Analytical Data Package Prepared For

# CH2M Hill Plateau Remediation

Radiochemical Analysis By

## TestAmerica Inc

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

Assigned Laboratory Code: TARL

*Data Package Contains* 38 *Pages*

Report No.: 69054

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. |
|---|---|---|---|---|---|---|
| W07498 | X16-037 | B35LX4 | J6F130405-1 | M8Q1J1AC | 9M8Q1J10 | 6174050 |
| | | B35LX4 | J6F130405-1 | M8Q1J1AD | 9M8Q1J10 | 6174057 |
| | | B35LX4 | J6F130405-1 | M8Q1J1AA | 9M8Q1J10 | 6174059 |
| | | B35LY7 | J6F090440-3 | M8QQ01AC | 9M8QQ010 | 6174050 |
| | | B35LY7 | J6F090440-3 | M8QQ01AD | 9M8QQ010 | 6174057 |
| | | B35LY7 | J6F090440-3 | M8QQ01AA | 9M8QQ010 | 6174059 |
| | | B35M37 | J6F030402-1 | M8P3F1AC | 9m8p3f10 | 6174050 |
| | | B35M37 | J6F030402-1 | M8P3F1AD | 9m8p3f10 | 6174057 |
| | | B35M37 | J6F030402-1 | M8P3F1AA | 9m8p3f10 | 6174059 |
| | | B35M38 | J6F030402-2 | M8P3G1AC | 9M8P3G10 | 6174050 |
| | | B35M38 | J6F030402-2 | M8P3G1AD | 9M8P3G10 | 6174057 |
| | | B35M38 | J6F030402-2 | M8P3G1AA | 9M8P3G10 | 6174059 |
| | | B35M94 | J6F060406-2 | M8P781AC | 9M8P7810 | 6174050 |
| | | B35M94 | J6F060406-2 | M8P781AD | 9M8P7810 | 6174057 |
| | | B35M94 | J6F060406-2 | M8P781AA | 9M8P7810 | 6174059 |
| | | B35MB8 | J6F090440-1 | M8QQW1AC | 9M8QQW10 | 6174050 |
| | | B35MB8 | J6F090440-1 | M8QQW1AD | 9M8QQW10 | 6174057 |
| | | B35MB8 | J6F090440-1 | M8QQW1AA | 9M8QQW10 | 6174059 |
| | | B35MB9 | J6F090440-2 | M8QQX1AC | 9M8QQX10 | 6174050 |
| | | B35MB9 | J6F090440-2 | M8QQX1AD | 9M8QQX10 | 6174057 |
| | | B35MB9 | J6F090440-2 | M8QQX1AA | 9M8QQX10 | 6174059 |
| | | B35MD6 | J6F060406-1 | M8P771AC | 9M8P7710 | 6174050 |
| | | B35MD6 | J6F060406-1 | M8P771AD | 9M8P7710 | 6174057 |
| | | B35MD6 | J6F060406-1 | M8P771AA | 9M8P7710 | 6174059 |
| | | B35MJ2 | J6F130405-2 | M8Q1K1AC | 9M8Q1K10 | 6174050 |
| | | B35MJ2 | J6F130405-2 | M8Q1K1AD | 9M8Q1K10 | 6174057 |

**Report No.: 69054**

**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. |
|---|---|---|---|---|---|---|
| W07498 | X16-037 | B35MJ2 | J6F130405-2 | M8Q1K1AA | 9M8Q1K10 | 6174059 |

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

# Certificate of Analysis

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

July 29, 2016

Attention: Scot Fitzgerald

| | | |
|---|---|---|
| SAF Number | : | X16-037 |
| Date SDG Closed | : | June 16, 2016 |
| Number of Samples | : | Nine (9) |
| Sample Type | : | Water |
| SDG Number | : | W07498 |
| Data Deliverable | : | 30-Day / Summary |

## CASE NARRATIVE

### I. Introduction

Between June 2, 2016 and June 16, 2016, nine samples were received at TestAmerica (TARL). Upon receipt, the samples were assigned laboratory ID numbers to correspond with the CH2M specific IDs.

### II. Sample Receipt

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

### III. Analytical Results/Methodology

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

The requested analyses were:

**Gas Proportional Counting**
Strontium-90 by method RL-GPC-010
**Liquid Scintillation Counting**
Carbon-14 by method RL-LSC-008
Tritium by method RL-LSC-005

## IV. Quality Control

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

QC and sample results are reported in the same units.

## V. Comments

**Gas Proportional Counting**
Strontium-90 by method RL-GPC-010:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

**Liquid Scintillation Counting**
Carbon-14 by method RL-LSC-008:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

Tritium by method RL-LSC-005:
No analytical or quality issues were noted. The sample results and associated batch QC results are within contractual requirements.

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

Reviewed and approved:

Digitally signed by Steven Campbell
Date: 2016.07.29 13:31:25 -07'00'

Steven Campbell
Project Manager Assistant



4 of 38

## 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. |
| **CSU (#s)** ***$u_c$ Combined Standard Uncert.*** | 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 standard 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\|MDL** | 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. |

**CH2MHill Plateau Remediation Company**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-037-103**



| | | | | | |
|---|---|---|---|---|---|
| **Collector** | K.C. Patterson/CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | X16-037 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 304027 |
| **Project Title** | 100-KW Rebound Study, May 31, 2016 | **Logbook No.** | HNF-N-506 85/71 | **Ice Chest No.** | N/A |
| **Shipped To (Lab)** | TestAmerica Incorporated, Richland | **Method of Shipment** | GOVERNMENT VEHICLE | **Bill of Lading/Air Bill No.** | N/A |
| **Protocol** | CERCLA | **Priority:** | **30 Days** **PRIORITY** | **Offsite Property No.** | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35M37 | N | W | JUN 0 2 2016 | 1255 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35M37 | N | W | ↓ | ↓ | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35M37 | N | W | ↓ | ↓ | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON | 6 Months | HNO3 to pH <2 |

M8P3F

J6f030402
W07498

J6F030402

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| K.C. Patterson/CHPRC | | | JUN 0 2 2016 1415 | Troy Bacon CHPRC | | Troy L. Bacon | JUN 0 2 2016 1415 |
| Troy Bacon CHPRC | | Troy L. Bacon | JUN 0 2 2016 1505 | L Anderson, TARL | | L Anderson | JUN 0 2 2016 1505 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

**Matrix ***

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

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





7 of 38

7/29/2016

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | C.O.C. # X16-037-105 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Collector | K.C. Patterson/CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | X16-037 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 304027 |
| Project Title | 100-KW Rebound Study, May 31, 2016 | Logbook No. | HNF-N-506 85171 | Ice Chest No. | N/A |
| Shipped To (Lab) | TestAmerica Incorporated, Richland | Method of Shipment | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. | N/A |
| Protocol | CERCLA | Priority: | 30 Days PRIORITY | Offsite Property No. | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35M38 | N | W | JUN 02 2016 | 1255 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35M38 | N | W | ↓ | ↓ | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35M38 | N | W | ↓ | ↓ | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON | 6 Months | HNO3 to pH <2 |

M8P3G

JL6f030402
W07498

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| | K.C. Patterson/CHPRC | | JUN 02 2016 1415 | | Troy Bacon CHPRC | Troy L. Bacon | JUN 02 2016 1415 |
| | Troy Bacon CHPRC | Troy L. Bacon | JUN 02 2016 1505 | | L. Anderson, TARL | L. Anderson | JUN 02 2016 1505 |
| | | | | | | | |
| | | | | | | | |

