





**EBERLINE**  
SERVICES

March 28, 2006

Ms. Joan Kessner  
Washington Closure Hanford  
3190 George Washington Way  
MSIN H9-02  
Richland, WA 99352



Reference: **P.O. #630**  
**Eberline Services R6-02-068-7380, SDG K0218**

Dear Ms. Kessner:

Enclosed is the data report for two solid (other solid) samples designated under SAF No. RC-047 received at Eberline Services on February 10, 2006. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion  
Senior Program Manager

MCM/njv

Enclosure: Data Package

Analytical Services  
2030 Wright Avenue  
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**1.0 GENERAL**

Washington Closure Hanford (WCH) Sample Delivery Group K0218 was composed of two solid (other solid) samples designated under SAF No. RC-047 with a Project Designation of: 100 & 300 Area Component of the RCBRA Sediment and Ti.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on March 27, 2006.

**2.0 ANALYSIS NOTES**

**2.1 Total Strontium Analysis**

No problems were encountered during the course of the analyses.

**2.2 Isotopic Thorium Analysis**

No problems were encountered during the course of the analyses.

**2.3 Isotopic Uranium Analysis**

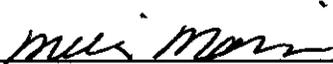
No problems were encountered during the course of the analyses.

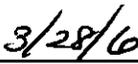
**2.4 Gamma Spectroscopy**

No problems were encountered during the course of the analyses.

**Case Narrative Certification Statement**

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

  
\_\_\_\_\_  
Melissa C. Mannion  
Senior Program Manager

  
\_\_\_\_\_  
Date

EBRLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP K0218

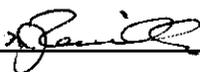
SDG 7380  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 630  
Case no SDG K0218

S U M M A R Y   D A T A   S E C T I O N

| T A B L E   O F   C O N T E N T S |   |   |   |    |
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Prepared by



Reviewed by



Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 03/27/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0218

SDG 7380  
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG K0218

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SUMMARY DATA SECTION

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Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0218

SDG 7380  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG\_K0218

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 2

Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

**SAMPLE SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG K0218

| CLIENT SAMPLE ID       | LOCATION                  | MATRIX | LEVEL | LAB        |        | CHAIN OF CUSTODY | COLLECTED      |
|------------------------|---------------------------|--------|-------|------------|--------|------------------|----------------|
|                        |                           |        |       | SAMPLE ID  | SAF NO |                  |                |
| J117R6                 | 300 Area Elevated, Smpl.1 | SOLID  |       | R602068-01 | RC-047 | RC-047-133       | 02/08/06 12:00 |
| J117R7                 | 300 Area Elevated, Smpl.1 | SOLID  |       | R602068-02 | RC-047 | RC-047-134       | 02/08/06 15:00 |
| Method Blank           |                           | SOLID  |       | R602068-04 | RC-047 |                  |                |
| Method Blank           |                           | SOLID  |       | R602068-07 | RC-047 |                  |                |
| Lab Control Sample     |                           | SOLID  |       | R602068-03 | RC-047 |                  |                |
| Lab Control Sample     |                           | SOLID  |       | R602068-06 | RC-047 |                  |                |
| Duplicate (R602068-02) | 300 Area Elevated, Smpl.1 | SOLID  |       | R602068-05 | RC-047 |                  | 02/08/06 15:00 |
| Duplicate (R602068-02) | 300 Area Elevated, Smpl.1 | SOLID  |       | R602068-08 | RC-047 |                  | 02/08/06 15:00 |

SAMPLE SUMMARY

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

**QC SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG K0218

| QC BATCH | CHAIN OF CUSTODY | CLIENT SAMPLE ID       | MATRIX | % SOLIDS | SAMPLE AMOUNT | BASIS AMOUNT | DAYS SINCE RECEIVED | LAB COLL | LAB SAMPLE ID | DEPARTMENT SAMPLE ID |
|----------|------------------|------------------------|--------|----------|---------------|--------------|---------------------|----------|---------------|----------------------|
| 7380     | RC-047-133       | J117R6                 | SOLID  | 100.0    | 101 g         |              | 02/10/06            | 2        | R602068-01    | 7380-001             |
|          | RC-047-134       | J117R7                 | SOLID  | 100.0    | 109 g         |              | 02/10/06            | 2        | R602068-02    | 7380-002             |
|          |                  | Method Blank           | SOLID  |          |               |              |                     |          | R602068-04    | 7380-004             |
|          |                  | Method Blank           | SOLID  |          |               |              |                     |          | R602068-07    | 7380-007             |
|          |                  | Lab Control Sample     | SOLID  |          |               |              |                     |          | R602068-03    | 7380-003             |
|          |                  | Lab Control Sample     | SOLID  |          |               |              |                     |          | R602068-06    | 7380-006             |
|          |                  | Duplicate (R602068-02) | SOLID  | 100.0    | 109 g         |              | 02/10/06            | 2        | R602068-05    | 7380-005             |
|          |                  | Duplicate (R602068-02) | SOLID  | 100.0    | 109 g         |              | 02/10/06            | 2        | R602068-08    | 7380-008             |

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

**PREP BATCH SUMMARY**

Client Hanford  
 Contract No. 630  
 Case no SDG K0218

| TEST MATRIX               | METHOD |                             | PREPARATION ERROR |      | PLANCHETS ANALYZED |      |    |       | QUALI- |                  |
|---------------------------|--------|-----------------------------|-------------------|------|--------------------|------|----|-------|--------|------------------|
|                           |        |                             | BATCH             | 2σ % | CLIENT             | MORE | RE | BLANK | LCS    | DUP/ORIG MS/ORIG |
| <b>Alpha Spectroscopy</b> |        |                             |                   |      |                    |      |    |       |        |                  |
| TH                        | SOLID  | Thorium, Isotopic in Solids | 7169-121          | 5.0  | 2                  |      |    | 1     | 1      | 1/1              |
| U                         | SOLID  | Uranium, Isotopic in Solids | 7169-121          | 5.0  | 2                  |      |    | 1     | 1      | 1/1              |
| <b>Beta Counting</b>      |        |                             |                   |      |                    |      |    |       |        |                  |
| SR                        | SOLID  | Total Strontium in Solids   | 7169-121          | 10.0 | 2                  |      |    | 1     | 1      | 1/1              |
| <b>Gamma Spectroscopy</b> |        |                             |                   |      |                    |      |    |       |        |                  |
| GAM                       | SOLID  | Gamma Scan                  | 7169-121          | 15.0 | 2                  |      |    | 1     | 1      | 1/1              |

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.  
 Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

SDG 7380  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 630  
Case no SDG K0218

**WORK SUMMARY**

| CLIENT SAMPLE ID          | LAB SAMPLE ID |            |          |      | SUF- |          |          |     |                             |  |
|---------------------------|---------------|------------|----------|------|------|----------|----------|-----|-----------------------------|--|
| LOCATION                  | MATRIX        | COLLECTED  | PLANCHET | TEST | FIX  | ANALYZED | REVIEWED | BY  | METHOD                      |  |
| CUSTODY                   | SAF No        | RECEIVED   |          |      |      |          |          |     |                             |  |
| J117R6                    |               | R602068-01 | 7380-001 | GAM  |      | 02/14/06 | 02/17/06 | CSS | Gamma Scan                  |  |
| 300 Area Elevated, Smpl.1 | SOLID         | 02/08/06   | 7380-001 | SR   |      | 03/09/06 | 03/14/06 | MWT | Total Strontium in Solids   |  |
| RC-047-133                | RC-047        | 02/10/06   | 7380-001 | TH   |      | 03/14/06 | 03/23/06 | MWT | Thorium, Isotopic in Solids |  |
|                           |               |            | 7380-001 | U    |      | 03/10/06 | 03/13/06 | MWT | Uranium, Isotopic in Solids |  |
| J117R7                    |               | R602068-02 | 7380-002 | GAM  |      | 02/14/06 | 02/17/06 | CSS | Gamma Scan                  |  |
| 300 Area Elevated, Smpl.1 | SOLID         | 02/08/06   | 7380-002 | SR   |      | 03/09/06 | 03/14/06 | MWT | Total Strontium in Solids   |  |
| RC-047-134                | RC-047        | 02/10/06   | 7380-002 | TH   |      | 03/14/06 | 03/23/06 | MWT | Thorium, Isotopic in Solids |  |
|                           |               |            | 7380-002 | U    |      | 03/10/06 | 03/13/06 | MWT | Uranium, Isotopic in Solids |  |
| Method Blank              |               | R602068-04 | 7380-004 | GAM  |      | 02/16/06 | 02/17/06 | CSS | Gamma Scan                  |  |
|                           | SOLID         |            | 7380-004 | SR   |      | 03/09/06 | 03/14/06 | MWT | Total Strontium in Solids   |  |
|                           | RC-047        |            | 7380-004 | U    |      | 03/10/06 | 03/13/06 | MWT | Uranium, Isotopic in Solids |  |
| Method Blank              |               | R602068-07 | 7380-007 | TH   |      | 03/22/06 | 03/23/06 | MWT | Thorium, Isotopic in Solids |  |
|                           | SOLID         |            |          |      |      |          |          |     |                             |  |
|                           | RC-047        |            |          |      |      |          |          |     |                             |  |
| Lab Control Sample        |               | R602068-03 | 7380-003 | GAM  |      | 02/16/06 | 02/17/06 | CSS | Gamma Scan                  |  |
|                           | SOLID         |            | 7380-003 | SR   |      | 03/09/06 | 03/14/06 | MWT | Total Strontium in Solids   |  |
|                           | RC-047        |            | 7380-003 | U    |      | 03/10/06 | 03/13/06 | MWT | Uranium, Isotopic in Solids |  |
| Lab Control Sample        |               | R602068-06 | 7380-006 | TH   |      | 03/14/06 | 03/23/06 | MWT | Thorium, Isotopic in Solids |  |
|                           | SOLID         |            |          |      |      |          |          |     |                             |  |
|                           | RC-047        |            |          |      |      |          |          |     |                             |  |
| Duplicate (R602068-02)    |               | R602068-05 | 7380-005 | GAM  |      | 02/14/06 | 02/17/06 | CSS | Gamma Scan                  |  |
| 300 Area Elevated, Smpl.1 | SOLID         | 02/08/06   | 7380-005 | SR   |      | 03/09/06 | 03/14/06 | MWT | Total Strontium in Solids   |  |
|                           | RC-047        | 02/10/06   | 7380-005 | U    |      | 03/10/06 | 03/13/06 | MWT | Uranium, Isotopic in Solids |  |
| Duplicate (R602068-02)    |               | R602068-08 | 7380-008 | TH   |      | 03/15/06 | 03/23/06 | MWT | Thorium, Isotopic in Solids |  |
| 300 Area Elevated, Smpl.1 | SOLID         | 02/08/06   |          |      |      |          |          |     |                             |  |
|                           | RC-047        | 02/10/06   |          |      |      |          |          |     |                             |  |

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CWS  
Version 3.06  
Report date 03/27/06

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

**WORK SUMMARY, cont.**

Client Hanford  
 Contract No. 630  
 Case no SDG K0218

| COUNTS OF TESTS BY SAMPLE TYPE |        |                             |                      |          |      |    |          |          |           |           |
|--------------------------------|--------|-----------------------------|----------------------|----------|------|----|----------|----------|-----------|-----------|
| TEST                           | SAF No | METHOD                      | REFERENCE            | CLIENT   | MORE | RE | BLANK    | LCS      | DUP SPIKE | TOTAL     |
| GAM                            | RC-047 | Gamma Scan                  | GAMMA_GS             | 2        |      |    | 1        | 1        | 1         | 5         |
| SR                             | RC-047 | Total Strontium in Solids   | SRTOT_SEP_PRECIP_GPC | 2        |      |    | 1        | 1        | 1         | 5         |
| TH                             | RC-047 | Thorium, Isotopic in Solids | THISO_IE_PLATE_AEA   | 2        |      |    | 1        | 1        | 1         | 5         |
| U                              | RC-047 | Uranium, Isotopic in Solids | UIISO_PLATE_AEA      | 2        |      |    | 1        | 1        | 1         | 5         |
| <b>TOTALS</b>                  |        |                             |                      | <b>8</b> |      |    | <b>4</b> | <b>4</b> | <b>4</b>  | <b>20</b> |

Lab id EBRLNE  
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 Version Ver 1.0  
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 Version 3.06  
 Report date 03/27/06

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP K0218**

R602068-04

Method Blank

**METHOD BLANK**

|                                   |                                      |                  |
|-----------------------------------|--------------------------------------|------------------|
| SDG <u>7380</u>                   | Client/Case no <u>Hanford</u>        | SDG <u>K0218</u> |
| Contact <u>Melissa C. Mannion</u> | Contract <u>No. 630</u>              |                  |
| Lab sample id <u>R602068-04</u>   | Client sample id <u>Method Blank</u> |                  |
| Dept sample id <u>7380-004</u>    | Material/Matrix <u>SOLID</u>         |                  |
|                                   | SAF No <u>RC-047</u>                 |                  |

| ANALYTE         | CAS NO     | RESULT<br>pCi/g | 2σ ERR<br>(COUNT) | MDA<br>pCi/g | RDL<br>pCi/g | QUALI-<br>FIERS | TEST |
|-----------------|------------|-----------------|-------------------|--------------|--------------|-----------------|------|
| Total Strontium | SR-RAD     | 0.024           | 0.14              | 0.23         | 1.0          | U               | SR   |
| Uranium 233/234 | U-233/234  | -0.005          | 0.011             | 0.021        | 1.0          | U               | U    |
| Uranium 235     | 15117-96-1 | 0.007           | 0.013             | 0.025        | 1.0          | U               | U    |
| Uranium 238     | U-238      | 0.003           | 0.011             | 0.021        | 1.0          | U               | U    |
| Potassium 40    | 13966-00-2 | U               |                   | 1.7          |              | U               | GAM  |
| Cobalt 60       | 10198-40-0 | U               |                   | <u>0.079</u> | 0.050        | U               | GAM  |
| Cesium 137      | 10045-97-3 | U               |                   | 0.069        | 0.10         | U               | GAM  |
| Radium 226      | 13982-63-3 | U               |                   | <u>0.14</u>  | 0.10         | U               | GAM  |
| Radium 228      | 15262-20-1 | U               |                   | <u>0.30</u>  | 0.20         | U               | GAM  |
| Europium 152    | 14683-23-9 | U               |                   | <u>0.15</u>  | 0.10         | U               | GAM  |
| Europium 154    | 15585-10-1 | U               |                   | <u>0.19</u>  | 0.10         | U               | GAM  |
| Europium 155    | 14391-16-3 | U               |                   | <u>0.15</u>  | 0.10         | U               | GAM  |
| Thorium 228     | 14274-82-9 | U               |                   | 0.083        |              | U               | GAM  |
| Thorium 232     | TH-232     | U               |                   | 0.30         |              | U               | GAM  |
| Uranium 235     | 15117-96-1 | U               |                   | 0.21         |              | U               | GAM  |
| Uranium 238     | U-238      | U               |                   | 7.9          |              | U               | GAM  |
| Americium 241   | 14596-10-2 | U               |                   | 0.19         |              | U               | GAM  |
| Beryllium 7     | 13966-02-4 | U               |                   | 0.40         |              | U               | GAM  |
| Ruthenium 106   | 13967-48-1 | U               |                   | 0.49         |              | U               | GAM  |
| Antimony 125    | 14234-35-6 | U               |                   | 0.13         |              | U               | GAM  |
| Cesium 134      | 13967-70-9 | U               |                   | 0.079        |              | U               | GAM  |

100&300Area Compnt RCBRA Sediment&Ti

QC-BLANK #56076

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP K0218**

R602068-07

Method Blank

**METHOD BLANK**

|                                   |                                      |                  |
|-----------------------------------|--------------------------------------|------------------|
| SDG <u>7380</u>                   | Client/Case no <u>Hanford</u>        | <u>SDG_K0218</u> |
| Contact <u>Melissa C. Mannion</u> | Contract <u>No. 630</u>              |                  |
| Lab sample id <u>R602068-07</u>   | Client sample id <u>Method Blank</u> |                  |
| Dept sample id <u>7380-007</u>    | Material/Matrix <u>SOLID</u>         |                  |
|                                   | SAF No <u>RC-047</u>                 |                  |

| ANALYTE     | CAS NO     | RESULT<br>pCi/g | 2σ ERR<br>(COUNT) | MDA<br>pCi/g | RDL<br>pCi/g | QUALI-<br>FIERS | TEST |
|-------------|------------|-----------------|-------------------|--------------|--------------|-----------------|------|
| Thorium 228 | 14274-82-9 | 0.283           | 0.29              | 0.54         | 1.0          | U               | TH   |
| Thorium 230 | 14269-63-7 | -0.070          | 0.14              | 0.54         | 1.0          | U               | TH   |
| Thorium 232 | TH-232     | 0               | 0.14              | 0.54         | 1.0          | U               | TH   |

100&300Area Compnt RCBRA Sediment&Ti

|                 |
|-----------------|
| QC-BLANK #56088 |
|-----------------|

|                             |
|-----------------------------|
| Lab id <u>EBRLNE</u>        |
| Protocol <u>Hanford</u>     |
| Version <u>Ver 1.0</u>      |
| Form <u>DVD-DS</u>          |
| Version <u>3.06</u>         |
| Report date <u>03/27/06</u> |

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

R602068-03

Lab Control Sample

**LAB CONTROL SAMPLE**

|   |   |
|---|---|
| SDG <u>7380</u><br>Contact <u>Melissa C. Mannion</u><br><br>Lab sample id <u>R602068-03</u><br>Dept sample id <u>7380-003</u> | Client/Case no <u>Hanford</u> <u>SDG K0218</u><br>Contract <u>No. 630</u><br><br>Client sample id <u>Lab Control Sample</u><br>Material/Matrix _____ <u>SOLID</u><br>SAF No <u>RC-047</u> |
|---|---|

| ANALYTE         | RESULT | 2σ ERR  | MDA          | RDL   | QUALI-     | ADDED | 2σ ERR | REC | 3σ LMTS | PROTOCOL |
|-----------------|--------|---------|--------------|-------|------------|-------|--------|-----|---------|----------|
|                 | pCi/g  | (COUNT) | pCi/g        | pCi/g | FIERS TEST | pCi/g | pCi/g  | %   | (TOTAL) | LIMITS   |
| Total Strontium | 11.6   | 0.62    | 0.23         | 1.0   | SR         | 10.8  | 0.43   | 107 | 81-119  | 80-120   |
| Uranium 233/234 | 17.9   | 0.62    | 0.28         | 1.0   | U          | 18.6  | 0.74   | 96  | 89-111  | 80-120   |
| Uranium 235     | 15.2   | 0.56    | 0.023        | 1.0   | U          | 15.1  | 0.60   | 101 | 89-111  | 80-120   |
| Uranium 238     | 18.5   | 0.63    | 0.27         | 1.0   | U          | 20.2  | 0.81   | 92  | 90-110  | 80-120   |
| Cobalt 60       | 2.92   | 0.17    | <u>0.083</u> | 0.050 | GAM        | 3.07  | 0.12   | 95  | 76-124  | 80-120   |
| Cesium 137      | 3.23   | 0.16    | <u>0.12</u>  | 0.10  | GAM        | 3.12  | 0.12   | 104 | 75-125  | 80-120   |

100&300Area Compnt RCBRA Sediment&Ti

|               |
|---------------|
| QC-LCS #56075 |
|---------------|

|                             |
|-----------------------------|
| Lab id <u>EBRLINE</u>       |
| Protocol <u>Hanford</u>     |
| Version <u>Ver 1.0</u>      |
| Form <u>DVD-LCS</u>         |
| Version <u>3.06</u>         |
| Report date <u>03/27/06</u> |

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

R602068-06

Lab Control Sample

**LAB CONTROL SAMPLE**

|                                   |  |
|-----------------------------------|--|
| SDG <u>7380</u>                   | Client/Case no <u>Hanford</u> <u>SDG K0218</u> |
| Contact <u>Melissa C. Mannion</u> | Contract No. <u>630</u>                        |
| Lab sample id <u>R602068-06</u>   | Client sample id <u>Lab Control Sample</u>     |
| Dept sample id <u>7380-006</u>    | Material/Matrix _____ <u>SOLID</u>             |
|                                   | SAF No <u>RC-047</u>                           |

| ANALYTE     | RESULT<br>pCi/g | 2σ ERR<br>(COUNT) | MDA<br>pCi/g | RDL<br>pCi/g | QUALI-<br>FIERS TEST | ADDED<br>pCi/g | 2σ ERR<br>pCi/g | REC<br>% | 3σ LMTS<br>(TOTAL) | PROTOCOL<br>LIMITS |
|-------------|-----------------|-------------------|--------------|--------------|----------------------|----------------|-----------------|----------|--------------------|--------------------|
| Thorium 230 | 44.4            | 2.3               | 0.22         | 1.0          | TH                   | 44.4           | 1.8             | 100      | 88-112             | 80-120             |

