Ord     | CurStatus      | Accepting                     | Comments                |
|----------------|--------------|----------------|-------------------------------|-------------------------|
| <b>8099360</b> |              |                |                               |                         |
| AC             | <b>Rev1C</b> | <b>HarrisD</b> | 5/7/2008 11:08:35             |                         |
| SC             |              | wagarr         | IsBatched 4/8/2008 3:12:43 PM | ICOC_RADCALC v4.8.32    |
| SC             |              | HarrisD        | InPrep 5/7/2008 11:08:35 AM   | RICH-RC-5014 Revision 7 |
| SC             |              | HarrisD        | Prep1C 5/7/2008 11:12:01 AM   | RICH-RC-5015 REVISION 6 |
| SC             |              | BockJ          | InPrep2 5/7/2008 11:47:00 AM  | RICH-RC-5015 REVISION 6 |
| SC             |              | BockJ          | Prep2C 5/13/2008 2:09:20 PM   | RICH-RC-5015 REVISION 6 |
| SC             |              | NelsonT        | Cnt1C 5/14/2008 9:03:45 AM    | RICH-RC-5058 REV 7      |
| SC             |              | nortonj        | Rev1C 5/15/2008 1:20:14 PM    | RICH-RC-0002 REV 8      |
| AC             |              | <b>HarrisD</b> | 5/7/2008 11:12:01             |                         |
| AC             |              | <b>BockJ</b>   | 5/7/2008 11:47:00             |                         |
| AC             |              | <b>BockJ</b>   | 5/13/2008 2:09:20 PM          |                         |
| AC             |              | <b>NelsonT</b> | 5/14/2008 9:03:45             |                         |
| AC             |              | <b>nortonj</b> | 5/15/2008 1:20:14 PM          |                         |

AC: Accepting Entry; SC: Status Change

TAL Richland  
Richland Wa.