Matrix *

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

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




8 of 38
7/29/2016

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# Sample Check-in List

Date/Time Received: 6/2/16 1505 Container GM Screen Result: (Airlock) 8 cpm Initials [LA]
Sample GM Screen Result (Sample Receiving) 8 cpm Initials [LA]

Client: PGW SDG #: W07498 SAF #: X16-037 NA [ ]

Lot Number: J6f030402

Chain of Custody # X16-037-103;105

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

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

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [LA]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [LA]
3. Cooler temperature: 6.1 °C ICE NA [ ]
4. Vermiculite/packing materials is NA [ ] Wet [LA] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [LA] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 12xLP
8. Sample holding times exceeded? NA [LA] Yes [ ] No [SB] SB 6/3/16
9. Samples have: ____ tape ____ hazard labels LA custody seals LA appropriate sample labels
10. Matrix: ____ A (FLT, Wipe, Solid, Soil) B I (Water) ____ S (Air, Niosh 7400) ____ T (Biological, Ni-63)
11. Samples:
    A are in good condition ____ are leaking ____ are broken
    ____ have air bubbles (Only for samples requiring no head space) ____ Other _____
12. Sample pH appropriate for analysis requested Yes [LA] No [ ] NA [ ]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of $HNO_3$ added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [LA]
14. Description of anomalies (include sample numbers): NA [LA]
15. Sample Location, Sample Collector Listed on COC? * Yes [LA] No [ ]
    *For documentation only. No corrective action needed.
16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: J. Anderson Date: 6/2/16

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

[SB] No action necessary; process as is

Project Manager Stan Cupp Date 6/3/16

**CH2MHill Plateau Remediation Company**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-037-131**



| | | | | | |
|---|---|---|---|---|---|
| **Collector** | K.C. Patterson/CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | X16-037 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 304027 |
| **Project Title** | 100-KW Rebound Study, May 31, 2016 | **Logbook No.** | HNF-N-506 83 / 79 | **Ice Chest No.** | N/A |
| **Shipped To (Lab)** | TestAmerica Incorporated, Richland | **Method of Shipment** | GOVERNMENT VEHICLE | **Bill of Lading/Air Bill No.** | N/A |
| **Protocol** | CERCLA | **Priority:** | 30 Days **PRIORITY** | **Offsite Property No.** | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time**

N/A

Special Handling:N/A

Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35MD6 | N | W | JUN 03 2016 | 0810 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35MD6 | N | W | ↓ | ↓ | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35MD6 | N | W | ↓ | ↓ | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON MSPM | 6 Months | HNO3 to pH <2 |

J6F060406
W07498

J6F060406

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| K.C. Patterson/CHPRC | | | JUN 03 2016 1007 | Frank Hall /CHPRC | | | JUN 03 2016 1007 |
| Frank Hall /CHPRC | | | JUN 03 2016 1505 | | J. Bock, TARL | | JUN 03 2016 1505 |
| | | | | | | | |
| | | | | | | | |

**Matrix ***

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

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





10 of 38

7/29/2016

**CH2MHill Plateau Remediation Company**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # **X16-037-121**



| | | | | | |
|---|---|---|---|---|---|
| **Collector** | K.C. Patterson/CHPRC | **Contact/Requester** | Karen Waters-Husted | **Telephone No.** | 509-376-4650 |
| **SAF No.** | X16-037 | **Sampling Origin** | Hanford Site | **Purchase Order/Charge Code** | 304027 |
| **Project Title** | 100-KW Rebound Study, May 31, 2016 | **Logbook No.** | HNF-N-506 83 / 79 | **Ice Chest No.** | N/A |
| **Shipped To (Lab)** | TestAmerica Incorporated, Richland | **Method of Shipment** | GOVERNMENT VEHICLE | **Bill of Lading/Air Bill No.** | N/A |
| **Protocol** | CERCLA | **Priority:** | 30 Days **PRIORITY** | **Offsite Property No.** | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time**

N/A.
Special Handling:N/A

Total Activity Exemption: Yes ☑ No ☐

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35M94 | N | W | JUN 03 2016 | 0940 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35M94 | N | W | ↓ | ↓ | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35M94 | N | W | ↓ | ↓ | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON M8P78 | 6 Months | HNO3 to pH <2 |

J6F060406
W07498

| Relinquished By | Date/Time | Received By | Date/Time |
|---|---|---|---|
| Print: K.C. Patterson/CHPRC Sign: | JUN 03 2016 1007 | Print: Frank Hall /CHPRC Sign: | JUN 03 2016 1007 |
| Relinquished By: Frank Hall /CHPRC | Date/Time 1505 JUN 03 2016 | Received By: J. Bock, TARL | Date/Time 1505 JUN 03 2016 |
| Relinquished By | Date/Time | Received By | Date/Time |
| Relinquished By | Date/Time | Received By | Date/Time |

**Matrix ***

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

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

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# Sample Check-in List

Date/Time Received: 6-3-14 / 1505 Container GM Screen Result: (Airlock) 0 cpm Initials [B]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials [B]

Client: PGW SDG # W0749S SAF #: X16-037 NA [ ]

Lot Number: J6F060406

Chain of Custody # X16-037-131, 121

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

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

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [B]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [B]
3. Cooler temperature: 11.3 °C Ice NA [ ]
4. Vermiculite/packing materials is NA [B] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [B] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 12 x 4L
8. Sample holding times exceeded? NA [ ] Yes [ ] No [B]
9. Samples have: ____tape ____hazard labels [B] custody seals [B] appropriate sample labels
10. Matrix: ____A (FLT, Wipe, Solid, Soil) [B] I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    [B] are in good condition ____are leaking ____are broken
    ____have air bubbles (Only for samples requiring no head space) ____Other _____
12. Sample pH appropriate for analysis requested Yes [B] No [ ] NA [ ]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of $HNO_3$ added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [B]
14. Description of anomalies (include sample numbers): NA [B] _____
15. Sample Location, Sample Collector Listed on COC? * Yes [B] No [ ]
    *For documentation only. No corrective action needed.
16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: Julie Bach Date: 6-3-14

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

[B] No action necessary; process as is

Project Manager Stan Cupill Date 6/6/14

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | C.O.C. # X16-037-125 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Collector | W.M. WISE/CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | X16-037 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 304027 |
| Project Title | 100-KW Rebound Study, May 31, 2016 | Logbook No. | HNF-N-506 86/20 | Ice Chest No. | N/A |
| Shipped To (Lab) | TestAmerica Incorporated, Richland | Method of Shipment | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. | N/A |
| Protocol | CERCLA | Priority: 30 Days | PRIORITY | Offsite Property No. | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35MB8 | N | W | JUN 0 9 2016 | 0730 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35MB8 | N | W | \| | \| | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35MB8 | N | W | \| | \| | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON M 8 QW | 6 Months | HNO3 to pH <2 |

13 of 38

J6F090440
WON498

J6F090440

7/29/2016

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| W.M. WISE/CHPRC | | | JUN 0 9 2016 1145 | Frank Hall /CHPRC | | | JUN 0 9 2016 1145 |
| Relinquished By: Frank Hall /CHPRC | | | JUN 0 9 2016 1355 | Received By | J. Bock, TARL | | JUN 0 9 2016 1355 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