100&300Area Compt RCBRA Sediment&Ti

QC-LCS #56087

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

R602068-05

J117R7

**DUPLICATE**

|                                   |                                 |   |                  |
|-----------------------------------|---------------------------------|---|------------------|
| SDG <u>7380</u>                   |                                 | Client/Case no <u>Hanford</u>                           | SDG <u>K0218</u> |
| Contact <u>Melissa C. Mannion</u> |                                 | Contract No. <u>630</u>                                 |                  |
| <b>DUPLICATE</b>                  | <b>ORIGINAL</b>                 |   |                  |
| Lab sample id <u>R602068-05</u>   | Lab sample id <u>R602068-02</u> | Client sample id <u>J117R7</u>                          |                  |
| Dept sample id <u>7380-005</u>    | Dept sample id <u>7380-002</u>  | Location/Matrix <u>300 Area Elevated, Smpl. 1 SOLID</u> |                  |
|                                   | Received <u>02/10/06</u>        | Collected/Weight <u>02/08/06 15:00 109 g</u>            |                  |
| % solids <u>100.0</u>             | % solids <u>100.0</u>           | Custody/SAP No <u>RC-047-134</u>                        | <u>RC-047</u>    |

| ANALYTE         | DUPLICATE |         | 2σ ERR       |       | MDA | RDL | QUALI-<br>FIERS | TEST  | ORIGINAL |             | 2σ ERR |         | MDA | QUALI-<br>FIERS | RPD<br>% | 3σ<br>TOT | DER<br>σ |
|-----------------|-----------|---------|--------------|-------|-----|-----|-----------------|-------|----------|-------------|--------|---------|-----|-----------------|----------|-----------|----------|
|                 | pCi/g     | (COUNT) | pCi/g        | pCi/g |     |     |                 |       | pCi/g    | (COUNT)     | pCi/g  | (COUNT) |     |                 |          |           |          |
| Total Strontium | -0.009    | 0.11    | 0.21         | 1.0   | U   | SR  |                 | 0.071 | 0.14     | 0.27        | U      | -       | -   | -               | 0.9      |           |          |
| Uranium 233/234 | 0.017     | 0.023   | 0.027        | 1.0   | U   | U   |                 | 0.033 | 0.024    | 0.023       | U      | 64      | 200 | 1.0             |          |           |          |
| Uranium 235     | -0.007    | 0.007   | 0.026        | 1.0   | U   | U   |                 | 0.007 | 0.015    | 0.028       | U      | -       | -   | 1.7             |          |           |          |
| Uranium 238     | 0.043     | 0.023   | 0.022        | 1.0   | U   | U   |                 | 0.015 | 0.018    | 0.029       | U      | 97      | 152 | 1.9             |          |           |          |
| Potassium 40    | 1.68      | 0.76    | 0.47         |       |     | GAM |                 | 1.74  | 0.81     | 0.44        | U      | 4       | 102 | 0.1             |          |           |          |
| Cobalt 60       | U         |         | <u>0.070</u> | 0.050 | U   | GAM |                 | U     |          | 0.050       | U      | -       | -   | 0.5             |          |           |          |
| Cesium 137      | U         |         | <u>0.057</u> | 0.10  | U   | GAM |                 | U     |          | 0.055       | U      | -       | -   | 0               |          |           |          |
| Radium 226      | U         |         | <u>0.11</u>  | 0.10  | U   | GAM |                 | U     |          | 0.10        | U      | -       | -   | 0.1             |          |           |          |
| Radium 228      | U         |         | <u>0.27</u>  | 0.20  | U   | GAM |                 | U     |          | <u>0.25</u> | U      | -       | -   | 0.1             |          |           |          |
| Europium 152    | U         |         | <u>0.16</u>  | 0.10  | U   | GAM |                 | U     |          | <u>0.15</u> | U      | -       | -   | 0.1             |          |           |          |
| Europium 154    | U         |         | <u>0.19</u>  | 0.10  | U   | GAM |                 | U     |          | <u>0.18</u> | U      | -       | -   | 0.1             |          |           |          |
| Europium 155    | U         |         | <u>0.13</u>  | 0.10  | U   | GAM |                 | U     |          | <u>0.13</u> | U      | -       | -   | 0               |          |           |          |
| Thorium 228     | U         |         | 0.078        |       | U   | GAM |                 | U     |          | 0.074       | U      | -       | -   | 0.1             |          |           |          |
| Thorium 232     | U         |         | 0.27         |       | U   | GAM |                 | U     |          | 0.25        | U      | -       | -   | 0.1             |          |           |          |
| Uranium 235     | U         |         | 0.19         |       | U   | GAM |                 | U     |          | 0.19        | U      | -       | -   | 0               |          |           |          |
| Uranium 238     | U         |         | 6.5          |       | U   | GAM |                 | U     |          | 6.8         | U      | -       | -   | 0.1             |          |           |          |
| Americium 241   | U         |         | 0.13         |       | U   | GAM |                 | U     |          | 0.23        | U      | -       | -   | 0.7             |          |           |          |
| Beryllium 7     | U         |         | 0.44         |       | U   | GAM |                 | U     |          | 0.39        | U      | -       | -   | 0.2             |          |           |          |
| Ruthenium 106   | U         |         | 0.50         |       | U   | GAM |                 | U     |          | 0.46        | U      | -       | -   | 0.1             |          |           |          |
| Antimony 125    | U         |         | 0.14         |       | U   | GAM |                 | U     |          | 0.12        | U      | -       | -   | 0.2             |          |           |          |
| Cesium 134      | U         |         | 0.064        |       | U   | GAM |                 | U     |          | 0.069       | U      | -       | -   | 0.1             |          |           |          |

100&300Area Compt RCBRA Sediment&Ti

QC-DUP#2 56077

|                             |
|-----------------------------|
| Lab id <u>EBRLNE</u>        |
| Protocol <u>Hanford</u>     |
| Version <u>Ver 1.0</u>      |
| Form <u>DVD-DUP</u>         |
| Version <u>3.06</u>         |
| Report date <u>03/27/06</u> |

DUPLICATES

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SUMMARY DATA SECTION

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

R602068-08

J117R7

**DUPLICATE**

|                                   |                                 |   |
|-----------------------------------|---------------------------------|---|
| SDG <u>7380</u>                   | Client/Case no <u>Hanford</u>   | <u>SDG K0218</u>  |
| Contact <u>Melissa C. Mannion</u> | Contract No. <u>630</u>         |   |
| <b>DUPLICATE</b>                  | <b>ORIGINAL</b>                 |   |
| Lab sample id <u>R602068-08</u>   | Lab sample id <u>R602068-02</u> | Client sample id <u>J117R7</u>                          |
| Dept sample id <u>7380-008</u>    | Dept sample id <u>7380-002</u>  | Location/Matrix <u>300 Area Elevated, Smpl. 1 SOLID</u> |
|                                   | Received <u>02/10/06</u>        | Collected/Weight <u>02/08/06 15:00</u> <u>109 g</u>     |
| % solids <u>100.0</u>             | % solids <u>100.0</u>           | Custody/SAF No <u>RC-047-134</u> <u>RC-047</u>          |

| ANALYTE     | DUPLICATE |                   | MDA<br>pCi/g | RDL<br>pCi/g | QUALI-<br>FIERS | TEST | ORIGINAL |                   | MDA<br>pCi/g | QUALI-<br>FIERS | RPD<br>% | 3σ<br>TOT | DER<br>σ |
|-------------|-----------|-------------------|--------------|--------------|-----------------|------|----------|-------------------|--------------|-----------------|----------|-----------|----------|
|             | pCi/g     | 2σ ERR<br>(COUNT) |              |              |                 |      | pCi/g    | 2σ ERR<br>(COUNT) |              |                 |          |           |          |
| Thorium 228 | -0.052    | 0.10              | 0.39         | 1.0          | U               | TH   | 0.050    | 0.080             | 0.13         | U               | -        | 1.6       |          |
| Thorium 230 | 0         | 0.20              | 0.39         | 1.0          | U               | TH   | -0.089   | 0.099             | 0.22         | U               | -        | 0.8       |          |
| Thorium 232 | 0.051     | 0.10              | 0.39         | 1.0          | U               | TH   | -0.020   | 0.040             | 0.095        | U               | -        | 1.3       |          |

100&300Area Compnt RCBRA Sediment&Ti

QC-DUP#2 56089

|                             |
|-----------------------------|
| Lab id <u>EBRLNE</u>        |
| Protocol <u>Hanford</u>     |
| Version <u>Ver 1.0</u>      |
| Form <u>DVD-DUP</u>         |
| Version <u>3.06</u>         |
| Report date <u>03/27/06</u> |

DUPLICATES

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SUMMARY DATA SECTION

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP K0218**

R602068-01

J117R6

**DATA SHEET**

|                                   |   |                  |
|-----------------------------------|---|------------------|
| SDG <u>7380</u>                   | Client/Case no <u>Hanford</u>                     | SDG <u>K0218</u> |
| Contact <u>Melissa C. Mannion</u> | Contract No. <u>630</u>                           |                  |
| Lab sample id <u>R602068-01</u>   | Client sample id <u>J117R6</u>                    |                  |
| Dept sample id <u>7380-001</u>    | Location/Matrix <u>300 Area Elevated, Smpl. 1</u> | <u>SOLID</u>     |
| Received <u>02/10/06</u>          | Collected/Weight <u>02/08/06 12:00</u>            | <u>101 g</u>     |
| % solids <u>100.0</u>             | Custody/SAF No <u>RC-047-133</u>                  | <u>RC-047</u>    |

| ANALYTE         | CAS NO     | RESULT<br>pCi/g | 2σ ERR<br>(COUNT) | MDA<br>pCi/g | RDL<br>pCi/g | QUALI-<br>FIERS | TEST |
|-----------------|------------|-----------------|-------------------|--------------|--------------|-----------------|------|
| Total Strontium | SR-RAD     | -0.048          | 0.12              | 0.26         | 1.0          | U               | SR   |
| Thorium 228     | 14274-82-9 | 0.036           | 0.057             | 0.088        | 1.0          | U               | TH   |
| Thorium 230     | 14269-63-7 | <u>-0.114</u>   | 0.086             | 0.19         | 1.0          | U               | TH   |
| Thorium 232     | TH-232     | -0.021          | 0.029             | 0.068        | 1.0          | U               | TH   |
| Uranium 233/234 | U-233/234  | 0.025           | 0.025             | 0.035        | 1.0          | U               | U    |
| Uranium 235     | 15117-96-1 | 0               | 0.008             | 0.029        | 1.0          | U               | U    |
| Uranium 238     | U-238      | 0.019           | 0.019             | 0.030        | 1.0          | U               | U    |
| Potassium 40    | 13966-00-2 | 2.20            | 0.78              | 0.50         |              |                 | GAM  |
| Cobalt 60       | 10198-40-0 | U               |                   | <u>0.054</u> | 0.050        | U               | GAM  |
| Cesium 137      | 10045-97-3 | U               |                   | 0.048        | 0.10         | U               | GAM  |
| Radium 226      | 13982-63-3 | U               |                   | 0.098        | 0.10         | U               | GAM  |
| Radium 228      | 15262-20-1 | U               |                   | <u>0.21</u>  | 0.20         | U               | GAM  |
| Europium 152    | 14683-23-9 | U               |                   | <u>0.14</u>  | 0.10         | U               | GAM  |
| Europium 154    | 15585-10-1 | U               |                   | <u>0.15</u>  | 0.10         | U               | GAM  |
| Europium 155    | 14391-16-3 | U               |                   | <u>0.12</u>  | 0.10         | U               | GAM  |
| Thorium 228     | 14274-82-9 | U               |                   | 0.072        |              | U               | GAM  |
| Thorium 232     | TH-232     | U               |                   | 0.21         |              | U               | GAM  |
| Uranium 235     | 15117-96-1 | U               |                   | 0.17         |              | U               | GAM  |
| Uranium 238     | U-238      | U               |                   | 6.8          |              | U               | GAM  |
| Americium 241   | 14596-10-2 | U               |                   | 0.21         |              | U               | GAM  |
| Beryllium 7     | 13966-02-4 | U               |                   | 0.39         |              | U               | GAM  |
| Ruthenium 106   | 13967-48-1 | U               |                   | 0.42         |              | U               | GAM  |
| Antimony 125    | 14234-35-6 | U               |                   | 0.12         |              | U               | GAM  |
| Cesium 134      | 13967-70-9 | U               |                   | 0.057        |              | U               | GAM  |

100&300Area Compnt RCBRA Sediment&Ti

**DATA SHEETS**

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**SUMMARY DATA SECTION**

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|                             |
|-----------------------------|
| Lab id <u>EBRLNE</u>        |
| Protocol <u>Hanford</u>     |
| Version <u>Ver 1.0</u>      |
| Form <u>DVD-DS</u>          |
| Version <u>3.06</u>         |
| Report date <u>03/27/06</u> |

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP K0218**

R602068-02

J117R7

**DATA SHEET**

|                                   |   |                  |
|-----------------------------------|---|------------------|
| SDG <u>7380</u>                   | Client/Case no <u>Hanford</u>                           | <u>SDG_K0218</u> |
| Contact <u>Melissa C. Mannion</u> | Contract No. <u>630</u>                                 |                  |
| Lab sample id <u>R602068-02</u>   | Client sample id <u>J117R7</u>                          |                  |
| Dept sample id <u>7380-002</u>    | Location/Matrix <u>300 Area Elevated, Smpl. 1 SOLID</u> |                  |
| Received <u>02/10/06</u>          | Collected/Weight <u>02/08/06 15:00</u> <u>109 g</u>     |                  |
| % solids <u>100.0</u>             | Custody/SAF No <u>RC-047-134</u> <u>RC-047</u>          |                  |

| ANALYTE         | CAS NO     | RESULT<br>pCi/g | 2σ ERR<br>(COUNT) | MDA<br>pCi/g | RDL<br>pCi/g | QUALI-<br>FIERS | TEST |
|-----------------|------------|-----------------|-------------------|--------------|--------------|-----------------|------|
| Total Strontium | SR-RAD     | 0.071           | 0.14              | 0.27         | 1.0          | U               | SR   |
| Thorium 228     | 14274-82-9 | 0.050           | 0.080             | 0.13         | 1.0          | U               | TH   |
| Thorium 230     | 14269-63-7 | -0.089          | 0.099             | 0.22         | 1.0          | U               | TH   |
| Thorium 232     | TH-232     | -0.020          | 0.040             | 0.095        | 1.0          | U               | TH   |
| Uranium 233/234 | U-233/234  | 0.033           | 0.024             | 0.023        | 1.0          |                 | U    |
| Uranium 235     | 15117-96-1 | 0.007           | 0.015             | 0.028        | 1.0          | U               | U    |
| Uranium 238     | U-238      | 0.015           | 0.018             | 0.029        | 1.0          | U               | U    |
| Potassium 40    | 13966-00-2 | 1.74            | 0.81              | 0.44         |              |                 | GAM  |
| Cobalt 60       | 10198-40-0 | U               |                   | 0.050        | 0.050        | U               | GAM  |
| Cesium 137      | 10045-97-3 | U               |                   | 0.055        | 0.10         | U               | GAM  |
| Radium 226      | 13982-63-3 | U               |                   | 0.10         | 0.10         | U               | GAM  |
| Radium 228      | 15262-20-1 | U               |                   | <u>0.25</u>  | 0.20         | U               | GAM  |
| Europium 152    | 14683-23-9 | U               |                   | <u>0.15</u>  | 0.10         | U               | GAM  |
| Europium 154    | 15585-10-1 | U               |                   | <u>0.18</u>  | 0.10         | U               | GAM  |
| Europium 155    | 14391-16-3 | U               |                   | <u>0.13</u>  | 0.10         | U               | GAM  |
| Thorium 228     | 14274-82-9 | U               |                   | 0.074        |              | U               | GAM  |
| Thorium 232     | TH-232     | U               |                   | 0.25         |              | U               | GAM  |
| Uranium 235     | 15117-96-1 | U               |                   | 0.19         |              | U               | GAM  |
| Uranium 238     | U-238      | U               |                   | 6.8          |              | U               | GAM  |
| Americium 241   | 14596-10-2 | U               |                   | 0.23         |              | U               | GAM  |
| Beryllium 7     | 13966-02-4 | U               |                   | 0.39         |              | U               | GAM  |
| Ruthenium 106   | 13967-48-1 | U               |                   | 0.46         |              | U               | GAM  |
| Antimony 125    | 14234-35-6 | U               |                   | 0.12         |              | U               | GAM  |
| Cesium 134      | 13967-70-9 | U               |                   | 0.069        |              | U               | GAM  |

100&300Area Compnt RCBRA Sediment&Ti

|                             |
|-----------------------------|
| Lab id <u>EBRLNE</u>        |
| Protocol <u>Hanford</u>     |
| Version <u>Ver 1.0</u>      |
| Form <u>DVD-DS</u>          |
| Version <u>3.06</u>         |
| Report date <u>03/27/06</u> |

DATA SHEETS

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SUMMARY DATA SECTION

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

Test TH Matrix SOLID  
 SDG 7380  
 Contact Melissa C. Mannion

**METHOD SUMMARY**

THORIUM, ISOTOPIC IN SOLIDS  
 ALPHA SPECTROSCOPY

Client Hanford  
 Contract No. 630  
 Contract SDG K0218

**RESULTS**

|                  |           |          |          |             |
|------------------|-----------|----------|----------|-------------|
|                  | LAB       | RAW      | SUF-     |             |
| CLIENT SAMPLE ID | SAMPLE ID | TEST FIX | PLANCHET | Thorium 230 |

Preparation batch 7169-121

|                        |            |          |     |
|------------------------|------------|----------|-----|
| J117R6                 | R602068-01 | 7380-001 | U   |
| J117R7                 | R602068-02 | 7380-002 | U   |
| Method Blank           | R602068-07 | 7380-007 | U   |
| Lab Control Sample     | R602068-06 | 7380-006 | ok  |
| Duplicate (R602068-02) | R602068-08 | 7380-008 | - U |

Nominal values and limits from method RDLs (pCi/g) 1.0  
 100&300Area Compnt RCBRA Sediment&Ti

**METHOD PERFORMANCE**

|                  |           |          |      |         |      |      |       |       |     |       |      |       |      |          |       |          |
|------------------|-----------|----------|------|---------|------|------|-------|-------|-----|-------|------|-------|------|----------|-------|----------|
|                  | LAB       | RAW      | SUF- | MAX MDA | ALIQ | PREP | DILU- | YIELD | EFF | COUNT | FWHM | DRIFT | DAYS |          | ANAL- |          |
| CLIENT SAMPLE ID | SAMPLE ID | TEST FIX |      | pCi/g   | g    | FAC  | TION  | %     | %   | min   | keV  | KeV   | HELD | PREPARED | YZED  | DETECTOR |

Preparation batch 7169-121 2σ prep error 5.0 % Reference Lab Notebook No. 7162 pg.121

|                        |            |      |       |    |     |    |          |       |        |
|------------------------|------------|------|-------|----|-----|----|----------|-------|--------|
| J117R6                 | R602068-01 | 0.19 | 0.250 | 76 | 984 | 34 | 03/14/06 | 03/14 | SS-064 |
| J117R7                 | R602068-02 | 0.22 | 0.250 | 56 | 984 | 34 | 03/14/06 | 03/14 | SS-066 |
| Method Blank           | R602068-07 | 0.54 | 0.250 | 29 | 268 |    | 03/14/06 | 03/22 | SS-058 |
| Lab Control Sample     | R602068-06 | 0.22 | 0.250 | 65 | 978 |    | 03/14/06 | 03/14 | SS-040 |
| Duplicate (R602068-02) | R602068-08 | 0.39 | 0.250 | 54 | 160 | 35 | 03/14/06 | 03/15 | SS-038 |

Nominal values and limits from method 1.0 0.250 20-105 150 180

|            |  |                    |
|------------|--|--------------------|
| PROCEDURES | REFERENCE  | THISO_IE_PLATE_AEA |
| SPP-071    | Soil Dissolution, > 1.0g Aliquot, rev 5  |                    |
| CP-900     | Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1 |                    |
| CP-008     | Heavy Element Electroplating, rev 9  |                    |

|                 |       |                           |
|-----------------|-------|---------------------------|
| AVERAGES ± 2 SD | MDA   | <u>0.31</u> ± <u>0.30</u> |
| FOR 5 SAMPLES   | YIELD | <u>56</u> ± <u>35</u>     |

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

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|             |                 |
|-------------|-----------------|
| Lab id      | <u>EBRLINE</u>  |
| Protocol    | <u>Hanford</u>  |
| Version     | <u>Ver 1.0</u>  |
| Form        | <u>DVD-CMS</u>  |
| Version     | <u>3.06</u>     |
| Report date | <u>03/27/06</u> |

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

Test U Matrix SOLID  
 SDG 7380  
 Contact Melissa C. Mannion

**METHOD SUMMARY**

URANIUM, ISOTOPIC IN SOLIDS  
 ALPHA SPECTROSCOPY

Client Hanford  
 Contract No. 630  
 Contract SDG K0218

**RESULTS**

| CLIENT SAMPLE ID                      | LAB        | RAW  | SUF- | 1: Uranium   | 2: Uranium | 3: Uranium | RESULT RATIOS (%) |           |    |            |    |
|---------------------------------------|------------|------|------|--------------|------------|------------|-------------------|-----------|----|------------|----|
|                                       | SAMPLE ID  | TEST | FIX  | PLANCHET     | 233/234    | 235        | 238               | 1+3       | 2σ | 2+3        | 2σ |
| Preparation batch 7169-121            |            |      |      |              |            |            |                   |           |    |            |    |
| J117R6                                | R602068-01 |      |      | 7380-001     | U          | U          | U                 |           |    |            |    |
| J117R7                                | R602068-02 |      |      | 7380-002     | 0.033      | U          | U                 |           |    |            |    |
| Method Blank                          | R602068-04 |      |      | 7380-004     | U          | U          | U                 |           |    |            |    |
| Lab Control Sample                    | R602068-03 |      |      | 7380-003     | ok         | ok         | ok                |           |    |            |    |
| Duplicate (R602068-02)                | R602068-05 |      |      | 7380-005     | ok U       | - U        | ok                | <u>40</u> | 58 | <u>-16</u> | 18 |
| Nominal values and limits from method |            |      |      | RDLs (pCi/g) | 1.0        | 1.0        | 1.0               | 100       |    | 4          |    |
| 100&300Area Compnt RCBRA Sediment&Ti  |            |      |      |              |            |            |                   | Averages  | 40 | -16        |    |

**METHOD PERFORMANCE**

| CLIENT SAMPLE ID  | LAB        | RAW  | SUF- | MAX   | MDA   | ALIQ | PREP | DILU-  | YIELD | EFF | COUNT | FWHM | DRIFT | DAYS     | ANAL- |          |
|---|------------|------|------|-------|-------|------|------|--------|-------|-----|-------|------|-------|----------|-------|----------|
|   | SAMPLE ID  | TEST | FIX  | pCi/g | g     | FAC  | TION | %      | %     | min | keV   | KeV  | HELD  | PREPARED | YZED  | DETECTOR |
| Preparation batch 7169-121    2σ prep error 5.0 %    Reference Lab Notebook No. 7162 pg.121 |            |      |      |       |       |      |      |        |       |     |       |      |       |          |       |          |
| J117R6  | R602068-01 |      |      | 0.035 | 0.500 |      |      | 76     | 1111  |     |       |      | 30    | 03/08/06 | 03/10 | SS-031   |
| J117R7  | R602068-02 |      |      | 0.029 | 0.500 |      |      | 78     | 1111  |     |       |      | 30    | 03/08/06 | 03/10 | SS-032   |
| Method Blank  | R602068-04 |      |      | 0.025 | 0.500 |      |      | 89     | 1111  |     |       |      |       | 03/08/06 | 03/10 | SS-034   |
| Lab Control Sample  | R602068-03 |      |      | 0.28  | 0.500 |      |      | 94     | 1111  |     |       |      |       | 03/08/06 | 03/10 | SS-033   |
| Duplicate (R602068-02)  | R602068-05 |      |      | 0.027 | 0.500 |      |      | 70     | 1109  |     |       |      | 30    | 03/08/06 | 03/10 | SS-036   |
| Nominal values and limits from method   |            |      |      | 1.0   | 0.500 |      |      | 20-105 | 100   | 100 |       |      | 180   |          |       |          |

| PROCEDURES | REFERENCE | UIISO_PLATE_AEA  |
|------------|-----------|--|
| CP-071     |           | Soil Dissolution, > 1.0g Aliquot, rev 5                                    |
| CP-921     |           | Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1 |
| CP-008     |           | Heavy Element Electroplating, rev 9  |

|                 |       |                            |
|-----------------|-------|----------------------------|
| AVERAGES ± 2 SD | MDA   | <u>0.079</u> ± <u>0.22</u> |
| FOR 5 SAMPLES   | YIELD | <u>81</u> ± <u>20</u>      |

METHOD SUMMARIES

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

Test SR Matrix SOLID  
 SDG 7380  
 Contact Melissa C. Marnion

Client Hanford  
 Contract No. 630  
 Contract SDG K0218

**METHOD SUMMARY**

TOTAL STRONTIUM IN SOLIDS  
 BETA COUNTING

**RESULTS**

| CLIENT SAMPLE ID           | LAB<br>SAMPLE ID | RAW SUF-<br>TEST FIX | PLANCHET | Total<br>Strontium |
|----------------------------|------------------|----------------------|----------|--------------------|
| Preparation batch 7169-121 |                  |                      |          |                    |
| J117R6                     | R602068-01       |                      | 7380-001 | U                  |
| J117R7                     | R602068-02       |                      | 7380-002 | U                  |
| Method Blank               | R602068-04       |                      | 7380-004 | U                  |
| Lab Control Sample         | R602068-03       |                      | 7380-003 | ok                 |
| Duplicate (R602068-02)     | R602068-05       |                      | 7380-005 | - U                |

Nominal values and limits from method RDLs (pCi/g) 1.0  
 100&300Area Compnt RCBRA Sediment&Ti

**METHOD PERFORMANCE**

| CLIENT SAMPLE ID   | LAB<br>SAMPLE ID | RAW SUF-<br>TEST FIX | MDA<br>pCi/g | ALIQ<br>g | PREP<br>FAC | DILU-<br>TION | YIELD<br>% | EFF<br>%  | COUNT<br>min | FWHM<br>keV | DRIFT<br>KeV | DAYS<br>HELD | ANAL-<br>PREPARED | YZED    | DETECTOR |
|--|------------------|----------------------|--------------|-----------|-------------|---------------|------------|-----------|--------------|-------------|--------------|--------------|-------------------|---------|----------|
| Preparation batch 7169-121 2σ prep error 10.0 % Reference Lab Notebook No. 7162 pg.121 |                  |                      |              |           |             |               |            |           |              |             |              |              |                   |         |          |
| J117R6   | R602068-01       |                      | 0.26         | 1.00      |             |               | 90         | 100       |              |             | 29           | 03/09/06     | 03/09             | GRB-203 |          |
| J117R7   | R602068-02       |                      | 0.27         | 1.00      |             |               | 94         | 100       |              |             | 29           | 03/09/06     | 03/09             | GRB-204 |          |
| Method Blank   | R602068-04       |                      | 0.23         | 1.00      |             |               | 87         | 187       |              |             |              | 03/09/06     | 03/09             | GRB-221 |          |
| Lab Control Sample   | R602068-03       |                      | 0.23         | 1.00      |             |               | 93         | <u>83</u> |              |             |              | 03/09/06     | 03/09             | GRB-224 |          |
| Duplicate (R602068-02)   | R602068-05       |                      | 0.21         | 1.00      |             |               | 93         | 187       |              |             | 29           | 03/09/06     | 03/09             | GRB-222 |          |

Nominal values and limits from method 1.0 1.00 30-105 100 180

PROCEDURES REFERENCE SRTOT\_SEP\_PRECIP\_GPC  
 CP-071 Soil Dissolution, > 1.0g Aliquot, rev 5  
 CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot,  
 rev 1

AVERAGES ± 2 SD MDA 0.24 ± 0.049  
 FOR 5 SAMPLES YIELD 91 ± 6

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP K0218

Test GAM Matrix SOLID  
 SDG 7380  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 630  
 Contract SDG K0218

**METHOD SUMMARY**

GAMMA SCAN  
 GAMMA SPECTROSCOPY

**RESULTS**

| CLIENT SAMPLE ID                      | LAB<br>SAMPLE ID | RAW SUF-<br>TEST FIX | PLANCHET | Cobalt 60 | Cesium 137 |
|---------------------------------------|------------------|----------------------|----------|-----------|------------|
| Preparation batch 7169-121            |                  |                      |          |           |            |
| J117R6                                | R602068-01       |                      | 7380-001 | U         | U          |
| J117R7                                | R602068-02       |                      | 7380-002 | U         | U          |
| Method Blank                          | R602068-04       |                      | 7380-004 | U         | U          |
| Lab Control Sample                    | R602068-03       |                      | 7380-003 | ok        | ok         |
| Duplicate (R602068-02)                | R602068-05       |                      | 7380-005 | - U       | - U        |
| Nominal values and limits from method |                  |                      |          |           |            |
| 100&300Area Compnt RCBRA Sediment&Ti  |                  | RDLs (pCi/g)         |          | 0.050     | 0.10       |

**METHOD PERFORMANCE**

| CLIENT SAMPLE ID   | LAB<br>SAMPLE ID | RAW SUF-<br>TEST FIX | MDA<br>pCi/g | ALIQ<br>g | PREP<br>FAC | DILU-<br>TION | YIELD<br>% | EFF<br>% | COUNT<br>min | FWHM<br>keV | DRIFT<br>KeV | DAYS<br>HELD | ANAL-<br>PREPARED | YZED  | DETECTOR |
|--|------------------|----------------------|--------------|-----------|-------------|---------------|------------|----------|--------------|-------------|--------------|--------------|-------------------|-------|----------|
| Preparation batch 7169-121 2σ prep error 15.0 % Reference Lab Notebook No. 7162 pg.121 |                  |                      |              |           |             |               |            |          |              |             |              |              |                   |       |          |
| J117R6   | R602068-01       |                      | <u>13</u>    | 95.3      |             |               |            |          | 537          |             |              | 6            | 02/14/06          | 02/14 | JR,05,00 |
| J117R7   | R602068-02       |                      | <u>13</u>    | 103       |             |               |            |          | 401          |             |              | 6            | 02/14/06          | 02/14 | JR,05,00 |
| Method Blank   | R602068-04       |                      | <u>17</u>    | 95.0      |             |               |            |          | 503          |             |              |              | 02/14/06          | 02/16 | JR,08,00 |
| Lab Control Sample   | R602068-03       |                      | <u>0.083</u> | 95.0      |             |               |            |          | 400          |             |              |              | 02/14/06          | 02/16 | JR,05,00 |
| Duplicate (R602068-02)   | R602068-05       |                      | <u>14</u>    | 103       |             |               |            |          | 493          |             |              | 6            | 02/14/06          | 02/14 | JR,03,00 |
| Nominal values and limits from method  |                  |                      |              |           |             |               |            |          |              |             |              |              |                   |       |          |
|  |                  |                      | 0.050        | 95.0      |             |               |            |          | 100          |             |              |              |                   |       | 180      |

PROCEDURES REFERENCE GAMMA\_GS  
 SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD MDA 11 ± 13  
 FOR 5 SAMPLES YIELD \_\_\_\_\_ ± \_\_\_\_\_

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

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Client Hanford  
 Contract No. 630  
 Case no SDG\_K0218

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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 Protocol Hanford  
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 Version 3.05  
 Report date 03/27/06

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SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

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Client Hanford  
 Contract No. 630  
 Case no SDG K0218

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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SDG 7380  
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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

- U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
  - B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
  - H Similar to 'L' except the recovery was high.
  - P The RESULT is 'preliminary'.
  - X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
  - 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- \* An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits for the recovery.

- \* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- \* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:

1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- \* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- \* The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id EBRLNE  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-RG  
 Version 3.06  
 Report date 03/27/06

REPORT GUIDES

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SUMMARY DATA SECTION

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0218

SDG 7380  
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
 Contract No. 630  
 Case no SDG K0218

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- \* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- \* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

- \* Aliquots are underlined if less than the nominal value specified for the method.
- \* Preparation factors are underlined if greater than the nominal value specified for the method.
- \* Dilution factors are underlined if greater than the nominal value specified for the method.
- \* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- \* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- \* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE  
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0218

SDG 7380  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG\_K0218

METHOD SUMMARY

- \* Count times are underlined if less than the nominal value specified for the method.
- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

REPORT GUIDES

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0218

SDG 7380  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG\_K0218

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

REPORT GUIDES

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Lab id EBRLNE  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 03/27/06

| Washington Closure Hanford   |  |                             | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST         |  |  |   |             | KC-047-133             |                        |         |  |  |  |  |
|--|--|-----------------------------|--|--|--|---|-------------|------------------------|------------------------|---------|--|--|--|--|
| Collector<br>TILLER, B.  | Company Contact<br>JOAN KESSNER                  | Telephone No.<br>375-4688   | Project Coordinator<br>KESSNER, JH               | Price Code<br>9N   | Data Turnaround<br>45 Days                           |   |             |                        |                        |         |  |  |  |  |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti   | Sampling Location<br>300 AREA ELEVATED, SAMPLE 1 | K0218 (7380)                |  | SAF No.<br>RC-047  | Air Quality <input type="checkbox"/>                 |   |             |                        |                        |         |  |  |  |  |
| Ice Chest No.<br>AFS-04-052  | Field Logbook No.<br>EL-1597                     | COA<br>BESRAS6520           | Method of Shipment<br>FED EX                     |  |  | Bill of Lading/Air Bill No.<br>See OSPC   |             |                        |                        |         |  |  |  |  |
| Shipped To<br><del>EBERLINE SERVICES LIONVILLE</del><br>AFS-04-052   |  |                             | Offsite Property No.<br>A060250                  |  |  |   |             |                        |                        |         |  |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS<br><br>Special Handling and/or Storage<br>COOL AC "MATRIX COMPOSED OF FISH" |  |                             | Preservation                                     | Cool 4C  | None   | Cool 4C   | Cool 4C     | Cool 4C                | Cool 4C                | Cool 4C |  |  |  |  |
|  |  |                             | Type of Container                                | aG   | G/P  | G/P   | aG          | aG                     | aG                     | aG      | aG   |  |  |  |
|  |  |                             | No. of Container(s)                              | 0  | 1  | 0   | 0           | 0                      | 0                      | 1       |  |  |  |  |
|  |  |                             | Volume   | 750g   | 5g   | 15g   | 50g         | 50g                    | 50g                    | 100g    |  |  |  |  |
| SAMPLE ANALYSIS  |  |                             | Gamma Spec - (Full List)                         | Strontium-89,90 - Total Sr; Isotopic Thorium; Isotopic Uranium | ICP Metals - 6010 (Full List); Mercury - 7471 - (CV) | Pesticides - 8081   | PCBs - 8082 | Semi-VOA - 8270A (TCL) | GAMMA SPEC - FULL LIST |         |  |  |  |  |
| Sample No.   | Matrix *   | Sample Date                 | Sample Time                                      |  |  |   |             |                        |                        |         |  |  |  |  |
| J117R6   | OTHER SOLID                                      | 02-08-06                    | 1200   | X  | X  | X   |             |                        |                        |         |  |  |  |  |
| CHAIN OF POSSESSION  |  |                             | Sign/Print Names                                 |  |  | SPECIAL INSTRUCTIONS  |             |                        |                        |         | Matrix *   |  |  |  |
| Relinquished By/Removed From<br>BRETT TILLER   |  | Date/Time<br>02-08-06 09:00 | Received By/Stored In<br>EAS LOCKED STORAGE      |  | Date/Time<br>02-08-06                                | NOTE: Eberline - perform Gamma Spec, Iso Uranium and Iso Strontium then tranship to Lionville Labs, if possible maintain 4 C cooling.<br>NOTE: Lionville - contact Rich Weiss upon receipt. |             |                        |                        |         | S=Soil<br>SE=Sediment<br>SO=Solid<br>SL=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Tissue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>N=Other |  |  |  |
| Relinquished By/Removed From<br>JAMES BERNHARD   |  | Date/Time<br>2-9-06 07:15   | Received By/Stored In<br>RZ Steffler RZ Steffler |  | Date/Time<br>2-9-06                                  | gamma - Sb125, Be7, Co134, Ru106<br><br>MCM<br>3/23/06  |             |                        |                        |         |  |  |  |  |
| Relinquished By/Removed From<br>RZ Steffler RZ Steffler  |  | Date/Time<br>2-9-06 15:00   | Received By/Stored In<br>Fed Ex                  |  | Date/Time  |   |             |                        |                        |         |  |  |  |  |
| Relinquished By/Removed From<br>FED EX   |  | Date/Time                   | Received By/Stored In<br>Rex Keeney              |  | Date/Time<br>2/10/06 10:00                           |   |             |                        |                        |         |  |  |  |  |
| Relinquished By/Removed From   |  | Date/Time                   | Received By/Stored In                            |  | Date/Time  |   |             |                        |                        |         |  |  |  |  |
| Relinquished By/Removed From   |  | Date/Time                   | Received By/Stored In                            |  | Date/Time  |   |             |                        |                        |         |  |  |  |  |
| LABORATORY SECTION   | Received By                                      | Title                       |  |  | Date/Time  |   |             |                        |                        |         |  |  |  |  |
| FINAL SAMPLE DISPOSITION   | Disposal Method                                  | Disposed By                 |  |  | Date/Time  |   |             |                        |                        |         |  |  |  |  |

| Washington Closure Hanford   |  | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST         |   |   |                                      |                            | RC-047-133 Page 1 of 1  |  |
|--|--|--|---|---|--------------------------------------|----------------------------|---|--|
| Collector<br>TILLER, B.  | Company Contact<br>JOAN KESSNER                  | Telephone No.<br>375-4688                        | Project Coordinator<br>KESSNER, JH                                  |   | Price Code<br>9N                     | Data Turnaround<br>45 Days |   |  |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti   | Sampling Location<br>300 AREA ELEVATED, SAMPLE 1 | K0218 (7380)                                     |   | SAF No.<br>RC-047   | Air Quality <input type="checkbox"/> |                            | 45 Days   |  |
| Ice Chest No.<br>AFS-04-052  | Field Logbook No.<br>EL-1597                     | COA<br>BESRAS6520                                |   | Method of Shipment<br>FED EX  |                                      |                            |   |  |
| Shipped To<br>EBERLINE SERVICES/ LIONVILLE   | Offsite Property No.<br>A060250                  |  | Bill of Lading/Air Bill No.<br>See OSPC                             |   |                                      |                            |   |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS<br><br>Special Handling and/or Storage<br>COOL 4C "MATRIX COMPOSED OF FISH" | Preservation                                     | Cool 4C  | None  | Cool 4C   | Cool 4C                              | Cool 4C                    | Cool 4C   |  |
|  | Type of Container                                | aG   | G/P   | G/P   | aG                                   | aG                         | aG  |  |
|  | No. of Container(s)                              | 0  | 1   | 1   | 0                                    | 0                          | 0   |  |
|  | Volume   | 750g   | 5g  | 15g   | 50g                                  | 50g                        | 50g   |  |
| SAMPLE ANALYSIS  |  | Gamma Spec -<br>(Full List)                      | Strontium-<br>89,90 -- Total<br>Sr; Isotopic<br>Isotopic<br>Uranium | ICP Metals -<br>6010 (Full<br>List);<br>Mercury -<br>7471 (CV)  | Pesticides -<br>8081                 | PCBs - 8082                | Semi-VOA -<br>8270A (TCL)   |  |
| Sample No.   | Matrix *   | Sample Date                                      | Sample Time   |   |                                      |                            |   |  |
| J117R6   | OTHER SOLID                                      | 02-08-06   | 1200  | X   | X                                    | X                          |   |  |
| CHAIN OF POSSESSION  |  | Sign/Print Names                                 |   | SPECIAL INSTRUCTIONS  |                                      |                            | Matrix *  |  |
| Relinquished By/Removed From<br>BRETT TILLER   | Date/Time<br>02-08-06 1700                       | Received By/Stored In<br>FAS LOCKED STORAGE      | Date/Time<br>02-08-06 1700  | NOTE: <i>Do not perform Gamma Spec, Sr, Uranium and Iso Strontium then transport to Lionville Labs, if possible maintain 4 C cooling.</i> |                                      |                            | S=Soil<br>SE=Sediment<br>SO=Solid<br>SL=Sludge<br>W=Water<br>On=On<br>A=Air<br>DS=Dry Solid<br>DL=Drum Liquid<br>T=Tissue<br>Wt=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |
| Relinquished By/Removed From<br>JAMES BERNHARD   | Date/Time<br>2-9-06 0715                         | Received By/Stored In<br>R2 Steffler R2 Steffler | Date/Time<br>2-9-06 0715  | NOTE: Lionville- contact Rich Weiss upon receipt.   |                                      |                            |   |  |
| Relinquished By/Removed From<br>R2 Steffler  | Date/Time<br>2-9-06 1500                         | Received By/Stored In<br>Fed Ex                  | Date/Time   |   |                                      |                            |   |  |
| Relinquished By/Removed From<br>FED EX   | Date/Time  | Received By/Stored In<br>Jesse Kessner           | Date/Time<br>2/10/06 10:00  |   |                                      |                            |   |  |
| Relinquished By/Removed From   | Date/Time  | Received By/Stored In                            | Date/Time   |   |                                      |                            |   |  |
| Relinquished By/Removed From   | Date/Time  | Received By/Stored In                            | Date/Time   |   |                                      |                            |   |  |
| LABORATORY SECTION   | Received By                                      | Title  |   | Date/Time   |                                      |                            |   |  |
| FINAL SAMPLE POSITION  | Disposal Method                                  | Disposed By                                      |   | Date/Time   |                                      |                            |   |  |

| Washington Closure Hanford   |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST         |                     |  |   |  | RC-047-134        |  | Page 1 of 1            |                            |         |  |         |
|--|-----------------|--|---------------------|--|---|--|-------------------|--|------------------------|----------------------------|---------|--|---------|
| Collector<br>TILLER, B.  |                 | Company Contact<br>JOAN KESSNER                  |                     | Telephone No.<br>375-4688                          |   | Project Coordinator<br>KESSNER, JH                   |                   | Price Code 9N  |                        | Data Turnaround<br>45 Days |         |  |         |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti |                 | Sampling Location<br>300 AREA ELEVATED, SAMPLE 2 |                     | K0218 (7380)                                       |   | SAF No.<br>RC-047                                    |                   | Air Quality <input type="checkbox"/>   |                        |                            |         |  |         |
| Ice Chest No.<br>AFS-04-052  |                 | Field Logbook No.<br>EL-1597                     |                     | COA<br>BESRAS6520                                  |   | Method of Shipment<br>FED EX                         |                   |  |                        |                            |         |  |         |
| Shipped To<br><del>EBERLINE SERVICES/LIONVILLE</del><br>NA 2106 EBERLINE     |                 | Offsite Property No.<br>A060250                  |                     |  |   | Bill of Lading/Air Bill No.<br>See OSPC              |                   |  |                        |                            |         |  |         |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS         |                 |  | Preservation        |  | Cool 4C   | None   | Cool 4C           | Cool 4C  | Cool 4C                | Cool 4C                    | Cool 4C | Cool 4C  | Cool 4C |
| Special Handling and/or Storage<br>COOL 4C "MATRIX COMPOSED OF FISH"         |                 |  | Type of Container   |  | aG  | G/P  | G/P               | aG   | aG                     | aG                         | aG      | aG   | aG      |
|  |                 |  | No. of Container(s) |  | 20  | 0  | 20                | 0  | 0                      | 0                          | 0       | 1  |         |
|  |                 |  | Volume              |  | 750g  | 5g   | 15g               | 50g  | 50g                    | 50g                        | 100g    |  |         |
| SAMPLE ANALYSIS  |                 |  |                     | Gamma Spec - (Full List)                           | Strontium-89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium | ICP Metals - 6010 (Full List); Mercury - 7471 - (CV) | Pesticides - 8081 | PCBs - 8082  | Semi-VOA - 8270A (TCL) | GAMMA SPEC - FULL LIST     |         |  |         |
| Sample No.   | Matrix *        | Sample Date                                      | Sample Time         |  |   |  |                   |  |                        |                            |         |  |         |
| J117R7   | OTHER SOLID     | 02-08-06   | 1500                | XDR<br>2006  |   | X  |                   |  |                        |                            | X       |  |         |
| CHAIN OF POSSESSION  |                 |  |                     | Sign/Print Names                                   |   |  |                   | SPECIAL INSTRUCTIONS   |                        |                            |         | Matrix *   |         |
| Relinquished By/Removed From<br>BRETT TILLER                                 |                 | Date/Time<br>1700<br>02-08-06                    |                     | Received By/Stored In<br>EAS LOCKED STORAGE        |   | Date/Time<br>1700<br>02-08-06                        |                   | NOTE: Eberline- perform Gamma Spec, Iso Uranium and Iso Strontium then tranship to Lionville Labs, if possible maintain 4 C cooling.<br>NOTE: Lionville- contact Rich<br>Weiss upon receipt. |                        |                            |         | S=Soil<br>SE=Sediment<br>SO=Sludge<br>SI=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solid<br>DL=Drum Liquid<br>T=Tissue<br>W=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |         |
| Relinquished By/Removed From<br>JAMES BERNHARD                               |                 | Date/Time<br>0715<br>02-09-06                    |                     | Received By/Stored In<br>RZ Steffler R.J. Steffler |   | Date/Time<br>0715<br>2-9-06                          |                   | gamma - Sb125, Be7, Co134, Ru106   |                        |                            |         |  |         |
| Relinquished By/Removed From<br>RZ Steffler R.J. Steffler                    |                 | Date/Time<br>1500<br>with 2-9-06                 |                     | Received By/Stored In<br>Fed Ex                    |   | Date/Time  |                   | mcm<br>3/23/6  |                        |                            |         |  |         |
| Relinquished By/Removed From<br>FED EX                                       |                 | Date/Time  |                     | Received By/Stored In<br>Flex Release              |   | Date/Time<br>2/10/06 10:00                           |                   |  |                        |                            |         |  |         |
| Relinquished By/Removed From   |                 | Date/Time  |                     | Received By/Stored In                              |   | Date/Time  |                   |  |                        |                            |         |  |         |
| Relinquished By/Removed From   |                 | Date/Time  |                     | Received By/Stored In                              |   | Date/Time  |                   |  |                        |                            |         |  |         |
| LABORATORY SECTION   | Received By     |  |                     | Title  |   |  | Date/Time         |  |                        |                            |         |  |         |
| FINAL SAMPLE DISPOSITION   | Disposal Method |  |                     | Disposed By  |   |  | Date/Time         |  |                        |                            |         |  |         |