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

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

13 of 38

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | C.O.C. # X16-037-127 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Collector | W.M. WISE/CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | X16-037 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 304027 |
| Project Title | 100-KW Rebound Study, May 31, 2016 | Logbook No. | HNF-N-506 86 / 20 | Ice Chest No. | N/A |
| Shipped To (Lab) | TestAmerica Incorporated, Richland | Method of Shipment | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. | N/A |
| Protocol | CERCLA | Priority: 30 Days | PRIORITY | Offsite Property No. | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35MB9 | N | W | 6/9/16 | 0853 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35MB9 | N | W | / | / | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35MB9 | N | W | / | / | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON MSQQX | 6 Months | HNO3 to pH <2 |



J6f090440
W07498

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| W.M. WISE/CHPRC | | | JUN 09 2016 1145 | Frank Hall /CHPRC | | | JUN 09 2016 1145 |
| Relinquished By Frank Hall /CHPRC | | | Date/Time JUN 09 2016 1355 | Received By | J. Bock, TARL | | Date/Time JUN 09 2016 1355 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

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

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

PRINTED ON 5/23/2016 FSR ID = FSR2690 A-6004-842 (REV 2)

14 of 38

7/29/2016

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | C.O.C. # X16-037-091 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Collector | W.M. WISE/CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | X16-037 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 304027 |
| Project Title | 100-KW Rebound Study, May 31, 2016 | Logbook No. | HNF-N-506 86/20 | Ice Chest No. | N/A |
| Shipped To (Lab) | TestAmerica Incorporated, Richland | Method of Shipment | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. | N/A |
| Protocol | CERCLA | Priority: 30 Days | PRIORITY | Offsite Property No. | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35LY7 | N | W | 6/9/16 | 1101 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35LY7 | N | W | / | / | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35LY7 | N | W | / | / | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON m 8990 | 6 Months | HNO3 to pH <2 |

15 of 38

JL6 F090440
W07498

7/29/2016

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| W.M. WISE/CHPRC | | | JUN 09 2016 1145 | Frank Hall /CHPRC | | | JUN 09 2016 1145 |
| Relinquished By Frank Hall /CHPRC | | | JUN 09 2016 1355 | Received By | J. Bock, TARL | | JUN 09 2016 1355 |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

Matrix *

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

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

PRINTED ON 5/23/2016 FSR ID = FSR32342 A-6004-842 (REV 2)

15 of 38

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# Sample Check-in List

Date/Time Received: 6-9-16 / 1355 Container GM Screen Result: (Airlock) 0 cpm Initials[ B ]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials[ B ]

Client: PGW SDG #: W07498 SAF #: X16-037 NA[ B ]

Lot Number: J16F090440

Chain of Custody # X16-037-125; 127; 091

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

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

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [ B ]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [ B ]
3. Cooler temperature: 6.5 °C Ice NA [ ]
4. Vermiculite/packing materials is NA [ B ] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [ B ] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 3
7. Containers received: 18 x 4p
8. Sample holding times exceeded? NA [ ] Yes [ ] No [ B ]
9. Samples have: ____tape ____hazard labels B custody seals B appropriate sample labels
10. Matrix: ____A (FLT, Wipe, Solid, Soil) B I (Water) ____S (Air, Niosh 7400) ____T (Biological, Ni-63)
11. Samples:
    B are in good condition ____are leaking ____are broken
    ____have air bubbles (Only for samples requiring no head space) ____Other ____
12. Sample pH appropriate for analysis requested Yes [ B ] No [ ] NA [ ]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of $HNO_3$ added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [ B ]
14. Description of anomalies (include sample numbers): NA [ B ]
15. Sample Location, Sample Collector Listed on COC? * Yes [ B ] No [ ]
    *For documentation only. No corrective action needed.
16. Additional Information: N/A

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

Sample Check-in List completed by Sample Custodian:
Signature: [signature] Date: 6-9-16

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

[ B ] No action necessary; process as is

Project Manager [signature] Date 6/10/16

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | C.O.C. # X16-037-087 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Collector | K.C. Patterson/CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | X16-037 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 304027 |
| Project Title | 100-KW Rebound Study, May 31, 2016 | Logbook No. | HNF-N-506 83/87 | Ice Chest No. | N/A |
| Shipped To (Lab) | TestAmerica Incorporated, Richland | Method of Shipment | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. | N/A |
| Protocol | CERCLA | Priority: 30 Days | PRIORITY | Offsite Property No. | N/A |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐

N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | Preservative |
|---|---|---|---|---|---|---|---|---|
| B35LX4 | N | W | JUN 10 2016 | 0858 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | None |
| B35LX4 | N | W | ↓ | ↓ | 2x1-L G/P | C14_LSC: COMMON | 6 Months | None |
| B35LX4 | N | W | ↓ | ↓ | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON MSQ13 | 6 Months | HNO3 to pH <2 |

17 of 38

J6F130405
W07498

J6F130405

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| K.C. Patterson/CHPRC | | | JUN 10 2016 0955 | Troy Bacon CHPRC | | Troy L. Bacon | JUN 10 2016 0955 |
| Troy Bacon CHPRC | | Troy L. Bacon | JUN 10 2016 1515 | | | Bock | JUN 10 2016 1515 |
| | | | | | | J. Bock, TARL | |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |
| Relinquished By | | | Date/Time | Received By | | | Date/Time |

**Matrix ***

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

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

PRINTED ON 5/23/2016 FSR ID = FSR8067 A-6004-842 (REV 2)

17 of 38

7/29/2016

| CH2MHill Plateau Remediation Company | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | C.O.C. # X16-037-139 Page 1 of 1 |
|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Collector | K.C. Patterson/CHPRC | Contact/Requester | Karen Waters-Husted | Telephone No. | 509-376-4650 |
| SAF No. | X16-037 | Sampling Origin | Hanford Site | Purchase Order/Charge Code | 304027 |
| Project Title | 100-KW Rebound Study, May 31, 2016 | Logbook No. | HNF-N-506 83/87 | Ice Chest No. | N/A |
| Shipped To (Lab) | TestAmerica Incorporated, Richland | Method of Shipment | GOVERNMENT VEHICLE | Bill of Lading/Air Bill No. | N/A |
| Protocol | CERCLA | Priority: 30 Days | PRIORITY | Offsite Property No. | N/A |

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

**SPECIAL INSTRUCTIONS** **Hold Time** Total Activity Exemption: Yes ☑ No ☐
N/A
Special Handling:N/A

| Sample No. | Filter | * | Date | Time | No/Type Container | Sample Analysis | Holding Time | | Preservative |
|---|---|---|---|---|---|---|---|---|---|
| B35MJ2 | N | W | JUN 10 2016 | 0943 | 1x1-L P | 906.0_TRITIUM_LSC: COMMON | 6 Months | | None |
| B35MJ2 | N | W | ↓ | ↓ | 2x1-L G/P | C14_LSC: COMMON | 6 Months | | None |
| B35MJ2 | N | W | ↓ | ↓ | 3x1-L G/P | SRISO_SEP_PRECIP_GPC: COMMON m8Q1K | 6 Months | | HNO3 to pH <2 |