| Washington Closure Hanford  |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST         |             |  |   |                                    | RC-047-134        |  | Page 1 of 1            |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|---|-----------------|--|-------------|--|---|------------------------------------|-------------------|--|------------------------|-----------------|-----------|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| Collector<br>TILLER, B.   |                 | Company Contact<br>JOAN KESSNER                  |             | Telephone No.<br>375-4688                          |   | Project Coordinator<br>KESSNER, JH |                   | Price Code 9N  |                        | Data Turnaround |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti  |                 | Sampling Location<br>300 AREA ELEVATED, SAMPLE 2 |             |  | K0218 (7380)                            |                                    | SAF No.<br>RC-047 | Air Quality <input type="checkbox"/>   |                        | 45 Days         |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Ice Chest No.<br>AFS-04-052   |                 | Field Logbook No.<br>EL-1597                     |             | COA<br>BESRAS6520                                  |   | Method of Shipment<br>FED EX       |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Shipped To<br><del>EBERLINE SERVICES</del> LIONVILLE  |                 | Offsite Property No.<br>A060250                  |             |  | Bill of Lading/Air Bill No.<br>See OSPC |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS<br><br>Special Handling and/or Storage<br>COOL4C "MATRIX COMPOSED OF FISH" |                 |  |             | Preservation                                       | Cool 4C                                 | None                               | Cool 4C           | Cool 4C  | Cool 4C                | Cool 4C         |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             | Type of Container                                  | aG                                      | G/P                                | G/P               | aG   | aG                     | aG              |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             | No. of Container(s)                                | 0                                       | 1                                  | 0                 | 0  | 0                      | 0               |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             | Volume   | 750g                                    | 5g                                 | 15g               | 50g  | 50g                    | 50g             |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| SAMPLE ANALYSIS   |                 |  |             | Gamma Spec - (Full List)                           | Strontium - 89,90 - Total               | ICP Metals - 6010 (Full List);     | Pesticides - 8081 | PCBs - 8082  | Semi-VOA - 8270A (TCL) |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             | 4A<br>2706   | Thorium - Isotopic Uranium              | Mercury - 7471 - (CV)              |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Sample No.  | Matrix *        | Sample Date                                      | Sample Time |  |   |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| J117R7  | OTHER SOLID     | 02-08-06   | 1500        | X  | X                                       |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             |  |   |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             |  |   |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             |  |   |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
|   |                 |  |             |  |   |                                    |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| CHAIN OF POSSESSION   |                 |  |             | Sign/Print Names                                   |   |                                    |                   | SPECIAL INSTRUCTIONS   |                        |                 |           | Matrix *                      |  |  |  |  |  |  |  |  |  |  |  |  |
| Relinquished By/Removed From<br>BRETT TILLER  |                 | Date/Time<br>02-08-06                            |             | Received By/Stored In<br>EAS LOCKED STORAGE        |   | Date/Time<br>02-08-06              |                   | NOTE: Eberline perform Gamma Spec, Iso Uranium and Iso Strontium, then benchtop to Lionville Lab, if possible maintain 4 C cooling.<br>Weiss upon receipt. |                        |                 |           | NOTE: Lionville- contact Rich |  |  |  | S=Soil<br>SE=Settlemnt<br>SO=Solid<br>SL=Sludge<br>W = Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DL=Drum Liquids<br>T=Issue<br>WI=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |  |  |  |  |  |  |  |  |
| Relinquished By/Removed From<br>JAMES BERNHARD  |                 | Date/Time<br>2-9-06                              |             | Received By/Stored In<br>RZ Steffler R.J. Steffler |   | Date/Time<br>2-9-06                |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Relinquished By/Removed From<br>RZ Steffler R.J. Steffler   |                 | Date/Time<br>2-9-06                              |             | Received By/Stored In<br>Fed Ex                    |   | Date/Time                          |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Relinquished By/Removed From<br>FED EX  |                 | Date/Time  |             | Received By/Stored In<br>Alex Kessel               |   | Date/Time<br>2/10/06 10:00         |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Relinquished By/Removed From  |                 | Date/Time  |             | Received By/Stored In                              |   | Date/Time                          |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| Relinquished By/Removed From  |                 | Date/Time  |             | Received By/Stored In                              |   | Date/Time                          |                   |  |                        |                 |           |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| LABORATORY SECTION  | Received By     |  |             | Title  |   |                                    |                   |  |                        |                 | Date/Time |                               |  |  |  |  |  |  |  |  |  |  |  |  |
| FINAL SAMPLE DISPOSITION  | Disposal Method |  |             | Disposed By  |   |                                    |                   |  |                        |                 | Date/Time |                               |  |  |  |  |  |  |  |  |  |  |  |  |





19 April 2006



Joan Kessner  
WC-Hanford  
3190 Washington Way  
MSIN H9-03  
Richland, WA 99354

**Subject:** Analytical Data Package

Dear Ms. Kessner:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

|               |             |
|---------------|-------------|
| LvLI Batch #  | 0602L288    |
| SDG #         | K0218       |
| SAF #         | RC-047      |
| Date Received | 2/16/06     |
| # Samples     | 2           |
| Matrix        | OTHER SOLID |
| Volatiles     |             |
| Semivolatiles | X           |
| Pest/PCB      | X           |
| PAH           |             |
| DRO/KRO/GRO   |             |
| GC Alcohols   |             |
| Herbicides    |             |
| Metals        | X           |
| Inorganics    |             |

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,  
Lionville Laboratory Incorporated

Orlette S. Johnson  
Project Manager

r:\group\pm\orlette\tnu-hanford\data\b\_ltrs.doc

Lionville Laboratory, Inc.  
BNA ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD RC-047 K0218



DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID | LVL #   | MTX | PREP #   | COLLECTION | EXTR/PREP | ANALYSIS |
|-----------|---------|-----|----------|------------|-----------|----------|
| J117R6    | 001     | SO  | 06LE0218 | 02/08/06   | 03/21/06  | 04/12/06 |
| J117R6    | 001 MS  | SO  | 06LE0218 | 02/08/06   | 03/21/06  | 04/12/06 |
| J117R6    | 001 MSD | SO  | 06LE0218 | 02/08/06   | 03/21/06  | 04/12/06 |
| J117R7    | 002     | SO  | 06LE0218 | 02/08/06   | 03/21/06  | 04/12/06 |

LAB QC:

|        |        |   |          |     |          |          |
|--------|--------|---|----------|-----|----------|----------|
| SBLKVY | MB1    | S | 06LE0218 | N/A | 03/21/06 | 04/12/06 |
| SBLKVY | MB1 BS | S | 06LE0218 | N/A | 03/21/06 | 04/12/06 |



## Case Narrative

**Client:** TNU-HANFORD RC-047  
**LVL #:** 0602L288  
**SDG/SAF #** K0218/RC-047

**W.O. #:** 11343-606-001-9999-00  
**Date Received:** 02-16-2006

### SEMIVOLATILE

Two (2) solid (fish samples) samples were collected on 02-08-2006.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 03-21-2006 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 04-12-2006.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted outside the required holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

Samples and the matrix spike samples were extracted and analyzed with limited initial and final volume due to the nature of the sample matrix and extracts resulting in higher sample results; consequently, a copy of the Sample Extraction Record has been enclosed for more information.

3. Non-target compounds were detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. Twelve (12) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria.

Thirteen (13) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

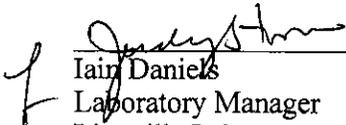
6. The method blank contained the common laboratory contaminants Diethylphthalate, Bis (2-Ethylhexyl) phthalate and Di-n-butylphthalate at levels less than the CRQL.
7. Internal standard area and retention time criteria were met.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 23 pages.

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8. Manual integrations are performed according to SOP QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
9. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
10. I certify, that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated  
son\gonup\data\bna\mu-hanford\0602-288.doc

4/19/06  
Date

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06115/122

Initiator: Robert Carden  
 Date: 4/17/06  
 Client: TW Hartford Recyng

Batch: 0601189  
 Samples: BS/MS/MSD  
 Method: SWB46/MCA/WW/CLPI

Parameter: 0625H  
 Matrix: Solid  
 Prep Batch: 060118

1. Reason for SDR

a. COC Discrepancy  Tech Profile Error  Client Request  Sampler Error on C-O-C  
 Transcription Error  Wrong Test Code  Other \_\_\_\_\_

b. General Discrepancy

Missing Sample/Extract  Container Broken  Wrong Sample Pulled  Label ID's Illegible  
 Hold Time Exceeded  Insufficient Sample  Preservation Wrong  Received Past Hold  
 Improper Bottle Type  Not Amenable to Analysis

Note\*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

c. Problem (Include all relevant specific results; attach data if necessary)

MS/MSD - several spike recoveries outside GC limits - some caps after both MS/MSD - similar results confirm each other  
 BS - several spike recoveries outside GC limits  
 All other ~~spike~~ spike caps and surrogates OK (3) Samples extracted outside of hold (27 days)

2. Known or Probable Causes(s)

(1) The phthalic acid caps are subject to erratic chromatographic behavior especially if the GC system contaminated with high boiling material. Specific nature of spike caps  
 (2) Scheduling error

3. Discussion and Proposed Action

Other Description: None

- Re-log
- Entire Batch
- Following Samples: \_\_\_\_\_
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to \_\_\_\_\_
- Place On/Take Off Hold (circle)

4. Project Manager Instructions...signature/date: \_\_\_\_\_

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:
- Date/Person \_\_\_\_\_
- Add
- Cancel

5. Final Action...signature/date: \_\_\_\_\_

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR

- X Initiator
- X Lab General Manager: M. Taylor
- X Project Mgr: Stone Johnson
- Data Management: Stiwell
- Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR

- Metals: Beegle
- Inorganic: Perrone
- GC/LC: Kiger
- X MS: Rychlak/Daley
- Log-In: Perry
- Admin: \_\_\_\_\_
- Other: \_\_\_\_\_

## GLOSSARY

### DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

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## GLOSSARY

### ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Suffix added to sample number to indicate that results are from a diluted analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- SP, Z** = Indicates Spiked Compound.

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## TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following 'flags' are used to indicate the technical reasons for quan modifications:

- MP** - **Missed Peak:** Manually added peak not found by automatic quan program.
- PA** - **Peak Assignment:** Quan report was changed to reflect correct peak assignment.
- RI** - **Routine Integration:** Routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the Dichlorobenzene isomers on the VOA packed column and Benzo (b) fluoranthene /Benzo (k) fluoranthene which are poorly resolve on the BNA column.
- SP** - **Split Peak:** The automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB** - **Co-elution/ Background:** Peak was manually integrated to eliminate contribution from co-eluting compounds, background signal, or other interference.
- PI** - **Proper Integration:** A peak with poor or inconsistent integration (i.e., excessive tail) was properly integrated manually.

LVL-21-21-035/A-08/93



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Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 04/17/06 09:46

RFW Batch Number: 0602L288

Client: TNUHANFORD RC-047 K0218

Work Order: 11343606001

Page: 1a

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|  | Cust ID:                     | J117R6  | J117R6 | J117R6  | J117R7  | SBLKVY       | SBLKVY BS    |
|--|------------------------------|---------|--------|---------|---------|--------------|--------------|
| Sample Information                                     | RFW#:                        | 001     | 001 MS | 001 MSD | 002     | 06LE0218-MB1 | 06LE0218-MB1 |
|  | Matrix:                      | SOLID   | SOLID  | SOLID   | SOLID   | SOIL         | SOIL         |
|  | D.F.:                        | 0.800   | 0.800  | 0.800   | 0.800   | 0.800        | 0.800        |
|  | Units:                       | ug/Kg   | ug/Kg  | ug/Kg   | ug/Kg   | ug/Kg        | ug/Kg        |
|  | Nitrobenzene-d5              | 65 %    | 51 %   | 47 %    | 64 %    | 39 %         | 47 %         |
| Surrogate  | 2-Fluorobiphenyl             | 63 %    | 70 %   | 61 %    | 61 %    | 40 %         | 61 %         |
| Recovery   | Terphenyl-d14                | 64 %    | 74 %   | 59 %    | 57 %    | 62 %         | 69 %         |
|  | Phenol-d5                    | 69 %    | 69 %   | 58 %    | 64 %    | 41 %         | 61 %         |
|  | 2-Fluorophenol               | 66 %    | 63 %   | 55 %    | 57 %    | 38 %         | 55 %         |
|  | 2,4,6-Tribromophenol         | 70 %    | 92 %   | 75 %    | 74 %    | 47 %         | 66 %         |
| =====fl=====fl=====fl=====fl=====fl=====fl=====fl===== |                              |         |        |         |         |              |              |
|  | Phenol                       | 32000 U | 69 %   | 65 %    | 1100 J  | 270 U        | 57 %         |
|  | bis(2-Chloroethyl)ether      | 32000 U | 72 %   | 65 %    | 20000 U | 270 U        | 60 %         |
|  | 2-Chlorophenol               | 32000 U | 67 %   | 59 %    | 20000 U | 270 U        | 57 %         |
|  | 1,3-Dichlorobenzene          | 32000 U | 63 %   | 55 %    | 20000 U | 270 U        | 53 %         |
|  | 1,4-Dichlorobenzene          | 32000 U | 62 %   | 55 %    | 20000 U | 270 U        | 53 %         |
|  | 1,2-Dichlorobenzene          | 32000 U | 67 %   | 58 %    | 20000 U | 270 U        | 55 %         |
|  | 2-Methylphenol               | 32000 U | 76 %   | 66 %    | 20000 U | 270 U        | 59 * %       |
|  | 2,2'-oxybis(1-Chloropropane) | 32000 U | 69 %   | 60 %    | 20000 U | 270 U        | 60 %         |
|  | 4-Methylphenol               | 32000 U | 77 %   | 64 %    | 19000 J | 270 U        | 58 * %       |
|  | N-Nitroso-di-n-propylamine   | 32000 U | 73 %   | 68 %    | 20000 U | 270 U        | 58 %         |
|  | Hexachloroethane             | 32000 U | 58 %   | 51 %    | 20000 U | 270 U        | 51 %         |
|  | Nitrobenzene                 | 32000 U | 54 %   | 51 %    | 20000 U | 270 U        | 46 * %       |
|  | Isophorone                   | 32000 U | 58 * % | 54 * %  | 20000 U | 270 U        | 52 * %       |
|  | 2-Nitrophenol                | 32000 U | 57 %   | 53 %    | 20000 U | 270 U        | 46 * %       |
|  | 2,4-Dimethylphenol           | 32000 U | 59 %   | 54 %    | 20000 U | 270 U        | 34 * %       |
|  | bis(2-Chloroethoxy)methane   | 32000 U | 55 %   | 51 %    | 20000 U | 270 U        | 48 %         |
|  | 2,4-Dichlorophenol           | 32000 U | 57 %   | 52 %    | 20000 U | 270 U        | 46 * %       |
|  | 1,2,4-Trichlorobenzene       | 32000 U | 49 * % | 47 * %  | 20000 U | 270 U        | 43 * %       |
|  | Naphthalene                  | 32000 U | 50 %   | 47 %    | 20000 U | 270 U        | 44 %         |
|  | 4-Chloroaniline              | 32000 U | 57 %   | 52 %    | 20000 U | 270 U        | 58 %         |
|  | Hexachlorobutadiene          | 32000 U | 52 %   | 51 %    | 20000 U | 270 U        | 46 %         |
|  | 4-Chloro-3-methylphenol      | 32000 U | 56 * % | 46 * %  | 20000 U | 270 U        | 43 * %       |
|  | 2-Methylnaphthalene          | 32000 U | 56 * % | 51 * %  | 20000 U | 270 U        | 47 * %       |
|  | Hexachlorocyclopentadiene    | 32000 U | 0 * %  | 1 * %   | 20000 U | 270 U        | 36 %         |
|  | 2,4,6-Trichlorophenol        | 32000 U | 81 %   | 65 %    | 20000 U | 270 U        | 60 %         |
|  | 2,4,5-Trichlorophenol        | 81000 U | 74 %   | 61 %    | 49000 U | 660 U        | 47 %         |

\*= Outside of EPA CLP QC limits.

|                            | Cust ID: | J117R6 | J117R6  | J117R6 | J117R7       | SBLKVY       | SBLKVY BS    |
|----------------------------|----------|--------|---------|--------|--------------|--------------|--------------|
| RFW#:                      | 001      | 001 MS | 001 MSD | 002    | 06LE0218-MB1 | 06LE0218-MB1 |              |
| 2-Chloronaphthalene        | 32000    | U      | 72 %    | 61 %   | 20000        | U            | 270 U 58 %   |
| 2-Nitroaniline             | 81000    | U      | 88 %    | 72 %   | 49000        | U            | 660 U 68 %   |
| Dimethylphthalate          | 32000    | U      | 80 %    | 64 %   | 20000        | U            | 270 U 64 %   |
| Acenaphthylene             | 32000    | U      | 74 %    | 64 %   | 20000        | U            | 270 U 59 * % |
| 2,6-Dinitrotoluene         | 32000    | U      | 83 %    | 66 %   | 20000        | U            | 270 U 64 %   |
| 3-Nitroaniline             | 81000    | U      | 85 %    | 71 %   | 49000        | U            | 660 U 76 %   |
| Acenaphthene               | 32000    | U      | 75 %    | 64 %   | 20000        | U            | 270 U 62 %   |
| 2,4-Dinitrophenol          | 81000    | U      | 90 %    | 68 %   | 49000        | U            | 660 U 14 * % |
| 4-Nitrophenol              | 81000    | U      | 3 * %   | 3 * %  | 49000        | U            | 660 U 3 * %  |
| Dibenzofuran               | 32000    | U      | 77 %    | 64 %   | 20000        | U            | 270 U 60 %   |
| 2,4-Dinitrotoluene         | 32000    | U      | 90 %    | 70 %   | 20000        | U            | 270 U 68 %   |
| Diethylphthalate           | 2200     | JB     | 73 %    | 57 %   | 20000        | U            | 140 J 60 %   |
| 4-Chlorophenyl-phenylether | 32000    | U      | 77 %    | 63 %   | 20000        | U            | 270 U 58 %   |
| Fluorene                   | 32000    | U      | 76 %    | 65 %   | 20000        | U            | 270 U 60 %   |
| 4-Nitroaniline             | 81000    | U      | 85 %    | 68 %   | 49000        | U            | 660 U 72 %   |
| 4,6-Dinitro-2-methylphenol | 81000    | U      | 85 %    | 69 %   | 49000        | U            | 660 U 62 %   |
| N-Nitrosodiphenylamine (1) | 32000    | U      | 68 %    | 56 %   | 20000        | U            | 270 U 54 %   |
| 4-Bromophenyl-phenylether  | 32000    | U      | 74 %    | 62 %   | 20000        | U            | 270 U 57 %   |
| Hexachlorobenzene          | 32000    | U      | 80 %    | 71 %   | 20000        | U            | 270 U 64 %   |
| Pentachlorophenol          | 25000    | J      | 47 %    | 40 %   | 6000         | J            | 660 U 34 %   |
| Phenanthrene               | 32000    | U      | 91 %    | 76 %   | 20000        | U            | 270 U 63 %   |
| Anthracene                 | 32000    | U      | 78 %    | 65 %   | 20000        | U            | 270 U 64 %   |
| Carbazole                  | 32000    | U      | 79 %    | 66 %   | 20000        | U            | 270 U 64 %   |
| Di-n-butylphthalate        | 13000    | JB     | 70 %    | 60 %   | 2300         | JB           | 22 J 67 %    |
| Fluoranthene               | 32000    | U      | 68 %    | 56 %   | 20000        | U            | 270 U 68 %   |
| Pyrene                     | 32000    | U      | 67 %    | 56 %   | 20000        | U            | 270 U 63 %   |
| Butylbenzylphthalate       | 32000    | U      | 71 %    | 59 %   | 20000        | U            | 270 U 67 %   |
| 3,3'-Dichlorobenzidine     | 32000    | U      | 56 %    | 54 %   | 20000        | U            | 270 U 74 %   |
| Benzo(a)anthracene         | 32000    | U      | 81 %    | 67 %   | 20000        | U            | 270 U 69 %   |
| Chrysene                   | 32000    | U      | 79 %    | 66 %   | 20000        | U            | 270 U 67 %   |
| bis(2-Ethylhexyl)phthalate | 7700     | JB     | 75 %    | 60 %   | 3000         | JB           | 120 J 66 %   |
| Di-n-octyl phthalate       | 32000    | U      | 67 %    | 56 %   | 20000        | U            | 270 U 64 %   |
| Benzo(b)fluoranthene       | 32000    | U      | 73 %    | 63 %   | 20000        | U            | 270 U 66 %   |
| Benzo(k)fluoranthene       | 32000    | U      | 69 %    | 61 %   | 20000        | U            | 270 U 62 %   |
| Benzo(a)pyrene             | 32000    | U      | 75 %    | 64 %   | 20000        | U            | 270 U 64 %   |
| Indeno(1,2,3-cd)pyrene     | 32000    | U      | 94 %    | 80 %   | 20000        | U            | 270 U 80 %   |
| Dibenz(a,h)anthracene      | 32000    | U      | 94 %    | 80 %   | 20000        | U            | 270 U 79 %   |
| Benzo(g,h,i)perylene       | 32000    | U      | 92 %    | 81 %   | 20000        | U            | 270 U 78 %   |

(1) - Cannot be separated from Diphenylamine. \*= Outside of EPA CLP QC limits.

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1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J117R6

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-047 K0218

Matrix: (soil/water) SOLID

Lab Sample ID: 0602L288-001

Sample wt/vol: 1.24 (g/mL) G

Lab File ID: N041206

Level: (low/med) LOW

Date Received: 02/16/06

% Moisture: 80 decanted: (Y/N)

Date Extracted: 03/21/06

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/12/06

Injection Volume: 2.0 (uL)

Dilution Factor: 0.800

GPC Cleanup: (Y/N) X

pH:       

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

| CAS NUMBER | COMPOUND NAME | RT     | EST. CONC. | Q |
|------------|---------------|--------|------------|---|
| 1.         | UNKNOWN       | 12.191 | 800000     | J |
| 2.         | UNKNOWN       | 19.677 | 1000000    | J |
| 3.         | ORGANIC ACID  | 19.816 | 1000000    | J |
| 4.         | UNKNOWN       | 20.955 | 3000000    | J |
| 5.         | UNKNOWN       | 21.879 | 900000     | J |

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

J117R7

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-047 K0218

Matrix: (soil/water) SOLID

Lab Sample ID: 0602L288-002

Sample wt/vol: 1.97 (g/mL) G

Lab File ID: N041209

Level: (low/med) LOW

Date Received: 02/16/06

% Moisture: 72 decanted: (Y/N) \_\_

Date Extracted: 03/21/06

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/12/06

Injection Volume: 2.0 (uL)

Dilution Factor: 0.800

GPC Cleanup: (Y/N) Y

pH: \_\_\_\_\_

CONCENTRATION UNITS:

Number TICs found: 5

(ug/L or ug/Kg) ug/Kg

| CAS NUMBER | COMPOUND NAME | RT     | EST. CONC. | Q |
|------------|---------------|--------|------------|---|
| 1.         | UNKNOWN       | 4.720  | 1000000    | J |
| 2.         | UNKNOWN       | 5.282  | 500000     | J |
| 3.         | UNKNOWN       | 19.676 | 1000000    | J |
| 4.         | ORGANIC ACID  | 19.823 | 1000000    | J |
| 5.         | UNKNOWN       | 20.963 | 1000000    | J |

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKVY

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD RC-047 K0218

Matrix: (soil/water) SOIL

Lab Sample ID: 06LE0218-MB1

Sample wt/vol: 30.0 (g/mL) Q

Lab File ID: N041204

Level: (low/med) LOW

Date Received: 03/21/06

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_

Date Extracted: 03/21/06

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 04/12/06

Injection Volume: 2.0 (uL)

Dilution Factor: 0.800

GPC Cleanup: (Y/N) Y

pH: \_\_\_\_\_

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/Kg

Number TICs found: 5

| CAS NUMBER | COMPOUND NAME | RT     | EST. CONC. | Q |
|------------|---------------|--------|------------|---|
| 1.         | UNKNOWN       | 23.226 | 400        | J |
| 2.         | UNKNOWN       | 25.281 | 300        | J |
| 3.         | UNKNOWN       | 26.559 | 400        | J |
| 4.         | UNKNOWN       | 28.174 | 600        | J |
| 5.         | UNKNOWN       | 32.466 | 500        | J |

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 03/21/06

Extraction Batch No: 06LE0218

Analyst: MF

Method: \*\*\*\*

Test: 0625

Cleanup Date:

Analyst:

Client: TNUHANFORD RC-047 K0218

LIMS Report Date: 04/13/06

Solvent: DCM

Adsorbent:

000000013

| Sample No: | Client Name<br>Client ID | pH   | Initial<br>WT/VOL | Surr.<br>Mult. | Spike<br>Mult. | Final<br>VOL | Final<br>VOL | Split<br>Mult. | GPC<br>Y/N | %<br>Solid | C/D<br>FACTOR |
|------------|--------------------------|------|-------------------|----------------|----------------|--------------|--------------|----------------|------------|------------|---------------|
| 0602L288-  | TNUHANFORD RC-047 K0218  |      |                   |                |                |              |              |                |            |            |               |
| 001 H      | J117R6                   | 1.24 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 19.90      | 1621.0        |
| 001 HS     | J117R6                   | 1.43 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 19.90      | 1405.6        |
| 001 HT     | J117R6                   | 1.43 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 19.90      | 1405.6        |
| 002 H      | J117R7                   | 1.97 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 20.71      | 980.4         |
| 0602L299-  | TNUHANFORD RC-047 K0229  |      |                   |                |                |              |              |                |            |            |               |
| 001 H      | J117R5                   | 1.23 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 325.2         |
| 001 HS     | J117R5                   | 1.41 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 0.00       | 283.7         |
| 001 HT     | J117R5                   | 1.36 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 0.00       | 294.1         |
| 0603L379-  | TNUHANFORD RC-047 K0229  |      |                   |                |                |              |              |                |            |            |               |
| 001 H      | J117R3                   | 1.61 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 248.4         |
| 001 HS     | J117R3                   | 1.28 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 0.00       | 312.5         |
| 001 HT     | J117R3                   | 1.43 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 0.00       | 279.7         |
| 002 H      | J117R4                   | 1.68 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 238.1         |
| 003 H      | J117R5                   | 1.14 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 350.9         |
| 004 H      | J117R8                   | 1.41 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 283.7         |
| 005 H      | J117R9                   | 1.77 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 226.0         |
| 006 H      | J11869                   | 1.80 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 222.2         |
| 007 H      | J11870                   | 1.76 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 227.3         |
| 008 H      | J11871                   | 1.62 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 246.9         |
| 009 H      | J11872                   | 1.27 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 315.0         |
| 0603L444-  | TNUHANFORD RC-047 K0236  |      |                   |                |                |              |              |                |            |            |               |
| 001 H      | J11873                   | 1.92 |                   | 1.0            |                | 0.4          |              | 1.0            | Y          | 0.00       | 208.3         |
| 001 HS     | J11873                   | 1.43 |                   | 1.0            | 1.0            | 0.4          |              | 1.0            | Y          | 0.00       | 279.7         |

Comments:

Surrogate: 500 UL ESU BNA 89915403 @100-150 UG/ML

Spike: 750 UL BNA LCS SPIKE 86950915B

| Extracts Transferred | Relinquished By | Date Time | Received By | Date Time    | Reason for Transfer            |
|----------------------|-----------------|-----------|-------------|--------------|--------------------------------|
|                      |                 |           | <i>MF</i>   | 4/13/06 1400 | Change split multiplier to 1.0 |

Change final volume to 0.4

SAMPLE EXTRACTION RECORD

Sheet no.: 2

Extract. Date: 03/21/06

Extraction Batch No: 06LE0218

Analyst: MF

Method: \*\*\*\*

Test: 0625

Cleanup Date:

Analyst:

Client: TNUHANFORD RC-047 K0218

LIMS Report Date: 04/13/06

Solvent: DCM

Adsorbent:

000000014

| Sample No:      | Client Name<br>Client ID | pH   | Initial Surr.<br>WT/VOL | Surr. Spike<br>Mult. | Final Spike<br>Mult. | Final<br>VOL | Final Split<br>VOL | Split<br>Mult. | GPC<br>Y/N | %<br>Solid | C/D<br>FACTOR |
|-----------------|--------------------------|------|-------------------------|----------------------|----------------------|--------------|--------------------|----------------|------------|------------|---------------|
| 0603L444-       | TNUHANFORD RC-047 K0236  |      |                         |                      |                      |              |                    |                |            |            |               |
| 001 HT          | J11873                   | 1.42 | 1.0                     | 1.0                  | 0.4                  |              | 1.0                | Y              | 0.00       | 281.7      |               |
| 002 H           | J11874                   | 1.79 | 1.0                     |                      | 0.4                  |              | 1.0                | Y              | 0.00       | 223.5      |               |
| 003 H           | J11875                   | 1.92 | 1.0                     |                      | 0.4                  |              | 1.0                | Y              | 0.00       | 208.3      |               |
| 004 H           | J11876                   | 1.59 | 1.0                     |                      | 0.4                  |              | 1.0                | Y              | 0.00       | 251.6      |               |
| 005 H           | J11877                   | 1.43 | 1.0                     |                      | 0.4                  |              | 1.0                | Y              | 0.00       | 279.7      |               |
| 006 H           | J11878                   | 1.91 | 1.0                     |                      | 0.4                  |              | 1.0                | Y              | 0.00       | 209.4      |               |
| 06LE0218-MB1 H  |                          | 30.0 | 1.0                     |                      | 0.4                  |              | 1.0                | Y              | 100.00     | 13.3       |               |
| 06LE0218-MB1 HS |                          | 30.0 | 1.0                     | 1.0                  | 0.4                  |              | 1.0                | Y              | 100.00     | 13.3       |               |

Comments:

Surrogate: 500 UL ESU BNA 89915403 @100-150 UG/ML

Spike: 750 UL BNA LCS SPIKE 86950915B

| Extracts Transferred | Relinquished By | Date Time | Received By | Date Time    | Reason for Transfer                                       |
|----------------------|-----------------|-----------|-------------|--------------|---|
|                      |                 |           | <i>M</i>    | 4/13/06 1400 | change split from 10 to 0.4<br>change final volume to 0.4 |

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 03/21/06

Extraction Batch No: 06LE0218

Analyst: MF

Method: \*\*\*\* 50X3546

Test: 0625

Cleanup Date:

Analyst:

Client: TNUHANFORD RC-047 K0218

LIMS Report Date: 04/12/06

Solvent: DCM

Adsorbent:

000000015

| Sample No: | Client Name<br>Client ID | pH | Initial<br>WT/VOL | Surr.<br>Mult. | Spike<br>Mult. | Final<br>VOL | Final<br>VOL | Split<br>Mult. | GPC<br>Y/N | %<br>Solids | C/D<br>FACTOR |
|------------|--------------------------|----|-------------------|----------------|----------------|--------------|--------------|----------------|------------|-------------|---------------|
| 0602L288-  | TNUHANFORD RC-047 K0218  |    |                   |                |                |              |              |                |            |             |               |
| 001 H      | J117R6                   |    | 1.24              | 1.0            |                | 0.5          |              | 0.5            | N          | 19.90       | 1013.1        |
| 001 HS     | J117R6                   |    | 1.43              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          | 19.90       | 878.5         |
| 001 HT     | J117R6                   |    | 1.43              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          | 19.90       | 878.5         |
| 002 H      | J117R7                   |    | 1.97              | 1.0            |                | 0.5          |              | 0.5            | N          | 20.71       | 612.8         |
| 0602L299-  | TNUHANFORD RC-047 K0229  |    |                   |                |                |              |              |                |            |             |               |
| 001 H      | J117R5                   |    | 1.23              | 1.0            |                | 0.5          |              | 0.5            | N          |             | 203.3         |
| 001 HS     | J117R5                   |    | 1.41              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          |             | 177.3         |
| 001 HT     | J117R5                   |    | 1.36              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          |             | 183.8         |
| 0603L379-  | TNUHANFORD RC-047 K0229  |    |                   |                |                |              |              |                |            |             |               |
| 001 H      | J117R3                   |    | 1.61              | 1.0            |                | 0.5          |              | 0.5            | N          |             | 155.3         |
| 001 HS     | J117R3                   |    | 1.28              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          |             | 195.3         |
| 001 HT     | J117R3                   |    | 1.43              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          |             | 174.8         |
| 002 H      | J117R4                   |    | 1.68              | 1.0            |                | 0.5          |              | 0.5            | N          |             | 148.8         |
| 003 H      | J117R5                   |    | 1.14              | 1.0            |                | 0.5          |              | 0.5            | N          |             | 219.3         |
| 004 H      | J117R8                   |    | 1.41              | 1.0            |                | 0.5          |              | 0.5            | N          |             | 177.3         |
| 005 H      | J117R9                   |    | 1.77              | 1.0            |                | 0.5          |              | 0.5            | N          | 0.0         | 141.2         |
| 006 H      | J11869                   |    | 1.80              | 1.0            |                | 0.5          |              | 0.5            | N          | 0.0         | 138.9         |
| 007 H      | J11870                   |    | 1.76              | 1.0            |                | 0.5          |              | 0.5            | N          | 0.0         | 142.0         |
| 008 H      | J11871                   |    | 1.62              | 1.0            |                | 0.5          |              | 0.5            | N          | 0.0         | 154.3         |
| 009 H      | J11872                   |    | 1.27              | 1.0            |                | 0.5          |              | 0.5            | N          | 0.0         | 196.8         |
| 0603L444-  | TNUHANFORD RC-047 K0236  |    |                   |                |                |              |              |                |            |             |               |
| 001 H      | J11873                   |    | 1.92              | 1.0            |                | 0.5          |              | 0.5            | N          | 0.0         | 130.2         |
| 001 HS     | J11873                   |    | 1.43              | 1.0            | 1.0            | 0.5          |              | 0.5            | N          | 0.0         | 174.8         |

Comments:

Surrogate: 500 UL ESU BNA 89915403 @100-150 UG/ML

Spike: 750 UL BNA LCS SPIKE 86950915B

| Extracts Transferred | Relinquished By    | Date Time    | Received By        | Date Time    | Reason for Transfer |
|----------------------|--------------------|--------------|--------------------|--------------|---------------------|
| all                  | <i>[Signature]</i> | 4/12/06 1410 | <i>[Signature]</i> | 4/12/06 1500 | Analysis            |

SAMPLE EXTRACTION RECORD

Sheet no.: 2

Extract. Date: 03/21/06

Extraction Batch No: 06LE0218

Analyst: MF

Method: \*\*\*\*S043540

Test: 0625

Cleanup Date:

Analyst:

Client: TNUHANFORD RC-047 K0218

LIMS Report Date: 04/12/06

Solvent: DCM

Adsorbent:

| Sample No:      | Client Name<br>Client ID | pH   | Initial<br>WT/VOL | Surr.<br>Mult. | Spike<br>Mult. | Final<br>VOL | Final<br>VOL | Split<br>Mult. | GPC<br>Y/N | %<br>Solids | C/D<br>FACTOR |
|-----------------|--------------------------|------|-------------------|----------------|----------------|--------------|--------------|----------------|------------|-------------|---------------|
| 0603L444-       | TNUHANFORD RC-047 K0236  |      |                   |                |                |              |              |                |            |             |               |
| 001 HT          | J11873                   | 1.42 | 1.0               | 1.0            | 0.5            |              |              | 0.5            | N          | 0.0         | 176.1         |
| 002 H           | J11874                   | 1.79 | 1.0               |                | 0.5            |              |              | 0.5            | N          | 0.0         | 139.7         |
| 003 H           | J11875                   | 1.92 | 1.0               |                | 0.5            |              |              | 0.5            | N          | 0.0         | 130.2         |
| 004 H           | J11876                   | 1.59 | 1.0               |                | 0.5            |              |              | 0.5            | N          | 0.0         | 157.2         |
| 005 H           | J11877                   | 1.43 | 1.0               |                | 0.5            |              |              | 0.5            | N          | 0.0         | 174.8         |
| 006 H           | J11878                   | 1.91 | 1.0               |                | 0.5            |              |              | 0.5            | N          | 0.0         | 130.9         |
| 06LE0218-MB1 H  | SBLKVY                   | 30.0 | 1.0               |                | 0.5            |              |              | 0.5            | N          | 100.00      | 8.33          |
| 06LE0218-MB1 HS | SBLKVY                   | 30.0 | 1.0               | 1.0            | 0.5            |              |              | 0.5            | N          | 100.00      | 8.33          |

Comments:

Surrogate: 500 UL ESU BNA 89915403 @100-150 UG/ML

Spike: 750 UL BNA LCS SPIKE 86950915B

| Extracts Transferred | Relinquished By    | Date Time           | Received By | Date Time           | Reason for Transfer |
|----------------------|--------------------|---------------------|-------------|---------------------|---------------------|
| <i>all</i>           | <i>[Signature]</i> | <i>4/12/06 1410</i> | <i>No</i>   | <i>4/12/06 1500</i> | <i>Analysis</i>     |

000000016



|  |  |   |                                    |                                      |                            |             |
|--|--|---|------------------------------------|--------------------------------------|----------------------------|-------------|
| <b>Washington Closure Hanford</b>  |  | <b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b> |                                    |                                      | RC-047-133                 | Page 1 of 1 |
| Collector<br>TILLER, B.  | Company Contact<br>JOAN KESSNER                  | Telephone No.<br>375-4688                       | Project Coordinator<br>KESSNER, JH | Price Code<br>9N                     | Data Turnaround<br>45 Days |             |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti | Sampling Location<br>300 AREA ELEVATED, SAMPLE 1 |   | SAF No.<br>RC-047                  | Air Quality <input type="checkbox"/> |                            |             |
| Ice Chest No.<br>AFS-04-052  | Field Logbook No.<br>EL-1597                     | COA<br>BESRAS6520                               | Method of Shipment<br>FED EX       |                                      |                            |             |
| Shipped To<br><del>BERLING SERVICES</del> <del>LIONVILLE</del><br>AFS-04-052 | Offsite Property No.<br>A060250                  | Bill of Lading/Air Bill No.<br>See OSPC         |                                    |                                      |                            |             |

000000018

|  |                     |         |      |         |         |         |         |         |  |  |
|--|---------------------|---------|------|---------|---------|---------|---------|---------|--|--|
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS<br><br>Special Handling and/or Storage<br>COOL 4C "MATRIX COMPOSED OF FISH" | Preservation        | Cool 4C | None | Cool 4C |  |  |
|  | Type of Container   | aG      | G/P  | G/P     | aG      | aG      | aG      | aG      |  |  |
|  | No. of Container(s) | 0       | 1    | 0       | 0       | 0       | 0       | 1       |  |  |
|  | Volume              | 750g    | 5g   | 15g     | 50g     | 50g     | 50g     | 100g    |  |  |

|                                   |                          |  |  |                   |             |                        |                        |  |  |
|-----------------------------------|--------------------------|--|--|-------------------|-------------|------------------------|------------------------|--|--|
| SAMPLE ANALYSIS<br><br>SDG# K0218 | Gamma Spec - (Full List) | Strontium - 89,90 - Total Sr; Isotopic Thorium; Isotopic Uranium | ICP Metals - 6010 (Full List); Mercury - 7471 - (CV) | Pesticides - 8081 | PCBs - 8082 | Semi-VOA - 8270A (TCL) | GAMMA SPEC - FULL LIST |  |  |
|-----------------------------------|--------------------------|--|--|-------------------|-------------|------------------------|------------------------|--|--|

| Sample No. | Matrix *    | Sample Date | Sample Time | Gamma Spec | Strontium | ICP Metals | Pesticides | PCBs | Semi-VOA | GAMMA SPEC |
|------------|-------------|-------------|-------------|------------|-----------|------------|------------|------|----------|------------|
| J117R6     | OTHER SOLID | 02-08-06    | 1200        | X          | X         | X          |            |      |          | X          |
|            |             |             |             |            |           |            |            |      |          |            |
|            |             |             |             |            |           |            |            |      |          |            |

|   |                             |  |                             |   |  |  |   |
|---|-----------------------------|--|-----------------------------|---|--|--|---|
| <b>CHAIN OF POSSESSION</b>                              |                             | <b>Sign/Print Names</b>                          |                             | <b>SPECIAL INSTRUCTIONS</b>   |  |  | Matrix #<br>S=Soil<br>SL=Soil/Liq<br>SL=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Dry Solids<br>DL=Dry Liquid<br>T=Trash<br>W=Wipe<br>L=Liquid<br>V=Vegetation<br>X=Other |
| Relinquished By/Removed From<br>BRETT TILLER            | Date/Time<br>02-09-06 07:00 | Received By/Stored In<br>EAS LOCKED STORAGE      | Date/Time<br>02-08-06 17:00 | NOTE: Eberline- perform Gamma Spec, Iso Uranium and Iso Strontium then transport to Lionville Labs, if possible maintain 4 C cooling. |  |  |   |
| Relinquished By/Removed From<br>JAMES BERNHARD          | Date/Time<br>2-9-06 07:15   | Received By/Stored In<br>RZ Steffler RZ Steffler | Date/Time<br>2-9-06 07:15   | NOTE: Lionville- contact Rich Weiss upon receipt.   |  |  |   |
| Relinquished By/Removed From<br>RZ Steffler RZ Steffler | Date/Time<br>2-9-06 15:00   | Received By/Stored In<br>Fed Ex                  | Date/Time                   | SDG# K0218  |  |  |   |
| Relinquished By/Removed From<br>FED EX                  | Date/Time                   | Received By/Stored In<br>JESS KEEV               | Date/Time<br>2/10/06 10:00  |   |  |  |   |
| Relinquished By/Removed From<br>JESS KEEV               | Date/Time<br>2/15/06 16:00  | Received By/Stored In                            | Date/Time                   |   |  |  |   |
| Relinquished By/Removed From<br>FED EX                  | Date/Time<br>2-16-06 09:15  | Received By/Stored In<br>JESS KEEV               | Date/Time<br>2-16-06 09:15  |   |  |  |   |

|                          |                 |             |           |
|--------------------------|-----------------|-------------|-----------|
| LABORATORY SECTION       | Received By     | Title       | Date/Time |
| FINAL SAMPLE DISPOSITION | Disposal Method | Disposed By | Date/Time |

| Washington Closure Hanford   |                 | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST       |             |  |  |   | RC-047-134           |   | Page 1 of 1               |                                 |         |   |
|--|-----------------|--|-------------|--|--|---|----------------------|---|---------------------------|---------------------------------|---------|---|
| Collector<br>TILLER, B.  |                 | Company Contact<br>JOAN KESSNER                |             | Telephone No.<br>375-4688                      |  | Project Coordinator<br>KESSNER, JH                              |                      | Price Code 9N   |                           | Data Turnaround<br>45 Days      |         |   |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and TI |                 | Sample Location<br>300 AREA ELEVATED, SAMPLE 2 |             | SAF No.<br>RC-047                              |  | Air Quality <input type="checkbox"/>                            |                      |   |                           |                                 |         |   |
| Ice Chest No.<br>AFS-04-052  |                 | Field Logbook No.<br>EL-1597                   |             | COA<br>BESRAS6520                              |  | Method of Shipment<br>FED EX                                    |                      |   |                           |                                 |         |   |
| Shipped To<br><del>EPERLINE SERVICES/LIONVILLE</del><br>M&S SUPERMART        |                 | Offsite Property No.<br>A060250                |             |  | Bill of Lading/Air Bill No.<br>See OSPL  |   |                      |   |                           |                                 |         |   |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS         |                 |  |             | Preservation                                   | Cool 4C  | None  | Cool 4C              | Cool 4C   | Cool 4C                   | Cool 4C                         | Cool 4C |   |
| Special Handling and/or Storage<br>COOL 4C "MATRIX COMPOSED OF FISH"         |                 |  |             | Type of Container                              | aG   | G/P   | G/P                  | aG  | aG                        | aG                              | aG      |   |
|  |                 |  |             | No. of Container(s)                            | 10   | 0   | 10                   | 0   | 0                         | 0                               | 1       |   |
|  |                 |  |             | Volume   | 750g   | 5g  | 15g                  | 50g   | 50g                       | 50g                             | 100g    |   |
| SAMPLE ANALYSIS<br>SDG# K0218  |                 |  |             | Gamma Spec -<br>(Full List)                    | Strontium-<br>89,90 - Total<br>Sr; Isotopic<br>Thorium;<br>Isotopic<br>Uranium | ICP Metal -<br>6010 (Full<br>List);<br>Mercury -<br>7471 - (CV) | Pesticides -<br>8081 | PCBs - 8082   | Semi-VOA -<br>8270A (TCL) | GAMMA<br>SPEC -<br>FULL<br>LIST |         |   |
| Sample No.   | Matrix *        | Sample Date                                    | Sample Time |  |  |   |                      |   |                           |                                 |         |   |
| J117R7   | OTHER SOLID     | 02-08-06                                       | 1500        | X  | X  |   |                      |   |                           |                                 | X       |   |
|  |                 |  |             |  |  |   |                      |   |                           |                                 |         |   |
|  |                 |  |             |  |  |   |                      |   |                           |                                 |         |   |
|  |                 |  |             |  |  |   |                      |   |                           |                                 |         |   |
|  |                 |  |             |  |  |   |                      |   |                           |                                 |         |   |
| CHAIN OF POSSESSION  |                 |  |             | Sign/Print Names                               |  |   |                      | SPECIAL INSTRUCTIONS  |                           |                                 |         | Matrix *  |
| Relinquished By/Removed From<br>BRETT TILLER                                 |                 | Date/Time<br>17:00<br>02-08-06                 |             | Received By/Stored In<br>EAS LOCKED STORAGE    |  | Date/Time<br>17:00<br>02-08-06                                  |                      | NOTE: Eberline - perform Gamma Spec, Iso Uranium and Iso Strontium then tranship to Lionville Labs, if possible maintain 4 C cooling.<br>NOTE: Lionville - contact Rich Weiss upon receipt. |                           |                                 |         | S=Soil<br>SE=Soil<br>SC=Soil<br>SL=Sludge<br>W=Water<br>O=Oil<br>A=Air<br>DS=Drum Solids<br>DU=Drum Liquid<br>T=Toxic<br>W=Waxy<br>L=Liquid<br>V=Volatiles<br>X=Other |
| Relinquished By/Removed From<br>JAMES BERNHARD                               |                 | Date/Time<br>0715<br>02-09-06                  |             | Received By/Stored In<br>RZ Steffen RZ Steffen |  | Date/Time<br>0715<br>2-9-06                                     |                      |   |                           |                                 |         |   |
| Relinquished By/Removed From<br>RZ Steffen RZ Steffen                        |                 | Date/Time<br>1500<br>2-9-06                    |             | Received By/Stored In<br>Fed Ex                |  | Date/Time   |                      |   |                           |                                 |         |   |
| Relinquished By/Removed From<br>FED EX                                       |                 | Date/Time                                      |             | Received By/Stored In<br>flex received         |  | Date/Time<br>2/10/06 10:00                                      |                      |   |                           |                                 |         |   |
| Relinquished By/Removed From<br>flex received                                |                 | Date/Time<br>2/15/06 16:00                     |             | Received By/Stored In                          |  | Date/Time   |                      |   |                           |                                 |         |   |
| Relinquished By/Removed From<br>FED EX                                       |                 | Date/Time<br>2-16-06 0915                      |             | Received By/Stored In<br>V. King               |  | Date/Time<br>2-16-06 0915                                       |                      |   |                           |                                 |         |   |
| LABORATORY SECTION   | Received By     |  |             | Title  |  |   | Date/Time            |   |                           |                                 |         |   |
| FINAL SAMPLE DISPOSITION   | Disposal Method |  |             | Disposed By                                    |  |   | Date/Time            |   |                           |                                 |         |   |