18 of 38

Jlef130405
W07498

| Relinquished By | Print | Sign | Date/Time | Received By | Print | Sign | Date/Time |
|---|---|---|---|---|---|---|---|
| K.C. Patterson/CHPRC | | | JUN 10 2016 0955 | Troy Bacon CHPRC | Troy L. Bacon | | JUN 10 2016 0955 |
| Troy Bacon CHPRC | Troy L. Bacon | | JUN 10 2016 1515 | | J. Bock, TARL | Bock | JUN 10 2016 1515 |
| | | | | | | | |
| | | | | | | | |

Matrix *

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

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

PRINTED ON 5/23/2016 FSR ID = FSR32505 A-6004-842 (REV 2)

18 of 38

7/29/2016

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# Sample Check-in List

Date/Time Received: 6-10-16 / 1515 Container GM Screen Result: (Airlock) 0 cpm Initials [B]
Sample GM Screen Result (Sample Receiving) 0 cpm Initials [B]

Client: PGW SDG #: W07498 SAF #: X16-037 NA [ ]

Lot Number: 36F130405

Chain of Custody # X16-037-087; 139

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

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

1. Custody Seals on shipping container intact? Yes [ ] No [ ] No Custody Seal [B]
2. Custody Seals dated and signed? Yes [ ] No [ ] No Custody Seal [B]
3. Cooler temperature: 9.6 °C Ice NA [ ]
4. Vermiculite/packing materials is NA [B] Wet [ ] Dry [ ]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [B] No [ ]
6. Number of samples received (Each sample may contain multiple bottles): 2
7. Containers received: 12 x 4P
8. Sample holding times exceeded? NA [B] Yes [ ] No [B]
9. Samples have: ____ tape ____ hazard labels [B] custody seals [B] appropriate sample labels
10. Matrix: ____ A (FLT, Wipe, Solid, Soil) [B] I (Water) ____ S (Air, Niosh 7400) ____ T (Biological, Ni-63)
11. Samples:
    [B] are in good condition ____ are leaking ____ are broken
    ____ have air bubbles (Only for samples requiring no head space) ____ Other ____
12. Sample pH appropriate for analysis requested Yes [B] No [ ] NA [ ]
    (If acidification is necessary go to pH area & document sample ID, initial pH, amount of $HNO_3$ added and pH after addition on table)
13. Were any anomalies identified in sample receipt? Yes [ ] No [B]
14. Description of anomalies (include sample numbers): NA [B]
15. Sample Location, Sample Collector Listed on COC? * Yes [B] No [ ]
    *For documentation only. No corrective action needed.
16. Additional Information: W/A

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

Sample Check-in List completed by Sample Custodian:
Signature: [signature] Date: 6-10-16

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

[B] No action necessary; process as is

Project Manager [signature] Date 6/13/16

# Sample Results Summary

## TestAmerica Inc TARL

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

**Date:** 29-Jul-16

**Report No. :** 69054

**SDG No:** W07498

| Batch | Client Id Work Order | Parameter | Result +- CSU ( 2 s) | Qual | Units | Tracer Yield | MDL | CRDL | RPD |
|---|---|---|---|---|---|---|---|---|---|
| **6174057 SRISO_SEP_PRECIP_GPC** | | | | | | | | | |
| **B35LX4** | | | | | | | | | |
| | M8Q1J1AD | STRONTIUM | 1.90E+01 +- 4.5E+00 | | pCi/L | 83% | 7.19E-01 | 2.00E+00 | |
| **B35LY7** | | | | | | | | | |
| | M8QQ01AD | STRONTIUM | 3.94E-01 +- 4.2E-01 | U | pCi/L | 85% | 6.58E-01 | 2.00E+00 | |
| **B35M37** | | | | | | | | | |
| | M8P3F1AD | STRONTIUM | 2.53E-02 +- 4.0E-01 | U | pCi/L | 85% | 7.07E-01 | 2.00E+00 | |
| **B35M38** | | | | | | | | | |
| | M8P3G1AD | STRONTIUM | 2.96E-01 +- 4.3E-01 | U | pCi/L | 92% | 7.03E-01 | 2.00E+00 | |
| **B35M94** | | | | | | | | | |
| | M8P781AD | STRONTIUM | 4.96E-01 +- 4.2E-01 | U | pCi/L | 86% | 6.35E-01 | 2.00E+00 | |
| **B35MB8** | | | | | | | | | |
| | M8QQW1A | STRONTIUM | 2.31E-01 +- 4.2E-01 | U | pCi/L | 82% | 6.91E-01 | 2.00E+00 | |
| **B35MB8 DUP** | | | | | | | | | |
| | M8QQW1A | STRONTIUM | -2.23E-01 +- 3.9E-01 | U | pCi/L | 81% | 7.05E-01 | 2.00E+00 | 12511.6 |
| **B35MB9** | | | | | | | | | |
| | M8QQX1AD | STRONTIUM | -9.27E-02 +- 3.7E-01 | U | pCi/L | 88% | 6.59E-01 | 2.00E+00 | |
| **B35MD6** | | | | | | | | | |
| | M8P771AD | STRONTIUM | 1.25E-01 +- 4.0E-01 | U | pCi/L | 88% | 6.82E-01 | 2.00E+00 | |
| **B35MJ2** | | | | | | | | | |
| | M8Q1K1AD | STRONTIUM | 4.15E+01 +- 1.0E+01 | | pCi/L | 83% | 7.93E-01 | 2.00E+00 | |
| **6174050 C14_LSC** | | | | | | | | | |
| **B35LX4** | | | | | | | | | |
| | M8Q1J1AC | c-14 | 5.32E+02 +- 3.5E+01 | | pCi/L | 100% | 1.75E+01 | 5.00E+01 | |
| **B35LY7** | | | | | | | | | |
| | M8QQ01AC | c-14 | 5.20E+03 +- 2.9E+02 | | pCi/L | 100% | 1.74E+01 | 5.00E+01 | |
| **B35M37** | | | | | | | | | |
| | M8P3F1AC | c-14 | 5.82E+02 +- 3.8E+01 | | pCi/L | 100% | 1.80E+01 | 5.00E+01 | |
| **B35M38** | | | | | | | | | |
| | M8P3G1AC | c-14 | 5.73E+02 +- 3.7E+01 | | pCi/L | 100% | 1.74E+01 | 5.00E+01 | |
| **B35M94** | | | | | | | | | |
| | M8P781AC | c-14 | 2.27E+03 +- 1.3E+02 | | pCi/L | 100% | 1.75E+01 | 5.00E+01 | |
| **B35MB8** | | | | | | | | | |
| | M8QQW1A | c-14 | 1.56E+00 +- 8.4E+00 | U | pCi/L | 100% | 1.77E+01 | 5.00E+01 | |
| **B35MB9** | | | | | | | | | |
| | M8QQX1AC | c-14 | 1.39E+04 +- 7.6E+02 | | pCi/L | 100% | 1.76E+01 | 5.00E+01 | |
| **B35MD6** | | | | | | | | | |
| | M8P771AC | c-14 | 3.34E+02 +- 2.4E+01 | | pCi/L | 100% | 1.74E+01 | 5.00E+01 | |
| **B35MD6 DUP** | | | | | | | | | |
| | M8P771AE | c-14 | 3.38E+02 +- 2.4E+01 | | pCi/L | 100% | 1.73E+01 | 5.00E+01 | 1.1 |

**TestAmerica Inc**

**rptTALRchSaSummary2 V5.6 A2002**

**RPD - Relative Percent Difference.**

**U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# Sample Results Summary

**Date:** 29-Jul-16

## TestAmerica Inc TARL

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

**Report No. :** 69054 **SDG No:** W07498

| Batch | Client Id Work Order | Parameter | Result +- CSU ( 2 s) | Qual | Units | Tracer Yield | MDL | CRDL | RPD |
|---|---|---|---|---|---|---|---|---|---|
| **6174050 C14_LSC** | | | | | | | | | |
| **B35MJ2** | | | | | | | | | |
| | M8Q1K1AC | c-14 | 8.69E+02 +- 5.3E+01 | | pCi/L | 100% | 1.76E+01 | 5.00E+01 | |
| **6174059 906.0_H3_LSC** | | | | | | | | | |
| **B35LX4** | | | | | | | | | |
| | M8Q1J1AA | H-3 | 1.03E+03 +- 1.8E+02 | | pCi/L | 100% | 3.24E+02 | 7.00E+02 | |
| **B35LY7** | | | | | | | | | |
| | M8QQ01AA | H-3 | 4.47E+03 +- 3.0E+02 | | pCi/L | 100% | 3.23E+02 | 7.00E+02 | |
| **B35M37** | | | | | | | | | |
| | M8P3F1AA | H-3 | 1.28E+03 +- 1.9E+02 | | pCi/L | 100% | 3.23E+02 | 7.00E+02 | |
| **B35M37 DUP** | | | | | | | | | |
| | M8P3F1AE | H-3 | 1.05E+03 +- 1.9E+02 | | pCi/L | 100% | 3.25E+02 | 7.00E+02 | 19.5 |
| **B35M38** | | | | | | | | | |
| | M8P3G1AA | H-3 | 1.23E+03 +- 1.9E+02 | | pCi/L | 100% | 3.20E+02 | 7.00E+02 | |
| **B35M94** | | | | | | | | | |
| | M8P781AA | H-3 | 5.37E+02 +- 1.7E+02 | | pCi/L | 100% | 3.23E+02 | 7.00E+02 | |
| **B35MB8** | | | | | | | | | |
| | M8QQW1A | H-3 | 9.30E+01 +- 1.5E+02 | U | pCi/L | 100% | 3.35E+02 | 7.00E+02 | |
| **B35MB9** | | | | | | | | | |
| | M8QQX1AA | H-3 | 7.71E+02 +- 1.7E+02 | | pCi/L | 100% | 3.21E+02 | 7.00E+02 | |
| **B35MD6** | | | | | | | | | |
| | M8P771AA | H-3 | 2.01E+03 +- 2.2E+02 | | pCi/L | 100% | 3.24E+02 | 7.00E+02 | |
| **B35MJ2** | | | | | | | | | |
| | M8Q1K1AA | H-3 | 1.08E+03 +- 1.9E+02 | | pCi/L | 100% | 3.24E+02 | 7.00E+02 | |

**No. of Results:** 30



RPD - Relative Percent Difference.

U Qual - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

# QC Results Summary

**Date:** 29-Jul-16

## TestAmerica Inc TARL

Ordered by Method, Batch No, QC Type,.

**Report No. :** 69054

**SDG No.:** W07498

| Batch Work Order | Parameter | Result +- CSU ( 2 s) | Qual | Units | Tracer Yield | LCS Recovery | Bias | MDL |
|---|---|---|---|---|---|---|---|---|
| **SRISO_SEP_PRECIP_GPC** | | | | | | | | |
| 6174057 BLANK QC, | | | | | | | | |
| M8TCT1AA | STRONTIUM | -1.29E-02 +- 4.5E-01 | U | pCi/L | 83% | | | 7.88E-01 |
| 6174057 LCS, | | | | | | | | |
| M8TCT1AC | STRONTIUM | 1.48E+01 +- 3.5E+00 | | pCi/L | 83% | 111% | 0.1 | 4.99E-01 |
| **C14_LSC** | | | | | | | | |
| 6174050 MATRIX SPIKE, B35M94 | | | | | | | | |
| M8P781AE | c-14 | 4.27E+02 +- 2.0E+02 | | pCi/L | 100% | 89% | -0.1 | 1.74E+01 |
| 6174050 BLANK QC, | | | | | | | | |
| M8TCL1AA | c-14 | 6.32E+00 +- 8.6E+00 | U | pCi/L | 100% | | | 1.75E+01 |
| 6174050 LCS, | | | | | | | | |
| M8TCL1AC | c-14 | 4.86E+02 +- 3.2E+01 | | pCi/L | 100% | 98% | 0.0 | 1.76E+01 |
| **906.0_H3_LSC** | | | | | | | | |
| 6174059 MATRIX SPIKE, B35M38 | | | | | | | | |
| M8P3G1AE | H-3 | 1.63E+03 +- 3.3E+02 | | pCi/L | 100% | 108% | 0.1 | 3.80E+02 |
| 6174059 BLANK QC, | | | | | | | | |
| M8TCW1AA | H-3 | -1.85E+01 +- 1.5E+02 | U | pCi/L | 100% | | | 3.42E+02 |
| 6174059 LCS, | | | | | | | | |
| M8TCW1AC | H-3 | 3.02E+03 +- 2.6E+02 | | pCi/L | 100% | 111% | 0.1 | 3.41E+02 |

**No. of Results:** 8

**TestAmerica Inc**

**rptSTLRchQcSummary V5.6 A2002**

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

**U Qual** - Analyzed for but not detected above limiting criteria, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/2/2016 12:55:00 PM |
| **Lot-Sample No.:** | **J6F030402-1** | **Report No. :** | 69054 | **Received Date:** | 6/2/2016 3:05:00 PM |
| **Client Sample ID:** | **B35M37** | **COC No. :** | X16-037-103 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8P3F1AC | | **Report DB ID:** | 9m8p3f10 | | | | |
| c-14 | **5.82E+02** | | 1.8E+01 | 3.8E+01 | 1.80E+01 | pCi/L | 100% | *(32.4)* | 7/18/16 07:22 p | | 0.075 | LSC4 |
| | | | | | | 8.63E+00 | 5.00E+01 | *(31.)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8P3F1AD | | **Report DB ID:** | 9m8p3f10 | | | | |
| STRONTIUM | **2.53E-02** | U | 4.0E-01 | 4.0E-01 | 7.07E-01 | pCi/L | 85% | *0.04* | 7/27/16 05:12 p | | 0.5071 | GPC32C |
| | | | | | | 3.31E-01 | 2.00E+00 | *0.13* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8P3F1AA | | **Report DB ID:** | 9m8p3f10 | | | | |
| H-3 | **1.28E+03** | | 1.8E+02 | 1.9E+02 | 3.23E+02 | pCi/L | 100% | *(4.)* | 7/13/16 09:29 p | | 0.00503 | LSC9 |
| | | | | | | 1.54E+02 | 7.00E+02 | *(13.3)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