10000001

SDG# K0218  
Eberline Svcs

CHAIN OF CUSTODY

ORD # R6-02-069

02/13/06 08:53:31

WORK ID: SAF# RC-047 SDG# K0218

RCVD: 02/10/06 DUB: 03/27/06

KEEP: 03/27/07 DISP: S

| <u>DASH</u> | <u>SAMPLE IDENTIFICATION</u> | <u>STORED</u> | <u>TESTS</u> |      |      |
|-------------|------------------------------|---------------|--------------|------|------|
| 01A-X       | J117R6                       | LION          | DISPOS       | E009 | E046 |
| 01B-X       | J117R6 MS                    | LION          | DISPOS       | E009 | E046 |
| 01C-X       | J117R6 DUP                   | LION          | DISPOS       | E009 | E046 |
| *****       |                              |               |              |      |      |
| 02A-X       | J117R7                       | LION          | DISPOS       | E009 | E046 |

| <u>RELEASED BY</u>   | <u>DATE</u>    | <u>TRANSFERRED TO</u> | <u>DATE</u>    | <u>RECEIVED BY</u> | <u>DATE</u> |
|----------------------|----------------|-----------------------|----------------|--------------------|-------------|
| <i>Alex Klementy</i> | <i>2/15/06</i> | <i>LIONVILLE</i>      | <i>2/15/06</i> |                    |             |
|                      |                |                       |                |                    |             |
|                      |                |                       |                |                    |             |
|                      |                |                       |                |                    |             |

PAGE 1 Eberline Svcses  
CONTRACT: Blanket Order #N501118

PURCHASE ORDER # R6-02-069-SU-WT  
02/13/06 08:53:14

ORDER Eberline Services/Richmond  
FROM Analytical Services  
2030 Wright Avenue  
Richmond, CA 94804-0040  
ATTEN Purchasing  
PHONE 510-235-2633

INVOICE Eberline Services/Richmond  
TO Analytical Services  
2030 Wright Avenue  
Richmond, CA 94804-0040  
ATTEN Purchasing  
PHONE 510-235-2633

*Eyamano*  
AUTHORIZED BY

ORDER Lionville Laboratory, Inc.  
TO 208 Welsh Pool Road  
Lionville, PA 19353

Please telephone our Sample Control Department immediately if any problems are encountered in the receipt or the analysis of the samples listed below.

ATTEN Orlette Johnson

This Purchase Order authorizes LvLI to perform all work listed on the enclosed COC. Alterations to work requested can only be made by Eberline Services or the appropriate Hanford client.

9N

| <u>FRACTION</u>            | <u>TEST</u> | <u>DESCRIPTION</u>         | <u>UNITS</u>  | <u>DUE DATE</u> | <u>COST</u>   |
|----------------------------|-------------|----------------------------|---------------|-----------------|---------------|
| 01A                        | E009        | ICP Metals-6010 (TAL List) | Please Advise | 03/27/06        | 0.00          |
|                            | E046        | Mercury-7471               | Please Advise | 03/27/06        | 0.00          |
| 01B                        | E009        | ICP Metals-6010 (TAL List) | Please Advise | 03/27/06        | 0.00          |
|                            | E046        | Mercury-7471               | Please Advise | 03/27/06        | 0.00          |
| 01C                        | E009        | ICP Metals-6010 (TAL List) | Please Advise | 03/27/06        | 0.00          |
|                            | E046        | Mercury-7471               | Please Advise | 03/27/06        | 0.00          |
| 02A                        | E009        | ICP Metals-6010 (TAL List) | Please Advise | 03/27/06        | 0.00          |
|                            | E046        | Mercury-7471               | Please Advise | 03/27/06        | 0.00          |
| TOTAL CHARGE NOT TO EXCEED |             |                            |               |                 | <u>\$0.00</u> |

PAGE 1

SEGA-KOZIK  
Eberline Svcs

WORK SHEET

ORD # R6-02-069

CLIENT: WES\_HANFORD CON: MCM

CAT: KNVMWT

RCVD: 02/10/06 DOE: 03/27/06

PROJ: WEC\_WCH

02/13/06 08:53:24

STAT: TRANSMITTED 02/13/06

| DASH  | SAMPLE IDENTIFICATION | STORED | DEPT | START | DUR BY | TESTS, | FRACTIONS /                   |
|-------|-----------------------|--------|------|-------|--------|--------|-------------------------------|
| 01A-X | J117R6                | LION   | EN   | 02/10 | 02/10  | DISPOS |                               |
|       |                       |        |      |       |        |        | SU WT 02/15 03/27   E009 E046 |
| 01B-X | J117R6 MS             | LION   | EN   | 02/10 | 02/10  | DISPOS |                               |
|       |                       |        |      |       |        |        | SU WT 02/15 03/27   E009 E046 |
| 01C-X | J117R6 DUP            | LION   | EN   | 02/10 | 02/10  | DISPOS |                               |
|       |                       |        |      |       |        |        | SU WT 02/15 03/27   E009 E046 |
| 02A-X | J117R7                | LION   | EN   | 02/10 | 02/10  | DISPOS |                               |
|       |                       |        |      |       |        |        | SU WT 02/15 03/27   E009 E046 |

Lionville Laboratory Incorporated  
**SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: *TNU - HANFORD*

Date: *2-16-06*

Purchase Order / Project# /  
~~SAE#~~ / SOW# / Release #: *RC-047*

LvLI Batch #: *06022288*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |   |  |
|---|---|--|
| 1. Samples Hand Delivered of <u>Shipped</u>   | Carrier <i>Fed Ex</i>   | Airbill# <i>791863068794</i>                         |
| 2. Custody seals on coolers or shipping container intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals      Comments      |
| 3. Outside of coolers or shipping containers are free from damage?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 5. Samples received cooled or ambient?<br><i>IR</i>   | Temp <i>3-4</i> °C  | Cooler # <i>N/A</i>                                  |
| 6. Custody seals on sample containers intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals                    |
| 7. coc signed and dated?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 8. Sample containers are intact?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 9. All samples on coc received? All samples received on coc?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 10. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 11. Samples properly preserved?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 12. Samples received within hold times? Short holds taken to wet lab?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 13. VOA, TOC, TOX free of headspace?  | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> N/A              |
| 14. QC stickers placed on bottles designated by client?   | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> N/A              |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)                             | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> No Discrepancies |





Lionville Laboratory, Inc.  
PEST/PCB ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD RC-047 K0218

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID | LVL #   | MTX | PREP #   | COLLECTION | EXTR/PREP | ANALYSIS |
|-----------|---------|-----|----------|------------|-----------|----------|
| J117R6    | 001     | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| J117R6    | 001 MS  | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| J117R6    | 001 MSD | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| J117R7    | 002     | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |

LAB QC:

|        |        |   |          |     |          |          |
|--------|--------|---|----------|-----|----------|----------|
| PBLKDU | MB1    | S | 06LE0212 | N/A | 03/20/06 | 03/27/06 |
| PBLKDU | MB1    | S |          | N/A | 03/20/06 | 04/07/06 |
| PBLKDU | MB1 BS | S | 06LE0212 | N/A | 03/20/06 | 03/27/06 |
| PBLKDU | MB1 BS | S |          | N/A | 03/20/06 | 04/07/06 |



## Case Narrative

**Client:** TNU-HANFORD RC-047  
**LVL #:** 0602L288  
**SDG/SAF #** K0218/RC-047

**W.O. #:** 11343-606-001-9999-00  
**Date Received:** 02-16-2006

### CHLORINATED PESTICIDES

Two (2) solid samples were collected on 02-08-2006.

The samples and their associated QC samples were extracted on 03-20-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 03-27-2006 and 04-07-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted outside the holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
3. The samples and their associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. Four (4) of forty (40) blank spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
7. Seven (7) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 8 pages.



10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

4/12/06  
Date

son\vr\group\data\pest\tnu hanford\0602-288.pst

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 0606117

Initiator: John Lach Batch: 0602288, 299, 0607279 Parameter: 0608 Pesticides  
 Date: 4/12/06 Samples: BS, MS, MSDs Matrix: Fish  
 Client: TNV Method: SW846/MCAWW/CLP Prep Batch: 06LE0212

**1. Reason for SDR**

a. COC Discrepancy  Tech Profile Error  Client Request  Sampler Error on C-O-C  
 Transcription Error  Wrong Test Code  Other \_\_\_\_\_

b. General Discrepancy  
 Missing Sample/Extract  Container Broken  Wrong Sample Pulled  Label ID's Illegible  
 Hold Time Exceeded  Insufficient Sample  Preservation Wrong  Received Past Hold  
 Improper Bottle Type  Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

c. Problem (Include all relevant specific results; attach data if necessary)  
 Some spike compounds out of control.  
 Samples were extracted outside the holding time.

**2. Known or Probable Causes(s)**  
 Sample matrix required Fluorid clean up

**3. Discussion and Proposed Action** Other Description:  
 Re-log  Entire Batch  Following Samples: \_\_\_\_\_  
 Re-leach  Re-extract  Re-digest  Revise EDD  Change Test Code to \_\_\_\_\_  
 Place On/Take Off Hold (circle)

Other Description: Narrative. The blank spike was run as a reanalysis without clean up and was in control.

**4. Project Manager Instructions...** signature/date: [Signature] 4/13/06

Concur with Proposed Action  
 Disagree with Proposed Action; See Instruction  
 Include in Case Narrative  
 Client Contacted: \_\_\_\_\_  
 Date/Person \_\_\_\_\_  
 Add  
 Cancel

**5. Final Action...** signature/date: Ston 4/11/06 Other Explanation:  
 Verified re-[log][leach][extract][digest][analysis] (circle)  
 Included in Case Narrative  
 Hard Copy COC Revised  
 Electronic COC Revised  
 EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

| Route                               | Distribution of Completed SDR  | Route                    | Distribution of Completed SDR |
|-------------------------------------|--------------------------------|--------------------------|-------------------------------|
| <input checked="" type="checkbox"/> | Initiator                      | <input type="checkbox"/> | Metals: Beegle                |
| <input checked="" type="checkbox"/> | Lab General Manager: M. Taylor | <input type="checkbox"/> | Inorganic: Perrone            |
| <input checked="" type="checkbox"/> | Project Mgr: Stone/Johnson     | <input type="checkbox"/> | GC/LC: Kiger                  |
| <input type="checkbox"/>            | Data Management: Stilwell      | <input type="checkbox"/> | MS: Rychlak/Daley             |
| <input type="checkbox"/>            | Sample Prep: Beegle/Kiger      | <input type="checkbox"/> | Log-in: Perry                 |
|                                     |                                | <input type="checkbox"/> | Admin: _____                  |
|                                     |                                | <input type="checkbox"/> | Other: _____                  |



## GLOSSARY OF DATA

### DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

### ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- NS** = Not Spiked.
- SP** = Indicates Spiked Compound.
- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.
- NPM** = No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.  
Pesticides/PCB by GC, Special List

Report Date: 04/12/06 13:55

RFW Batch Number: 0602L288

Client: TNUHANFORD RC-047 K0218 Work Order: 11343606001 Page: 1

| Sample Information                                | Cust ID: | J117R6  | J117R6  | J117R6  | J117R7  | PBLKDU       | PBLKDU RE    |
|---|----------|---------|---------|---------|---------|--------------|--------------|
|   | RFW#:    | 001     | 001 MS  | 001 MSD | 002     | 06LE0212-MB1 | 06LE0212-MB1 |
|   | Matrix:  | SOLID   | SOLID   | SOLID   | SOLID   | SOIL         | SOIL         |
|   | D.F.:    | 1.00    | 1.00    | 1.00    | 1.00    | 1.00         | 1.00         |
|   | Units:   | UG/KG   | UG/KG   | UG/KG   | UG/KG   | UG/KG        | UG/KG        |
| Surrogate: Tetrachloro-m-xylene                   |          | 94 %    | 96 %    | 94 %    | 91 %    | 101 %        | 78 %         |
| Decachlorobiphenyl                                |          | 107 %   | 113 %   | 101 %   | 112 %   | 108 %        | 87 %         |
| -----fl-----fl-----fl-----fl-----fl-----fl-----fl |          |         |         |         |         |              |              |
| Alpha-BHC   |          | 210 U   | 100 %   | 90 %    | 150 U   | 1.7 U        | 1.7 U        |
| gamma-BHC (Lindane)                               |          | 210 U   | 109 %   | 97 %    | 150 U   | 1.7 U        | 1.7 U        |
| Beta-BHC  |          | 210 U   | 102 %   | 94 %    | 150 U   | 1.7 U        | 1.7 U        |
| Heptachlor  |          | 210 U   | 117 %   | 103 %   | 150 U   | 1.7 U        | 1.7 U        |
| Delta-BHC   |          | 210 U   | 75 %    | 71 %    | 150 U   | 1.7 U        | 1.7 U        |
| Aldrin  |          | 210 U   | 117 %   | 100 %   | 150 U   | 1.7 U        | 1.7 U        |
| Heptachlor epoxide                                |          | 210 U   | 111 %   | 95 %    | 150 U   | 1.7 U        | 1.7 U        |
| gamma-Chlordane                                   |          | 210 U   | 98 %    | 84 %    | 150 U   | 1.7 U        | 1.7 U        |
| Endosulfan I                                      |          | 210 U   | 115 %   | 98 %    | 150 U   | 1.7 U        | 1.7 U        |
| alpha-Chlordane                                   |          | 210 U   | 110 %   | 93 %    | 150 U   | 1.7 U        | 1.7 U        |
| 4,4'-DDE  |          | 68 J    | 119 %   | 101 %   | 120 J   | 1.7 U        | 1.7 U        |
| Dieldrin  |          | 210 U   | 112 %   | 96 %    | 150 U   | 1.7 U        | 1.7 U        |
| Endrin  |          | 210 U   | 120 %   | 104 %   | 150 U   | 1.7 U        | 1.7 U        |
| 4,4'-DDD  |          | 51 J    | 126 * % | 108 %   | 150 U   | 1.7 U        | 1.7 U        |
| Endosulfan II                                     |          | 210 U   | 62 %    | 64 %    | 150 U   | 1.7 U        | 1.7 U        |
| 4,4'-DDT  |          | 210 U   | 119 %   | 102 %   | 150 U   | 1.7 U        | 1.7 U        |
| Endrin aldehyde                                   |          | 210 U   | 12 * %  | 12 * %  | 150 U   | 1.7 U        | 1.7 U        |
| Endosulfan sulfate                                |          | 210 U   | 17 * %  | 24 * %  | 150 U   | 1.7 U        | 1.7 U        |
| Methoxychlor                                      |          | 210 U   | 86 %    | 82 %    | 150 U   | 1.7 U        | 1.7 U        |
| Endrin ketone                                     |          | 210 U   | 34 * %  | 40 * %  | 150 U   | 1.7 U        | 1.7 U        |
| Toxaphene   |          | 21000 U | 21000 U | 21000 U | 15000 U | 170 U        | 170 U        |

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
% = Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

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Lionville Laboratory, Inc.

Pesticides/PCB by GC, Special List

Report Date: 04/12/06 13:55

RFW Batch Number: 0602L288

Client: TNUHANFORD RC-047 K0218 Work Order: 11343606001 Page: 2

Cust ID: PBLKDU BS PBLKDU BS

|             |         |              |              |
|-------------|---------|--------------|--------------|
| Sample      | RFW#:   | 06LE0212-MB1 | 06LE0212-MB1 |
| Information | Matrix: | SOIL         | SOIL         |
|             | D.F.:   | 1.00         | 1.00         |
|             | Units:  | UG/KG        | UG/KG        |

|   |                      |     |     |     |   |
|---|----------------------|-----|-----|-----|---|
| Surrogate:  | Tetrachloro-m-xylene | 99  | %   | 88  | % |
|   | Decachlorobiphenyl   | 111 | %   | 90  | % |
| =====fl=====fl=====fl=====fl=====fl=====fl=====fl |                      |     |     |     |   |
| Alpha-BHC   |                      | 99  | %   | 100 | % |
| gamma-BHC (Lindane)                               |                      | 106 | %   | 98  | % |
| Beta-BHC  |                      | 100 | %   | 92  | % |
| Heptachlor  |                      | 110 | %   | 94  | % |
| Delta-BHC   |                      | 65  | %   | 92  | % |
| Aldrin  |                      | 115 | %   | 98  | % |
| Heptachlor epoxide                                |                      | 108 | %   | 95  | % |
| gamma-Chlordane                                   |                      | 109 | %   | 95  | % |
| Endosulfan I                                      |                      | 114 | %   | 96  | % |
| alpha-Chlordane                                   |                      | 110 | %   | 95  | % |
| 4,4'-DDE  |                      | 123 | * % | 95  | % |
| Dieldrin  |                      | 110 | %   | 98  | % |
| Endrin  |                      | 107 | %   | 104 | % |
| 4,4'-DDD  |                      | 119 | %   | 105 | % |
| Endosulfan II                                     |                      | 55  | %   | 94  | % |
| 4,4'-DDT  |                      | 118 | %   | 88  | % |
| Endrin aldehyde                                   |                      | 15  | * % | 83  | % |
| Endosulfan sulfate                                |                      | 12  | * % | 94  | % |
| Methoxychlor                                      |                      | 70  | %   | 113 | % |
| Endrin ketone                                     |                      | 30  | * % | 94  | % |
| Toxaphene   |                      | 170 | U   | 170 | U |

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

200000000





Lionville Laboratory, Inc.  
PCB ANALYTICAL DATA PACKAGE FOR  
TNU-HANFORD RC-047 *K0218*

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID | LVL #   | MTX | PREP #   | COLLECTION | EXTR/PREP | ANALYSIS |
|-----------|---------|-----|----------|------------|-----------|----------|
| J117R6    | 001     | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| J117R6    | 001 MS  | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| J117R6    | 001 MSD | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| J117R7    | 002     | SO  | 06LE0212 | 02/08/06   | 03/20/06  | 03/27/06 |
| LAB QC:   |         |     |          |            |           |          |
| PBLKDU    | MB1     | S   | 06LE0212 | N/A        | 03/20/06  | 03/27/06 |
| PBLKDU    | MB1 BS  | S   | 06LE0212 | N/A        | 03/20/06  | 03/27/06 |

*Handwritten signature/initials and date 4/15/06*

00000001



Case Narrative

Client: TNU-HANFORD RC-047  
LVL #: 0602L288  
SDG/SAF # *K0218* /RC-047

W.O. #: 11343-606-001-9999-00  
Date Received: 02-16-2006

PCB

Solid (2) solid samples were collected on 02-08-2006.

The samples and their associated QC samples were extracted on 03-20-2006 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 03-27-2006. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

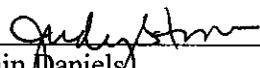
The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted outside the required holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
3. The samples and their associated QC samples received Florisil, Silica Gel, Copper-Sulfur, and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3620B, 3630C, 3660A and 3665A respectively.
4. The method blank was below the reporting limits for all target compounds.
5. Two (2) of twelve (12) surrogate recoveries were outside acceptance criteria. However, the surrogate recovery criteria were met (i.e., no more than one outlier per sample).
6. The blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The initial calibrations associated with this data set were within acceptance criteria.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 7 pages.