23 of 38

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/2/2016 12:55:00 PM |
| **Lot-Sample No.:** | **J6F030402-2** | **Report No. :** | 69054 | **Received Date:** | 6/2/2016 3:05:00 PM |
| **Client Sample ID:** | **B35M38** | **COC No. :** | X16-037-105 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8P3G1AC | | **Report DB ID:** | 9M8P3G10 | | | | |
| c-14 | **5.73E+02** | | 1.8E+01 | 3.7E+01 | 1.74E+01 | pCi/L | 100% | *(33.)* | 7/18/16 08:25 p | | 0.075 | LSC4 |
| | | | | | | 8.35E+00 | 5.00E+01 | *(31.)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8P3G1AD | | **Report DB ID:** | 9M8P3G10 | | | | |
| STRONTIUM | **2.96E-01** | U | 4.2E-01 | 4.3E-01 | 7.03E-01 | pCi/L | 92% | *0.42* | 7/27/16 05:12 p | | 0.5196 | GPC32D |
| | | | | | | 3.31E-01 | 2.00E+00 | *(1.4)* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8P3G1AA | | **Report DB ID:** | 9M8P3G10 | | | | |
| H-3 | **1.23E+03** | | 1.8E+02 | 1.9E+02 | 3.20E+02 | pCi/L | 100% | *(3.9)* | 7/14/16 12:13 a | | 0.00503 | LSC9 |
| | | | | | | 1.53E+02 | 7.00E+02 | *(13.)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

24 of 38

**TestAmerica Inc**

**rptSTLRchSample V5.6 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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/3/2016 8:10:00 AM |
| **Lot-Sample No.:** | **J6F060406-1** | **Report No. :** | 69054 | **Received Date:** | 6/3/2016 3:05:00 PM |
| **Client Sample ID:** | **B35MD6** | **COC No. :** | X16-037-131 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8P771AC | | **Report DB ID:** | 9M8P7710 | | | | |
| c-14 | **3.34E+02** | | 1.4E+01 | 2.4E+01 | 1.74E+01 | pCi/L | 100% | *(19.1)* | 7/18/16 09:29 p | | 0.075 | LSC4 |
| | | | | | | 8.38E+00 | 5.00E+01 | *(27.5)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8P771AD | | **Report DB ID:** | 9M8P7710 | | | | |
| STRONTIUM | **1.25E-01** | U | 4.0E-01 | 4.0E-01 | 6.82E-01 | pCi/L | 88% | *0.18* | 7/27/16 07:01 p | | 0.5107 | GPC31A |
| | | | | | | 3.20E-01 | 2.00E+00 | *0.63* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8P771AA | | **Report DB ID:** | 9M8P7710 | | | | |
| H-3 | **2.01E+03** | | 2.0E+02 | 2.2E+02 | 3.24E+02 | pCi/L | 100% | *(6.2)* | 7/14/16 02:57 a | | 0.00501 | LSC9 |
| | | | | | | 1.54E+02 | 7.00E+02 | *(18.4)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

25 of 38



**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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/3/2016 9:40:00 AM |
| **Lot-Sample No.:** | **J6F060406-2** | **Report No. :** | 69054 | **Received Date:** | 6/3/2016 3:05:00 PM |
| **Client Sample ID:** | **B35M94** | **COC No. :** | X16-037-121 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8P781AC | | **Report DB ID:** | 9M8P7810 | | | | |
| c-14 | **2.27E+03** | | 3.3E+01 | 1.3E+02 | 1.75E+01 | pCi/L | 100% | *(129.8)* | 7/18/16 11:35 p | | 0.075 | LSC4 |
| | | | | | | 8.41E+00 | 5.00E+01 | *(35.2)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8P781AD | | **Report DB ID:** | 9M8P7810 | | | | |
| STRONTIUM | **4.96E-01** | U | 4.0E-01 | 4.2E-01 | 6.35E-01 | pCi/L | 86% | *0.78* | 7/27/16 07:01 p | | 0.5084 | GPC31D |
| | | | | | | 2.96E-01 | 2.00E+00 | *(2.4)* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8P781AA | | **Report DB ID:** | 9M8P7810 | | | | |
| H-3 | **5.37E+02** | | 1.5E+02 | 1.7E+02 | 3.23E+02 | pCi/L | 100% | *(1.7)* | 7/14/16 04:19 a | | 0.00501 | LSC9 |
| | | | | | | 1.54E+02 | 7.00E+02 | *(6.5)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

26 of 38

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/9/2016 7:30:00 AM |
| **Lot-Sample No.:** | **J6F090440-1** | **Report No. :** | 69054 | **Received Date:** | 6/9/2016 1:55:00 PM |
| **Client Sample ID:** | **B35MB8** | **COC No. :** | X16-037-125 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8QQW1AC | | **Report DB ID:** | 9M8QQW10 | | | | |
| c-14 | **1.56E+00** | U | 7.5E+00 | 8.4E+00 | 1.77E+01 | pCi/L | 100% | *0.09* | 7/19/16 01:42 a | | 0.075 | LSC4 |
| | | | | | | 8.51E+00 | 5.00E+01 | *0.37* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8QQW1AD | | **Report DB ID:** | 9M8QQW10 | | | | |
| STRONTIUM | **2.31E-01** | U | 4.1E-01 | 4.2E-01 | 6.91E-01 | pCi/L | 82% | *0.33* | 7/27/16 07:01 p | | 0.5014 | GPC31B |
| | | | | | | 3.23E-01 | 2.00E+00 | *(1.1)* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8QQW1AA | | **Report DB ID:** | 9M8QQW10 | | | | |
| H-3 | **9.30E+01** | U | 1.4E+02 | 1.5E+02 | 3.35E+02 | pCi/L | 100% | *0.28* | 7/14/16 05:41 a | | 0.005 | LSC9 |
| | | | | | | 1.60E+02 | 7.00E+02 | *(1.2)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

27 of 38

**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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/9/2016 8:53:00 AM |
| **Lot-Sample No.:** | **J6F090440-2** | **Report No. :** | 69054 | **Received Date:** | 6/9/2016 1:55:00 PM |
| **Client Sample ID:** | **B35MB9** | **COC No. :** | X16-037-127 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8QQX1AC | | **Report DB ID:** | 9M8QQX10 | | | | |
| c-14 | **1.39E+04** | | 8.1E+01 | 7.6E+02 | 1.76E+01 | pCi/L | 100% | *(791.4)* | 7/19/16 02:45 a | | 0.075 | LSC4 |
| | | | | | | 8.43E+00 | 5.00E+01 | *(36.5)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8QQX1AD | | **Report DB ID:** | 9M8QQX10 | | | | |
| STRONTIUM | **-9.27E-02** | U | 3.7E-01 | 3.7E-01 | 6.59E-01 | pCi/L | 88% | *-0.14* | 7/27/16 07:01 p | | 0.5345 | GPC32A |
| | | | | | | 3.09E-01 | 2.00E+00 | *-0.5* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8QQX1AA | | **Report DB ID:** | 9M8QQX10 | | | | |
| H-3 | **7.71E+02** | | 1.6E+02 | 1.7E+02 | 3.21E+02 | pCi/L | 100% | *(2.4)* | 7/14/16 07:04 a | | 0.00503 | LSC9 |
| | | | | | | 1.53E+02 | 7.00E+02 | *(8.9)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

28 of 38

**TestAmerica Inc**
**rptSTLRchSample**
**V5.6 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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/9/2016 11:01:00 AM |
| **Lot-Sample No.:** | **J6F090440-3** | **Report No. :** | 69054 | **Received Date:** | 6/9/2016 1:55:00 PM |
| **Client Sample ID:** | **B35LY7** | **COC No. :** | X16-037-091 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8QQ01AC | | **Report DB ID:** | 9M8QQ010 | | | | |
| c-14 | **5.20E+03** | | 4.9E+01 | 2.9E+02 | 1.74E+01 | pCi/L | 100% | *(299.1)* | 7/19/16 03:48 a | | 0.075 | LSC4 |
| | | | | | | 8.35E+00 | 5.00E+01 | *(36.1)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8QQ01AD | | **Report DB ID:** | 9M8QQ010 | | | | |
| STRONTIUM | **3.94E-01** | U | 4.1E-01 | 4.2E-01 | 6.58E-01 | pCi/L | 85% | *0.6* | 7/27/16 07:01 p | | 0.5024 | GPC32B |
| | | | | | | 3.06E-01 | 2.00E+00 | *(1.9)* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8QQ01AA | | **Report DB ID:** | 9M8QQ010 | | | | |
| H-3 | **4.47E+03** | | 2.6E+02 | 3.0E+02 | 3.23E+02 | pCi/L | 100% | *(13.8)* | 7/14/16 08:26 a | | 0.00502 | LSC9 |
| | | | | | | 1.54E+02 | 7.00E+02 | *(30.1)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

29 of 38

**TestAmerica Inc**
**rptSTLRchSample**
**V5.6 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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/10/2016 8:58:00 AM |
| **Lot-Sample No.:** | **J6F130405-1** | **Report No. :** | 69054 | **Received Date:** | 6/10/2016 3:15:00 PM |
| **Client Sample ID:** | **B35LX4** | **COC No. :** | X16-037-087 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8Q1J1AC | | **Report DB ID:** | 9M8Q1J10 | | | | |
| c-14 | **5.32E+02** | | 1.7E+01 | 3.5E+01 | 1.75E+01 | pCi/L | 100% | *(30.3)* | 7/19/16 04:51 a | | 0.075 | LSC4 |
| | | | | | | 8.42E+00 | 5.00E+01 | *(30.6)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8Q1J1AD | | **Report DB ID:** | 9M8Q1J10 | | | | |
| STRONTIUM | **1.90E+01** | | 1.2E+00 | 4.5E+00 | 7.19E-01 | pCi/L | 83% | *(26.5)* | 7/27/16 07:01 p | | 0.5038 | GPC32C |
| | | | | | | 3.36E-01 | 2.00E+00 | *(8.5)* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8Q1J1AA | | **Report DB ID:** | 9M8Q1J10 | | | | |
| H-3 | **1.03E+03** | | 1.7E+02 | 1.8E+02 | 3.24E+02 | pCi/L | 100% | *(3.2)* | 7/14/16 09:47 a | | 0.00503 | LSC9 |
| | | | | | | 1.54E+02 | 7.00E+02 | *(11.3)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

30 of 38

**TestAmerica Inc**

**rptSTLRchSample**
**V5.6 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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM I

## SAMPLE RESULTS

**Date:** 29-Jul-16

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/10/2016 9:43:00 AM |
| **Lot-Sample No.:** | **J6F130405-2** | **Report No. :** | 69054 | **Received Date:** | 6/10/2016 3:15:00 PM |
| **Client Sample ID:** | **B35MJ2** | **COC No. :** | X16-037-139 | **Matrix:** | WATER |

Ordered by Client Sample ID, Batch No.

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Action Lev | Rpt Unit, Lc | Yield CRDL(RL) | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8Q1K1AC | | **Report DB ID:** | 9M8Q1K10 | | | | |
| c-14 | **8.69E+02** | | 2.1E+01 | 5.3E+01 | 1.76E+01 | pCi/L | 100% | *(49.4)* | 7/19/16 05:55 a | | 0.075 | LSC4 |
| | | | | | | 8.45E+00 | 5.00E+01 | *(32.8)* | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8Q1K1AD | | **Report DB ID:** | 9M8Q1K10 | | | | |
| STRONTIUM | **4.15E+01** | | 1.8E+00 | 1.0E+01 | 7.93E-01 | pCi/L | 83% | *(52.3)* | 7/27/16 07:01 p | | 0.5063 | GPC32D |
| | | | | | | 3.73E-01 | 2.00E+00 | *(8.3)* | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8Q1K1AA | | **Report DB ID:** | 9M8Q1K10 | | | | |
| H-3 | **1.08E+03** | | 1.7E+02 | 1.9E+02 | 3.24E+02 | pCi/L | 100% | *(3.3)* | 7/14/16 11:09 a | | 0.00503 | LSC9 |
| | | | | | | 1.55E+02 | 7.00E+02 | *(11.7)* | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

31 of 38

**TestAmerica Inc**

**rptSTLRchSample**
**V5.6 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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM II

**Date:** 29-Jul-16

## DUPLICATE RESULTS

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/2/2016 12:55:00 PM |
| **Lot-Sample No.:** | **J6F030402-1** | **Report No. :** | 69054 | **Received Date:** | 6/2/2016 3:05:00 PM |
| **Client Sample ID:** | **B35M37 DUP** | **COC No. :** | X16-037-103 | **Matrix:** | WATER |

| Parameter | Result, Orig Rst | Qual | Count Error ( 2 s) | CSU ( 2 s) | MDL, Action Lev | Rpt Unit, CRDL | Yield | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8P3F1AE | **Report DB ID:** | M8P3F1ER | | **Orig Sa DB ID:** | 9M8P3F10 | | |
| H-3 | 1.05E+03 | | 1.7E+02 | 1.9E+02 | 3.25E+02 | pCi/L | 100% | (3.2) | 7/13/16 10:51 p | | 0.005 | LSC9 |
| | 1.28E+03 | | **RPD** | **19.5** | | 7.00E+02 | | (11.4) | | | L | |

**No. of Results:** 1 **Comments:**

7/29/2016

32 of 38

**TestAmerica Inc** **RPD** - Relative Percent Difference.

**rptSTLRchDupV5.6 A2002** **MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.**

# FORM II

**Date:** 29-Jul-16

## DUPLICATE RESULTS

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/9/2016 7:30:00 AM |
| **Lot-Sample No.:** | **J6F090440-1** | **Report No. :** | 69054 | **Received Date:** | 6/9/2016 1:55:00 PM |
| **Client Sample ID:** | **B35MB8 DUP** | **COC No. :** | X16-037-125 | **Matrix:** | WATER |

| Parameter | Result, Orig Rst | Qual | Count Error ( 2 s) | CSU ( 2 s) | MDL, Action Lev | Rpt Unit, CRDL | Yield | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** M8QQW1AE | | **Report DB ID:** M8QQW1ER | | | **Orig Sa DB ID:** 9M8QQW10 | | | |
| STRONTIUM | -2.23E-01 | U | 3.8E-01 | 3.9E-01 | 7.05E-01 | pCi/L | 81% | -0.32 | 7/27/16 07:01 p | | 0.5096 | GPC31C |
| | 2.31E-01 | U | **RPD** | **12511.6** | | 2.00E+00 | | -(1.2) | | | L | |