9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
11. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

4/6/06  
Date

son:\r\group\data\pest\thu hanford\0602-288s.pcb

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 06EX005

Initiator: M. Taylor Batch: 0602L288 Parameter: 608/PCB  
 Date: 4/4/06 Samples: 001, 002 Matrix: Fish Composite  
 Client: TW Method: SW846/MCAWW/CLPI Prep Batch: 06LE0212

**1. Reason for SDR**

a. COC Discrepancy  Tech Profile Error  Client Request  Sampler Error on C-O-C  
 Transcription Error  Wrong Test Code  Other \_\_\_\_\_

**b. General Discrepancy**

Missing Sample/Extract  Container Broken  Wrong Sample Pulled  Label ID's Illegible  
 Hold Time Exceeded  Insufficient Sample  Preservation Wrong  Received Past Hold  
 Improper Bottle Type  Not Amenable to Analysis

Note \*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

**c. Problem (Include all relevant specific results; attach data if necessary)**

*Sample EXTRACTED out of Hold, ANALYSIS per client order  
 metal, Pest, PCB, then 625*

**2. Known or Probable Causes(s)**

**3. Discussion and Proposed Action**

Other Description: \_\_\_\_\_

- Re-log
- Entire Batch
- Following Samples: \_\_\_\_\_
- Re-leach
- Re-extract
- Re-digest
- Revise EDD
- Change Test Code to \_\_\_\_\_
- Place On/Take Off Hold (circle)

*Narrate*

*[Signature]*

**4. Project Manager Instructions...signature/date:**

- Concur with Proposed Action
- Disagree with Proposed Action; See Instruction
- Include in Case Narrative
- Client Contacted:  
Date/Person \_\_\_\_\_
- Add
- Cancel

*[Signature]* 4/4/06

**5. Final Action...signature/date:**

Other Explanation: \_\_\_\_\_

- Verified re-[log][leach][extract][digest][analysis] (circle)
- Included in Case Narrative
- Hard Copy COC Revised
- Electronic COC Revised
- EDD Corrections Completed

*[Signature]*

**When Final Action has been recorded, forward original to QA Specialist for distribution and filing.**

| Route                               | Distribution of Completed SDR  | Route                    | Distribution of Completed SDR |
|-------------------------------------|--------------------------------|--------------------------|-------------------------------|
| <input checked="" type="checkbox"/> | Initiator                      | <input type="checkbox"/> | Metals: Beegle                |
| <input checked="" type="checkbox"/> | Lab General Manager: M. Taylor | <input type="checkbox"/> | Inorganic: Perrone            |
| <input checked="" type="checkbox"/> | Project Mgr: Stone/Johnson     | <input type="checkbox"/> | GC/LC: Kiger                  |
| <input type="checkbox"/>            | Data Management: Stilwell      | <input type="checkbox"/> | MS: Rychlak/Daley             |
| <input type="checkbox"/>            | Sample Prep: Beegle/Kiger      | <input type="checkbox"/> | Log-in: Perry                 |
|                                     |                                | <input type="checkbox"/> | Admin: _____                  |
|                                     |                                | <input type="checkbox"/> | Other: _____                  |



## GLOSSARY OF DATA

### DATA QUALIFIERS

- U** = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J** = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I** = Interference.
- .I** = Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

### ABBREVIATIONS

- BS** = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD** = Indicates blank spike duplicate.
- MS** = Indicates matrix spike.
- MSD** = Indicates matrix spike duplicate.
- DL** = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- NA** = Not Applicable.
- DF** = Dilution Factor.
- NR** = Not Required.
- NS** = Not Spiked.
- SP** = Indicates Spiked Compound.
- P** = This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.
- NPM** = No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 04/04/06 13:31

RFW Batch Number: 0602L288

Client: TNU-HANFORD RC-047

Work Order: 11343606001 Page: 1

|              | Cust ID:             | J117R6       | J117R6       | J117R6       | J117R7       | PBLKDU       | PBLKDU BS    |
|--------------|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Sample       | RFW#:                | 001          | 001 MS       | 001 MSD      | 002          | 06LE0212-MB1 | 06LE0212-MB1 |
| Information  | Matrix:              | SOLID        | SOLID        | SOLID        | SOLID        | SOIL         | SOIL         |
|              | D.F.:                | 1.00         | 1.00         | 1.00         | 1.00         | 1.00         | 1.00         |
|              | Units:               | UG/KG        | UG/KG        | UG/KG        | UG/KG        | UG/KG        | UG/KG        |
| Surrogate:   | Tetrachloro-m-xylene | 105 %        | 126 * %      | 12 * %       | 102 %        | 104 %        | 98 %         |
|              | Decachlorobiphenyl   | 103 %        | 122 %        | 101 %        | 108 %        | 103 %        | 96 %         |
|              |                      | =====fl===== | =====fl===== | =====fl===== | =====fl===== | =====fl===== | =====fl===== |
| Aroclor-1016 |                      | 1700 U       | 110 %        | 98 %         | 1200 U       | 13 U         | 99 %         |
| Aroclor-1221 |                      | 1700 U       | 1700 U       | 1700 U       | 1200 U       | 13 U         | 13 U         |
| Aroclor-1232 |                      | 1700 U       | 1700 U       | 1700 U       | 1200 U       | 13 U         | 13 U         |
| Aroclor-1242 |                      | 1700 U       | 1700 U       | 1700 U       | 1200 U       | 13 U         | 13 U         |
| Aroclor-1248 |                      | 1700 U       | 1700 U       | 1700 U       | 1200 U       | 13 U         | 13 U         |
| Aroclor-1254 |                      | 1700 U       | 1700 U       | 1700 U       | 1200 U       | 13 U         | 13 U         |
| Aroclor-1260 |                      | 1700 U       | 117 %        | 101 %        | 1200 U       | 13 U         | 99 %         |

*Handwritten signature/initials*  
4/5/06

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

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Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNU-HANFORD RC-047 *K0218*

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID /ANALYSIS  | LVL #   | MTX | PREP #  | COLLECTION | EXTR/PREP | ANALYSIS |
|----------------------|---------|-----|---------|------------|-----------|----------|
| J117R6               |         |     |         |            |           |          |
| SILVER, TOTAL        | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SILVER, TOTAL        | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SILVER, TOTAL        | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ALUMINUM, TOTAL      | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ALUMINUM, TOTAL      | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ALUMINUM, TOTAL      | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ARSENIC, TOTAL       | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ARSENIC, TOTAL       | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ARSENIC, TOTAL       | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BORON, TOTAL         | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BORON, TOTAL         | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BORON, TOTAL         | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BARIUM, TOTAL        | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BARIUM, TOTAL        | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BARIUM, TOTAL        | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BERYLLIUM, TOTAL     | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BERYLLIUM, TOTAL     | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BERYLLIUM, TOTAL     | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BISMUTH, TOTAL       | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BISMUTH, TOTAL REP   | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| BISMUTH, TOTAL SPIKE | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CALCIUM, TOTAL       | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CALCIUM, TOTAL       | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CALCIUM, TOTAL       | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CADMIUM, TOTAL       | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CADMIUM, TOTAL       | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CADMIUM, TOTAL       | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| COBALT, TOTAL        | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| COBALT, TOTAL        | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| COBALT, TOTAL        | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CHROMIUM, TOTAL      | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CHROMIUM, TOTAL      | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CHROMIUM, TOTAL      | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| COPPER, TOTAL        | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| COPPER, TOTAL        | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |

Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNU-HANFORD RC-047

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID /ANALYSIS | LVL #   | MTX | PREP #  | COLLECTION | EXTR/PREP | ANALYSIS |
|---------------------|---------|-----|---------|------------|-----------|----------|
| COPPER, TOTAL       | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| IRON, TOTAL         | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| IRON, TOTAL         | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| IRON, TOTAL         | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MERCURY, TOTAL      | 001     | SO  | 06C0033 | 02/08/06   | 02/27/06  | 02/28/06 |
| MERCURY, TOTAL      | 001 REP | SO  | 06C0033 | 02/08/06   | 02/27/06  | 02/28/06 |
| MERCURY, TOTAL      | 001 MS  | SO  | 06C0033 | 02/08/06   | 02/27/06  | 02/28/06 |
| POTASSIUM, TOTAL    | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| POTASSIUM, TOTAL    | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| POTASSIUM, TOTAL    | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| LITHIUM, TOTAL      | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| LITHIUM, TOTAL      | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| LITHIUM, TOTAL      | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MAGNESIUM, TOTAL    | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MAGNESIUM, TOTAL    | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MAGNESIUM, TOTAL    | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MANGANESE, TOTAL    | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MANGANESE, TOTAL    | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MANGANESE, TOTAL    | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MOLYBDENUM, TOTAL   | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MOLYBDENUM, TOTAL   | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MOLYBDENUM, TOTAL   | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SODIUM, TOTAL       | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| SODIUM, TOTAL       | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| SODIUM, TOTAL       | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| NICKEL, TOTAL       | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| NICKEL, TOTAL       | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| NICKEL, TOTAL       | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| PHOSPHORUS, TOTAL   | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| PHOSPHORUS, TOTAL   | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| PHOSPHORUS, TOTAL   | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| LEAD, TOTAL         | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| LEAD, TOTAL         | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| LEAD, TOTAL         | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ANTIMONY, TOTAL     | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ANTIMONY, TOTAL     | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ANTIMONY, TOTAL     | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SELENIUM, TOTAL     | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |

Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNU-HANFORD RC-047

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID /ANALYSIS | LVL #   | MTX | PREP #  | COLLECTION | EXTR/PREP | ANALYSIS |
|---------------------|---------|-----|---------|------------|-----------|----------|
| SELENIUM, TOTAL     | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SELENIUM, TOTAL     | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SILICON, TOTAL      | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SILICON, TOTAL      | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SILICON, TOTAL      | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TIN, TOTAL          | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TIN, TOTAL          | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TIN, TOTAL          | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TITANIUM, TOTAL     | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TITANIUM, TOTAL     | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TITANIUM, TOTAL     | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| THALLIUM, TOTAL     | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| THALLIUM, TOTAL     | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| THALLIUM, TOTAL     | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| URANIUM, TOTAL      | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| URANIUM, TOTAL      | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| URANIUM, TOTAL      | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| VANADIUM, TOTAL     | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| VANADIUM, TOTAL     | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| VANADIUM, TOTAL     | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZINC, TOTAL         | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZINC, TOTAL         | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZINC, TOTAL         | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZIRCONIUM, TOTAL    | 001     | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZIRCONIUM, TOTAL    | 001 REP | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZIRCONIUM, TOTAL    | 001 MS  | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |

J117R7

|                  |     |    |         |          |          |          |
|------------------|-----|----|---------|----------|----------|----------|
| SILVER, TOTAL    | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| ALUMINUM, TOTAL  | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| ARSENIC, TOTAL   | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| BORON, TOTAL     | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| BARIUM, TOTAL    | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| BERYLLIUM, TOTAL | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| BISMUTH, TOTAL   | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| CALCIUM, TOTAL   | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |
| CADMIUM, TOTAL   | 002 | SO | 06L0122 | 02/08/06 | 02/23/06 | 03/03/06 |

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Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNU-HANFORD RC-047

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID /ANALYSIS | LVL # | MTX | PREP #  | COLLECTION | EXTR/PREP | ANALYSIS |
|---------------------|-------|-----|---------|------------|-----------|----------|
| COBALT, TOTAL       | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| CHROMIUM, TOTAL     | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| COPPER, TOTAL       | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| IRON, TOTAL         | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MERCURY, TOTAL      | 002   | SO  | 06C0033 | 02/08/06   | 02/27/06  | 02/28/06 |
| POTASSIUM, TOTAL    | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| LITHIUM, TOTAL      | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MAGNESIUM, TOTAL    | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MANGANESE, TOTAL    | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| MOLYBDENUM, TOTAL   | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SODIUM, TOTAL       | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| NICKEL, TOTAL       | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| PHOSPHORUS, TOTAL   | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/13/06 |
| LEAD, TOTAL         | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ANTIMONY, TOTAL     | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SELENIUM, TOTAL     | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| SILICON, TOTAL      | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TIN, TOTAL          | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| TITANIUM, TOTAL     | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| THALLIUM, TOTAL     | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| URANIUM, TOTAL      | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| VANADIUM, TOTAL     | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZINC, TOTAL         | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |
| ZIRCONIUM, TOTAL    | 002   | SO  | 06L0122 | 02/08/06   | 02/23/06  | 03/03/06 |

LAB QC:

|                      |        |   |         |     |          |          |
|----------------------|--------|---|---------|-----|----------|----------|
| SILVER LABORATORY    | LC1 BS | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| SILVER, TOTAL        | MB1    | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| ALUMINUM LABORATORY  | LC1 BS | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| ALUMINUM, TOTAL      | MB1    | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| ARSENIC LABORATORY   | LC1 BS | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| ARSENIC, TOTAL       | MB1    | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| BORON LABORATORY     | LC1 BS | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| BORON, TOTAL         | MB1    | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| BARIUM LABORATORY    | LC1 BS | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| BARIUM, TOTAL        | MB1    | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |
| BERYLLIUM LABORATORY | LC1 BS | S | 06L0122 | N/A | 02/23/06 | 03/03/06 |

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Lionville Laboratory, Inc.  
 INORGANIC ANALYTICAL DATA PACKAGE FOR  
 TNU-HANFORD RC-047

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID /ANALYSIS  | LVL #  | MTX | PREP #  | COLLECTION | EXTR/PREP | ANALYSIS |
|----------------------|--------|-----|---------|------------|-----------|----------|
| BERYLLIUM, TOTAL     | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| BISMUTH, LCS         | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| BISMUTH, TOTAL       | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| CALCIUM LABORATORY   | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| CALCIUM, TOTAL       | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| CADMIUM LABORATORY   | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| CADMIUM, TOTAL       | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| COBALT LABORATORY    | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| COBALT, TOTAL        | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| CHROMIUM LABORATORY  | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| CHROMIUM, TOTAL      | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| COPPER LABORATORY    | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| COPPER, TOTAL        | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| IRON LABORATORY      | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| IRON, TOTAL          | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MERCURY LABORATORY   | LC1 BS | S   | 06C0033 | N/A        | 02/27/06  | 02/28/06 |
| MERCURY, TOTAL       | MB1    | S   | 06C0033 | N/A        | 02/27/06  | 02/28/06 |
| POTASSIUM LABORATORY | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/13/06 |
| POTASSIUM, TOTAL     | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/13/06 |
| LITHIUM LABORATORY   | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| LITHIUM, TOTAL       | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MAGNESIUM LABORATORY | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MAGNESIUM, TOTAL     | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MANGANESE LABORATORY | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MANGANESE, TOTAL     | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MOLYBDENUM LABORATOR | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| MOLYBDENUM, TOTAL    | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| SODIUM LABORATORY    | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/13/06 |
| SODIUM, TOTAL        | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/13/06 |
| NICKEL LABORATORY    | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| NICKEL, TOTAL        | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| PHOSPHORUS LCS       | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/13/06 |
| PHOSPHORUS, TOTAL    | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/13/06 |
| LEAD LABORATORY      | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| LEAD, TOTAL          | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| ANTIMONY LABORATORY  | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| ANTIMONY, TOTAL      | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| SELENIUM LABORATORY  | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNU-HANFORD RC-047

DATE RECEIVED: 02/16/06

LVL LOT # :0602L288

| CLIENT ID /ANALYSIS  | LVL #  | MTX | PREP #  | COLLECTION | EXTR/PREP | ANALYSIS |
|----------------------|--------|-----|---------|------------|-----------|----------|
| SELENIUM, TOTAL      | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| SILICON LABORATORY   | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| SILICON, TOTAL       | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| TIN LABORATORY       | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| TIN, TOTAL           | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| TITANIUM LABORATORY  | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| TITANIUM, TOTAL      | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| THALLIUM LABORATORY  | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| THALLIUM, TOTAL      | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| URANIUM LABORATORY   | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| URANIUM, TOTAL       | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| VANADIUM LABORATORY  | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| VANADIUM, TOTAL      | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| ZINC LABORATORY      | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| ZINC, TOTAL          | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| ZIRCONIUM LABORATORY | LC1 BS | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |
| ZIRCONIUM, TOTAL     | MB1    | S   | 06L0122 | N/A        | 02/23/06  | 03/03/06 |

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**Analytical Report**

**Client:** TNU-HANFORD RC-047

**W.O.#:** 11343-606-001-9999-00

**LVL#:** 0602L288

**Date Received:** 02-16-06

**SDG/SAF#:** K0218/B01-103

*e osj 3/29/06*

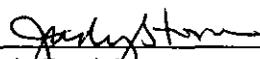
**METALS CASE NARRATIVE**

1. This narrative covers the analyses of 2 solid samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. The samples were rerun for Potassium, Sodium, and Phosphorous due to sample matrix.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits with the exception of Silicon at 64.2%. Refer to the Inorganics Laboratory Control Standards Report. Associated sample results may be biased low.
10. The matrix spike (MS) recoveries for 4 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of **21** pages.

| <u>Sample ID</u> | <u>Element</u> | <u>PDS</u><br><u>Concentration (ppb)</u> | <u>PDS</u><br><u>% Recovery</u> |
|------------------|----------------|--|---------------------------------|
| J117R6           | Calcium        | 20,000                                   | 101.4                           |
|                  | Phosphorous    | 2,000                                    | 104.5                           |
|                  | Silicon        | 1,000                                    | 101.9                           |
|                  | Zirconium      | 100                                      | 102.1                           |

12. The duplicate analyses for 11 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
15. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, 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.

  
 \_\_\_\_\_  
 Iain Daniels  
 Laboratory Manager  
 Lionville Laboratory Incorporated

3/29/06  
 \_\_\_\_\_  
 Date

jjw/m02-288



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# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Lot#: 0607L288

Leaching Procedure:   1310  1311  1312  Other:\_\_\_\_\_

CLP Metals    Digestion and    Analysis Methods:   ILM03.0  ILM04.0  

Metals Digestion Methods:   3005A  3010A  3015  3020A  X3050B  3051  200.7  SS17    
  Other:\_\_\_\_\_  

## Metals Analysis Methods

|             | SW846                      | EPA                | STD MTD            | EPA OSWR | USATHAMA |
|-------------|----------------------------|--------------------|--------------------|----------|----------|
| Aluminum    | X 6010B                    | 200.7              |                    |          | 99       |
| Antimony    | X 6010B 7041 <sup>s</sup>  | 200.7              | 204.2              |          | 99       |
| Arsenic     | X 6010B 7060A <sup>s</sup> | 200.7              | 206.2              | 3113B    | 99       |
| Barium      | X 6010B                    | 200.7              |                    |          | 99       |
| Beryllium   | X 6010B                    | 200.7              |                    |          | 99       |
| Bismuth     | X 6010B <sup>1</sup>       | 200.7 <sup>1</sup> |                    | 1620     | 99       |
| Boron       | X 6010B                    | 200.7              |                    |          | 99       |
| Cadmium     | X 6010B 7131A <sup>s</sup> | 200.7              | 213.2              |          | 99       |
| Calcium     | X 6010B                    | 200.7              |                    |          | 99       |
| Chromium    | X 6010B 7191 <sup>s</sup>  | 200.7              | 218.2              |          | SS17     |
| Cobalt      | X 6010B                    | 200.7              |                    |          | 99       |
| Copper      | X 6010B 7211 <sup>s</sup>  | 200.7              | 220.2              |          | 99       |
| Iron        | X 6010B                    | 200.7              |                    |          | 99       |
| Lead        | X 6010B 7421 <sup>s</sup>  | 200.7              | 239.2              | 3113B    | 99       |
| Lithium     | X 6010B 7430 <sup>s</sup>  | 200.7              |                    | 1620     | 99       |
| Magnesium   | X 6010B                    | 200.7              |                    |          | 99       |
| Manganese   | X 6010B                    | 200.7              |                    |          | 99       |
| Mercury     | 7470A X 7471A <sup>s</sup> | 245.1 <sup>2</sup> | 245.5 <sup>2</sup> |          | 99       |
| Molybdenum  | X 6010B                    | 200.7              |                    |          | 99       |
| Nickel      | X 6010B                    | 200.7              |                    |          | 99       |
| Potassium   | X 6010B 7610 <sup>s</sup>  | 200.7              | 258.1 <sup>s</sup> |          | 99       |
| Rare Earths | 6010B <sup>1</sup>         | 200.7 <sup>1</sup> |                    | 1620     | 99       |
| Selenium    | X 6010B 7740 <sup>s</sup>  | 200.7              | 270.2              | 3113B    | 99       |
| Silicon     | X 6010B <sup>1</sup>       | 200.7              |                    | 1620     | 99       |
| Silica      | 6010B                      | 200.7              |                    | 1620     | 99       |
| Silver      | X 6010B 7761 <sup>s</sup>  | 200.7              | 272.2              |          | 99       |
| Sodium      | X 6010B 7770 <sup>s</sup>  | 200.7              | 273.1 <sup>s</sup> |          | 99       |
| Strontium   | 6010B                      | 200.7              |                    |          | 99       |
| Thallium    | X 6010B 7841 <sup>s</sup>  | 200.7              | 279.2              | 200.9    | 99       |
| Tin         | X 6010B                    | 200.7              |                    |          | 99       |
| Titanium    | X 6010B                    | 200.7              |                    |          | 99       |
| Uranium     | X 6010B <sup>1</sup>       | 200.7 <sup>1</sup> |                    | 1620     | 99       |
| Vanadium    | X 6010B                    | 200.7              |                    |          | 99       |
| Zinc        | X 6010B                    | 200.7              |                    |          | 99       |
| Zirconium   | X 6010B <sup>1</sup>       | 200.7 <sup>1</sup> |                    | 1620     | 99       |

Other: Phosphorous

Method: 6010B

# METHOD REFERENCES AND DATA QUALIFIERS

## DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

## ABBREVIATIONS

- MB = Method or Preparation Blank.  
MS = Matrix Spike.  
MSD = Matrix Spike Duplicate.  
REP = Sample Replicate  
LCS = Laboratory Control Sample.  
NC = Not calculated.

## ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, approximately 0.3 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Flame AA.
4. Graphite Furnace AA.