**No. of Results:** 1 **Comments:**

7/29/2016

33 of 38

**TestAmerica Inc**

**rptSTLRchDupV5.6 A2002**

**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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM II

**Date:** 29-Jul-16

## DUPLICATE RESULTS

| | | | | | |
|---|---|---|---|---|---|
| **Lab Name:** | **TestAmerica Inc** | **SDG:** | W07498 | **Collection Date:** | 6/3/2016 8:10:00 AM |
| **Lot-Sample No.:** | **J6F060406-1** | **Report No. :** | 69054 | **Received Date:** | 6/3/2016 3:05:00 PM |
| **Client Sample ID:** | **B35MD6 DUP** | **COC No. :** | X16-037-131 | **Matrix:** | WATER |

| Parameter | Result, Orig Rst | Qual | Count Error ( 2 s) | CSU ( 2 s) | MDL, Action Lev | Rpt Unit, CRDL | Yield | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8P771AE | **Report DB ID:** | M8P771ER | | **Orig Sa DB ID:** | 9M8P7710 | | |
| c-14 | 3.38E+02 | | 1.4E+01 | 2.4E+01 | 1.73E+01 | pCi/L | 100% | (19.5) | 7/18/16 10:32 p | | 0.075 | LSC4 |
| | 3.34E+02 | | **RPD** | **1.1** | | 5.00E+01 | | (27.6) | | | L | |

**No. of Results:** 1 **Comments:**

7/29/2016

34 of 38

**TestAmerica Inc** **RPD** - Relative Percent Difference.

**rptSTLRchDupV5.6 A2002** **MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.**

# FORM II

## BLANK RESULTS

**Date:** 29-Jul-16

**Lab Name:** TestAmerica Inc
**Matrix:** WATER

**SDG:** W07498
**Report No. :** 69054

| Parameter | Result | Qual | Count Error ( 2 s) | CSU (2 s) | MDL, Lc | Rpt Unit, CRDL | Yield | Rst/MDL, Rst/TotUcert | Analysis, Prep Date | Total Sa Size | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8TCL1AA | | **Report DB ID:** | M8TCL1AB | | | | |
| c-14 | 6.32E+00 | U | 7.6E+00 | 8.6E+00 | 1.75E+01 | pCi/L | 100% | 0.36 | 7/19/16 05:31 p | | 0.075 | LSC4 |
| | | | | | 8.41E+00 | 5.00E+01 | | (1.5) | | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8TCW1AA | | **Report DB ID:** | M8TCW1AB | | | | |
| H-3 | -1.85E+01 | U | 1.4E+02 | 1.5E+02 | 3.42E+02 | pCi/L | 100% | -0.05 | 7/14/16 08:43 p | | 0.00502 | LSC9 |
| | | | | | 1.63E+02 | 7.00E+02 | | -0.25 | | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8TCT1AA | | **Report DB ID:** | M8TCT1AB | | | | |
| STRONTIUM | -1.29E-02 | U | 4.5E-01 | 4.5E-01 | 7.88E-01 | pCi/L | 83% | -0.02 | 7/27/16 10:32 p | | 0.501 | GPC32D |
| | | | | | 3.71E-01 | 2.00E+00 | | -0.06 | | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

35 of 38



**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, Mdc/Mda/Mdl, Total Uncert, RDL or not identified by gamma scan software.**

# FORM II

## LCS RESULTS

**Date:** 29-Jul-16

**Lab Name:** TestAmerica Inc

**SDG:** W07498

**Matrix:** WATER

**Report No. :** 69054

| Parameter | Result | Qual | Count Error ( 2 s) | CSU ( 2 s) | MDL | Report Unit | Yield | Expected | Expected Uncert | Recovery, Bias | Analysis, Prep Date | Aliquot Size | Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | C14_LSC | | | **Work Order:** | M8TCL1AC | | **Report DB ID:** | M8TCL1CS | | | | | |
| c-14 | 4.86E+02 | | 1.7E+01 | 3.2E+01 | 1.76E+01 | pCi/L | 100% | 4.97E+02 | 9.9E+00 | 98% | 7/19/16 06:34 p | 0.075 | LSC4 |
| | | | | | | | **Rec Limits:** | 80 | 120 | 0.0 | | L | |
| **Batch:** 6174059 | 906.0_H3_LSC | | | **Work Order:** | M8TCW1AC | | **Report DB ID:** | M8TCW1CS | | | | | |
| H-3 | 3.02E+03 | | 2.3E+02 | 2.6E+02 | 3.41E+02 | pCi/L | 100% | 2.72E+03 | 8.1E+01 | 111% | 7/14/16 10:06 p | 0.00503 | LSC9 |
| | | | | | | | **Rec Limits:** | 80 | 120 | 0.1 | | L | |
| **Batch:** 6174057 | SRISO_SEP_PRECIP_GPC | | | **Work Order:** | M8TCT1AC | | **Report DB ID:** | M8TCT1CS | | | | | |
| STRONTIUM | 1.48E+01 | | 7.4E-01 | 3.5E+00 | 4.99E-01 | pCi/L | 83% | 1.33E+01 | 9.5E-02 | 111% | 7/28/16 09:54 a | 0.5077 | GPC31B |
| | | | | | | | **Rec Limits:** | 80 | 120 | 0.1 | | L | |

**No. of Results:** 3 **Comments:**

7/29/2016

36 of 38

# FORM II

## MATRIX SPIKE RESULTS

**Date:** 29-Jul-16

**Lab Name:** TestAmerica Inc **SDG:** W07498

**Lot-Sample No.:** J6F030402-2, B35M38 **Report No. :** 69054 **Matrix:** WATER

| Parameter | SpikeResult, Orig Rst | Qual | Count Error (2 s) | CSU (2 s) | MDC\|MDA | Rpt Unit | Yield | Rec-overy | Expected, Uncert | Analysis, Prep Date | Aliquot Size | Analy Method, Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174059 | **Work Order:** M8P3G1AE | | | **Report DB ID:** M8P3G1EW | | | **Orig Sa DB ID:** 9M8P3G10 | | | | | |
| H-3 | 1.63E+03 | | 2.5E+02 | 3.3E+02 | 3.80E+02 | pCi/L | 100% | 108.00% | 1.51E+03 | 7/14/16 01:35 a | 0.00429 | 906.0_H3_LSC |
| | 1.23E+03 | | | | | | | | 4.5E+01 | | L | LSC9 |

**Number of Results:** 1

**Comments:**

7/29/2016

37 of 38

**TestAmerica Inc** **RER** - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUd))] as defined by ICPT BOA.

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

**V5.6 A2002**

# FORM II

## MATRIX SPIKE RESULTS

**Date:** 29-Jul-16

**Lab Name:** TestAmerica Inc **SDG:** W07498

**Lot-Sample No.:** J6F060406-2, B35M94 **Report No. :** 69054 **Matrix:** WATER

| Parameter | SpikeResult, Orig Rst | Qual | Count Error (2 s) | CSU (2 s) | MDC\|MDA | Rpt Unit | Yield | Rec-overy | Expected, Uncert | Analysis, Prep Date | Aliquot Size | Analy Method, Primary Detector |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Batch:** 6174050 | **Work Order:** M8P781AE | | | **Report DB ID:** M8P781EW | | | **Orig Sa DB ID:** 9M8P7810 | | | | | |
| c-14 | 4.27E+02 | | 3.6E+01 | 2.0E+02 | 1.74E+01 | pCi/L | 100% | 88.51% | 4.83E+02 | 7/19/16 12:38 a | 0.075 | C14_LSC |
| | 2.27E+03 | | | | | | | | 9.7E+00 | | L | LSC4 |

**Number of Results:** 1

**Comments:**

7/29/2016

38 of 38

TestAmerica Inc
rptSTLRchMs
V5.6 A2002

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