L-W1-033/N-04/98

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/28/06

CLIENT: TNU-HANFORD RC-047

LVL LOT #: 0602L288

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE           | RESULT | UNITS   | REPORTING<br>LIMIT | DILUTION<br>FACTOR |
|--------|---------|-------------------|--------|---------|--------------------|--------------------|
| -001   | J117R6  | Silver, Total     | 0.13   | u MG/KG | 0.13               | 1.0                |
|        |         | Aluminum, Total   | 13.8   | MG/KG   | 1.7                | 1.0                |
|        |         | Arsenic, Total    | 0.80   | MG/KG   | 0.31               | 1.0                |
|        |         | Boron, Total      | 0.25   | u MG/KG | 0.25               | 1.0                |
|        |         | Barium, Total     | 2.8    | MG/KG   | 0.02               | 1.0                |
|        |         | Beryllium, Total  | 0.03   | MG/KG   | 0.009              | 1.0                |
|        |         | Bismuth, Total    | 0.55   | u MG/KG | 0.55               | 1.0                |
|        |         | Calcium, Total    | 7880   | MG/KG   | 1.1                | 1.0                |
|        |         | Cadmium, Total    | 0.06   | u MG/KG | 0.06               | 1.0                |
|        |         | Cobalt, Total     | 0.11   | u MG/KG | 0.11               | 1.0                |
|        |         | Chromium, Total   | 0.60   | MG/KG   | 0.15               | 1.0                |
|        |         | Copper, Total     | 2.3    | MG/KG   | 0.11               | 1.0                |
|        |         | Iron, Total       | 30.9   | MG/KG   | 2.9                | 1.0                |
|        |         | Mercury, Total    | 0.03   | MG/KG   | 0.02               | 1.0                |
|        |         | Potassium, Total  | 2270   | MG/KG   | 70.1               | 1.0                |
|        |         | Lithium, Total    | 0.11   | MG/KG   | 0.03               | 1.0                |
|        |         | Magnesium, Total  | 292    | MG/KG   | 1.2                | 1.0                |
|        |         | Manganese, Total  | 2.9    | MG/KG   | 0.02               | 1.0                |
|        |         | Molybdenum, Total | 0.33   | MG/KG   | 0.12               | 1.0                |
|        |         | Sodium, Total     | 1100   | MG/KG   | 2.3                | 1.0                |
|        |         | Nickel, Total     | 0.46   | MG/KG   | 0.12               | 1.0                |
|        |         | Phosphorus, Total | 4980   | MG/KG   | 0.82               | 1.0                |
|        |         | Lead, Total       | 0.28   | u MG/KG | 0.28               | 1.0                |
|        |         | Antimony, Total   | 0.36   | u MG/KG | 0.36               | 1.0                |
|        |         | Selenium, Total   | 1.1    | MG/KG   | 0.33               | 1.0                |
|        |         | Silicon, Total    | 21.5   | MG/KG   | 0.75               | 1.0                |
|        |         | Tin, Total        | 0.94   | MG/KG   | 0.47               | 1.0                |
|        |         | Titanium, Total   | 0.89   | MG/KG   | 0.04               | 1.0                |
|        |         | Thallium, Total   | 0.58   | u MG/KG | 0.58               | 1.0                |
|        |         | Uranium, Total    | 1.9    | u MG/KG | 1.9                | 1.0                |
|        |         | Vanadium, Total   | 0.09   | MG/KG   | 0.08               | 1.0                |
|        |         | Zinc, Total       | 31.0   | MG/KG   | 0.05               | 1.0                |
|        |         | Zirconium, Total  | 0.49   | u MG/KG | 0.49               | 1.0                |

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/28/06

CLIENT: TNU-HANFORD RC-047

LVL LOT #: 0602L288

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE           | RESULT | UNITS   | REPORTING<br>LIMIT | DILUTION<br>FACTOR |
|--------|---------|-------------------|--------|---------|--------------------|--------------------|
| -002   | J117R7  | Silver, Total     | 0.13   | u MG/KG | 0.13               | 1.0                |
|        |         | Aluminum, Total   | 11.3   | MG/KG   | 1.7                | 1.0                |
|        |         | Arsenic, Total    | 0.65   | MG/KG   | 0.31               | 1.0                |
|        |         | Boron, Total      | 0.25   | u MG/KG | 0.25               | 1.0                |
|        |         | Barium, Total     | 2.7    | MG/KG   | 0.02               | 1.0                |
|        |         | Beryllium, Total  | 0.02   | MG/KG   | 0.009              | 1.0                |
|        |         | Bismuth, Total    | 0.55   | u MG/KG | 0.55               | 1.0                |
|        |         | Calcium, Total    | 8010   | MG/KG   | 1.1                | 1.0                |
|        |         | Cadmium, Total    | 0.06   | u MG/KG | 0.06               | 1.0                |
|        |         | Cobalt, Total     | 0.11   | u MG/KG | 0.11               | 1.0                |
|        |         | Chromium, Total   | 0.33   | MG/KG   | 0.15               | 1.0                |
|        |         | Copper, Total     | 2.2    | MG/KG   | 0.11               | 1.0                |
|        |         | Iron, Total       | 25.9   | MG/KG   | 2.9                | 1.0                |
|        |         | Mercury, Total    | 0.02   | MG/KG   | 0.02               | 1.0                |
|        |         | Potassium, Total  | 2200   | MG/KG   | 70.1               | 1.0                |
|        |         | Lithium, Total    | 0.10   | MG/KG   | 0.03               | 1.0                |
|        |         | Magnesium, Total  | 244    | MG/KG   | 1.2                | 1.0                |
|        |         | Manganese, Total  | 2.8    | MG/KG   | 0.02               | 1.0                |
|        |         | Molybdenum, Total | 0.15   | MG/KG   | 0.12               | 1.0                |
|        |         | Sodium, Total     | 1070   | MG/KG   | 2.3                | 1.0                |
|        |         | Nickel, Total     | 0.46   | MG/KG   | 0.12               | 1.0                |
|        |         | Phosphorus, Total | 5020   | MG/KG   | 0.82               | 1.0                |
|        |         | Lead, Total       | 0.28   | MG/KG   | 0.28               | 1.0                |
|        |         | Antimony, Total   | 0.36   | u MG/KG | 0.36               | 1.0                |
|        |         | Selenium, Total   | 0.94   | MG/KG   | 0.33               | 1.0                |
|        |         | Silicon, Total    | 21.2   | MG/KG   | 0.75               | 1.0                |
|        |         | Tin, Total        | 1.0    | MG/KG   | 0.47               | 1.0                |
|        |         | Titanium, Total   | 1.3    | MG/KG   | 0.04               | 1.0                |
|        |         | Thallium, Total   | 0.58   | u MG/KG | 0.58               | 1.0                |
|        |         | Uranium, Total    | 1.9    | u MG/KG | 1.9                | 1.0                |
|        |         | Vanadium, Total   | 0.08   | u MG/KG | 0.08               | 1.0                |
|        |         | Zinc, Total       | 30.5   | MG/KG   | 0.05               | 1.0                |
|        |         | Zirconium, Total  | 0.49   | u MG/KG | 0.49               | 1.0                |

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/28/06

CLIENT: TNU-HANFORD RC-047

LVL LOT #: 0602L288

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID     | ANALYTE           | RESULT | UNITS   | REPORTING<br>LIMIT | DILUTION<br>FACTOR |
|--------|-------------|-------------------|--------|---------|--------------------|--------------------|
| BLANK1 | 06L0122-MB1 | Silver, Total     | 0.14   | u MG/KG | 0.14               | 1.0                |
|        |             | Aluminum, Total   | 1.8    | u MG/KG | 1.8                | 1.0                |
|        |             | Arsenic, Total    | 0.34   | u MG/KG | 0.34               | 1.0                |
|        |             | Boron, Total      | 0.27   | u MG/KG | 0.27               | 1.0                |
|        |             | Barium, Total     | 0.02   | u MG/KG | 0.02               | 1.0                |
|        |             | Beryllium, Total  | 0.01   | u MG/KG | 0.01               | 1.0                |
|        |             | Bismuth, Total    | 0.61   | u MG/KG | 0.61               | 1.0                |
|        |             | Calcium, Total    | 2.2    | u MG/KG | 1.2                | 1.0                |
|        |             | Cadmium, Total    | 0.07   | u MG/KG | 0.07               | 1.0                |
|        |             | Cobalt, Total     | 0.12   | u MG/KG | 0.12               | 1.0                |
|        |             | Chromium, Total   | 0.16   | u MG/KG | 0.16               | 1.0                |
|        |             | Copper, Total     | 0.12   | u MG/KG | 0.12               | 1.0                |
|        |             | Iron, Total       | 3.2    | u MG/KG | 3.2                | 1.0                |
|        |             | Potassium, Total  | 77.1   | u MG/KG | 77.1               | 1.0                |
|        |             | Lithium, Total    | 0.03   | u MG/KG | 0.03               | 1.0                |
|        |             | Magnesium, Total  | 1.4    | u MG/KG | 1.4                | 1.0                |
|        |             | Manganese, Total  | 0.02   | u MG/KG | 0.02               | 1.0                |
|        |             | Molybdenum, Total | 0.13   | u MG/KG | 0.13               | 1.0                |
|        |             | Sodium, Total     | 3.9    | u MG/KG | 2.5                | 1.0                |
|        |             | Nickel, Total     | 0.13   | u MG/KG | 0.13               | 1.0                |
|        |             | Phosphorus, Total | 0.90   | u MG/KG | 0.90               | 1.0                |
|        |             | Lead, Total       | 0.31   | u MG/KG | 0.31               | 1.0                |
|        |             | Antimony, Total   | 0.40   | u MG/KG | 0.40               | 1.0                |
|        |             | Selenium, Total   | 0.36   | u MG/KG | 0.36               | 1.0                |
|        |             | Silicon, Total    | 0.82   | u MG/KG | 0.82               | 1.0                |
|        |             | Tin, Total        | 0.70   | u MG/KG | 0.52               | 1.0                |
|        |             | Titanium, Total   | 0.05   | u MG/KG | 0.04               | 1.0                |
|        |             | Thallium, Total   | 0.64   | u MG/KG | 0.64               | 1.0                |
|        |             | Uranium, Total    | 2.1    | u MG/KG | 2.1                | 1.0                |
|        |             | Vanadium, Total   | 0.09   | u MG/KG | 0.09               | 1.0                |
|        |             | Zinc, Total       | 0.05   | u MG/KG | 0.05               | 1.0                |
|        |             | Zirconium, Total  | 0.54   | u MG/KG | 0.54               | 1.0                |
| BLANK1 | 06C0033-MB1 | Mercury, Total    | 0.02   | u MG/KG | 0.02               | 1.0                |

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/28/06

CLIENT: TNU-MANFORD RC-047

LVL LOT #: 0602L288

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID | ANALYTE           | SPIKED<br>SAMPLE | INITIAL<br>RESULT | SPIKED<br>AMOUNT | %RECOV | DILUTION<br>FACTOR (SPK) |
|--------|---------|-------------------|------------------|-------------------|------------------|--------|--------------------------|
| -001   | J117R6  | Silver, Total     | 4.3              | 0.13u             | 4.5              | 95.6   | 1.0                      |
|        |         | Aluminum, Total   | 186              | 13.8              | 180              | 95.4   | 1.0                      |
|        |         | Arsenic, Total    | 164              | 0.80              | 180              | 90.4   | 1.0                      |
|        |         | Boron, Total      | 79.4             | 0.25u             | 90.1             | 88.1   | 1.0                      |
|        |         | Barium, Total     | 170              | 2.8               | 180              | 93.0   | 1.0                      |
|        |         | Beryllium, Total  | 4.3              | 0.03              | 4.5              | 95.0   | 1.0                      |
|        |         | Bismuth, Total    | 422              | 0.55u             | 450              | 93.7   | 1.0                      |
|        |         | Calcium, Total    | 9130             | 7880              | 2250             | 55.8   | 1.0                      |
|        |         | Cadmium, Total    | 4.1              | 0.06u             | 4.5              | 91.1   | 1.0                      |
|        |         | Cobalt, Total     | 41.6             | 0.11u             | 45.0             | 92.4   | 1.0                      |
|        |         | Chromium, Total   | 17.5             | 0.60              | 18.0             | 93.9   | 1.0                      |
|        |         | Copper, Total     | 24.2             | 2.3               | 22.5             | 97.3   | 1.0                      |
|        |         | Iron, Total       | 120              | 30.9              | 90.1             | 98.4   | 1.0                      |
|        |         | Mercury, Total    | 0.19             | 0.03              | 0.15             | 102.6  | 1.0                      |
|        |         | Potassium, Total  | 4060             | 2270              | 2250             | 79.3   | 1.0                      |
|        |         | Lithium, Total    | 97.5             | 0.11              | 90.1             | 108.1  | 1.0                      |
|        |         | Magnesium, Total  | 2270             | 292               | 2250             | 87.8   | 1.0                      |
|        |         | Manganese, Total  | 45.9             | 2.9               | 45.0             | 95.6   | 1.0                      |
|        |         | Molybdenum, Total | 84.0             | 0.33              | 90.1             | 92.9   | 1.0                      |
|        |         | Sodium, Total     | 2970             | 1100              | 2250             | 83.2   | 1.0                      |
|        |         | Nickel, Total     | 41.4             | 0.46              | 45.0             | 91.0   | 1.0                      |
|        |         | Phosphorus, Total | 4850             | 4980              | 450              | -30. * | 1.0                      |
|        |         | Lead, Total       | 41.4             | 0.28u             | 45.0             | 92.0   | 1.0                      |
|        |         | Antimony, Total   | 40.4             | 0.36u             | 45.0             | 89.8   | 1.0                      |
|        |         | Selenium, Total   | 151              | 1.1               | 180              | 83.1   | 1.0                      |
|        |         | Silicon, Total    | 87.4             | 21.5              | 90.1             | 73.1   | 1.0                      |
|        |         | Tin, Total        | 75.8             | 0.94              | 90.1             | 83.1   | 1.0                      |
|        |         | Titanium, Total   | 83.5             | 0.89              | 90.1             | 91.7   | 1.0                      |
|        |         | Thallium, Total   | 165              | 0.58u             | 180              | 91.6   | 1.0                      |
|        |         | Uranium, Total    | 205              | 1.9 u             | 225              | 90.9   | 1.0                      |
|        |         | Vanadium, Total   | 42.5             | 0.09              | 45.0             | 94.2   | 1.0                      |
|        |         | Zinc, Total       | 72.2             | 31.0              | 45.0             | 91.6   | 1.0                      |
|        |         | Zirconium, Total  | 122              | 0.49u             | 450              | 27.0   | 1.0                      |

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/28/06

CLIENT: TNU-HANFORD RC-047

LVL LOT #: 0602L288

WORK ORDER: 11343-606-001-9999-00

| SAMPLE  | SITE ID | ANALYTE           | INITIAL |           |      | DILUTION |
|---------|---------|-------------------|---------|-----------|------|----------|
|         |         |                   | RESULT  | REPLICATE | RPD  |          |
| -001REP | J117R6  | Silver, Total     | 0.13u   | 0.13u     | NC   | 1.0      |
|         |         | Aluminum, Total   | 13.8    | 13.6      | 1.5  | 1.0      |
|         |         | Arsenic, Total    | 0.80    | 1.0       | 22.3 | 1.0      |
|         |         | Boron, Total      | 0.25u   | 0.25u     | NC   | 1.0      |
|         |         | Barium, Total     | 2.8     | 3.6       | 25.0 | 1.0      |
|         |         | Beryllium, Total  | 0.03    | 0.04      | 29.4 | 1.0      |
|         |         | Bismuth, Total    | 0.55u   | 0.55u     | NC   | 1.0      |
|         |         | Calcium, Total    | 7880    | 10200     | 25.6 | 1.0      |
|         |         | Cadmium, Total    | 0.06u   | 0.08      | NC   | 1.0      |
|         |         | Cobalt, Total     | 0.11u   | 0.11u     | NC   | 1.0      |
|         |         | Chromium, Total   | 0.60    | 0.54      | 10   | 1.0      |
|         |         | Copper, Total     | 2.3     | 2.8       | 19.6 | 1.0      |
|         |         | Iron, Total       | 30.9    | 38.9      | 22.9 | 1.0      |
|         |         | Mercury, Total    | 0.03    | 0.03      | 6.5  | 1.0      |
|         |         | Potassium, Total  | 2270    | 2320      | 2.1  | 1.0      |
|         |         | Lithium, Total    | 0.11    | 0.09      | 22.0 | 1.0      |
|         |         | Magnesium, Total  | 292     | 307       | 4.9  | 1.0      |
|         |         | Manganese, Total  | 2.9     | 4.0       | 31.9 | 1.0      |
|         |         | Molybdenum, Total | 0.33    | 0.17      | 63.6 | 1.0      |
|         |         | Sodium, Total     | 1100    | 1120      | 1.6  | 1.0      |
|         |         | Nickel, Total     | 0.46    | 0.45      | 3.2  | 1.0      |
|         |         | Phosphorus, Total | 4980    | 5960      | 17.9 | 1.0      |
|         |         | Lead, Total       | 0.28u   | 0.28u     | NC   | 1.0      |
|         |         | Antimony, Total   | 0.36u   | 0.36u     | NC   | 1.0      |
|         |         | Selenium, Total   | 1.1     | 0.90      | 19.7 | 1.0      |
|         |         | Silicon, Total    | 21.5    | 26.2      | 19.7 | 1.0      |
|         |         | Tin, Total        | 0.94    | 0.94      | 0.29 | 1.0      |
|         |         | Titanium, Total   | 0.89    | 0.60      | 38.9 | 1.0      |
|         |         | Thallium, Total   | 0.58u   | 0.58u     | NC   | 1.0      |
|         |         | Uranium, Total    | 1.9 u   | 1.9 u     | NC   | 1.0      |
|         |         | Vanadium, Total   | 0.09    | 0.08u     | NC   | 1.0      |
|         |         | Zinc, Total       | 31.0    | 34.7      | 11.3 | 1.0      |
|         |         | Zirconium, Total  | 0.49u   | 0.49u     | NC   | 1.0      |

*200 correct entry  
NW 3/28/06*

*200 correct entry  
NW 3/28/06*

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/28/06

CLIENT: TNU-HANFORD RC-047

LVL LOT #: 0602L288

WORK ORDER: 11343-606-001-9999-00

| SAMPLE | SITE ID     | ANALYTE         | SPIKED |        | UNITS | %RECOV |
|--------|-------------|-----------------|--------|--------|-------|--------|
|        |             |                 | SAMPLE | AMOUNT |       |        |
| LCS1   | 06L0122-LC1 | Silver, LCS     | 48.7   | 50.0   | MG/KG | 97.4   |
|        |             | Aluminum, LCS   | 479    | 500    | MG/KG | 95.8   |
|        |             | Arsenic, LCS    | 876    | 1000   | MG/KG | 87.6   |
|        |             | Boron, LCS      | 457    | 500    | MG/KG | 91.4   |
|        |             | Barium, LCS     | 487    | 500    | MG/KG | 97.3   |
|        |             | Beryllium, LCS  | 25.0   | 25.0   | MG/KG | 100    |
|        |             | Bismuth, LCS    | 479    | 500    | MG/KG | 95.8   |
|        |             | Calcium, LCS    | 2420   | 2500   | MG/KG | 96.7   |
|        |             | Cadmium, LCS    | 23.9   | 25.0   | MG/KG | 95.6   |
|        |             | Cobalt, LCS     | 244    | 250    | MG/KG | 97.8   |
|        |             | Chromium, LCS   | 51.0   | 50.0   | MG/KG | 102.0  |
|        |             | Copper, LCS     | 125    | 125    | MG/KG | 99.8   |
|        |             | Iron, LCS       | 499    | 500    | MG/KG | 99.8   |
|        |             | Potassium, LCS  | 2260   | 2500   | MG/KG | 90.6   |
|        |             | Lithium, LCS    | 496    | 500    | MG/KG | 99.3   |
|        |             | Magnesium, LCS  | 2330   | 2500   | MG/KG | 93.3   |
|        |             | Manganese, LCS  | 77.5   | 75.0   | MG/KG | 103.3  |
|        |             | Molybdenum, LCS | 498    | 500    | MG/KG | 99.7   |
|        |             | Sodium, LCS     | 2240   | 2500   | MG/KG | 89.6   |
|        |             | Nickel, LCS     | 192    | 200    | MG/KG | 96.0   |
|        |             | Phosphorus, LCS | 446    | 500    | MG/KG | 89.1   |
|        |             | Lead, LCS       | 236    | 250    | MG/KG | 94.2   |
|        |             | Antimony, LCS   | 276    | 300    | MG/KG | 92.2   |
|        |             | Selenium, LCS   | 808    | 1000   | MG/KG | 80.8   |
|        |             | Silicon, LCS    | 321    | 500    | MG/KG | 64.2   |
|        |             | Tin, LCS        | 486    | 500    | MG/KG | 97.2   |
|        |             | Titanium, LCS   | 494    | 500    | MG/KG | 98.7   |
|        |             | Thallium, LCS   | 924    | 1000   | MG/KG | 92.4   |
|        |             | Uranium, LCS    | 239    | 250    | MG/KG | 95.5   |
|        |             | Vanadium, LCS   | 262    | 250    | MG/KG | 100.9  |
|        |             | Zinc, LCS       | 93.7   | 100    | MG/KG | 93.7   |
|        |             | Zirconium, LCS  | 489    | 500    | MG/KG | 97.8   |
| LCS1   | 06C0033-LC1 | Mercury, LCS    | 6.8    | 6.2    | MG/KG | 109.3  |



| Washington Closure Hanford   |  | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST             |                   |   |                        | RC-047-133                           |         | Page 1 of 1  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
|--|--|--|-------------------|---|------------------------|--------------------------------------|---------|--|--|--------------------------|--|--|-------------------|-------------|------------------------|------------------------|-------------------------------|---------|-------------------|----|-----|-----|----|----|----|----|----|---------------------|---|---|---|---|---|---|---|---|--------|------|----|-----|-----|-----|-----|-----|------|
| Collector<br>TILLER, B.  |  | Company Contact<br>JOAN KESSNER                      |                   | Telephone No.<br>375-4618   |                        | Project Coordinator<br>KESSNER, JH   |         | Price Code 9N Data Turnaround  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti |  | Sampling Location<br>300 AREA ELEVATED, SAMPLE 1     |                   | SAF No.<br>RC-047   |                        | Air Quality <input type="checkbox"/> |         | 45 Days  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Ice Chest No.<br>AFS-04-052  |  | Field Logbook No.<br>EL-1597                         |                   | COA<br>BESRAS6520   |                        | Method of Shipment<br>FED EX         |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Shipped To<br><del>Eberline Services</del> <u>BERLINE SERVICES LIONVILLE</u> |  | Offsite Property No.<br>A060250                      |                   | Bill of Lading/Air Bill No.<br>See OSPC   |                        |                                      |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| POSSIBLE SAMPLE HAZARDS/REMARKS<br>POTENTIAL RADIOACTIVE <DOT LIMITS         |  |  |                   | <table border="1"> <thead> <tr> <th>Preservation</th> <th>Cool 4C</th> <th>None</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Cool 4C</th> <th>Cool 4C</th> </tr> </thead> <tbody> <tr> <td>Type of Container</td> <td>aG</td> <td>G/P</td> <td>G/P</td> <td>aG</td> <td>aG</td> <td>aG</td> <td>aG</td> <td>aG</td> </tr> <tr> <td>No. of Container(s)</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>Volume</td> <td>750g</td> <td>5g</td> <td>15g</td> <td>50g</td> <td>50g</td> <td>50g</td> <td>50g</td> <td>100g</td> </tr> </tbody> </table> |                        |                                      |         |  |  | Preservation             | Cool 4C  | None   | Cool 4C           | Cool 4C     | Cool 4C                | Cool 4C                | Cool 4C                       | Cool 4C | Type of Container | aG | G/P | G/P | aG | aG | aG | aG | aG | No. of Container(s) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | Volume | 750g | 5g | 15g | 50g | 50g | 50g | 50g | 100g |
| Preservation   | Cool 4C  | None   | Cool 4C           | Cool 4C   | Cool 4C                | Cool 4C                              | Cool 4C | Cool 4C  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Type of Container  | aG   | G/P  | G/P               | aG  | aG                     | aG                                   | aG      | aG   |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| No. of Container(s)  | 0  | 0  | 0                 | 0   | 0                      | 0                                    | 0       | 1  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Volume   | 750g   | 5g   | 15g               | 50g   | 50g                    | 50g                                  | 50g     | 100g   |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Special Handling and/or Storage<br>COOL 4C "MATRIX COMPOSED OF FISH"         |  |  |                   | <table border="1"> <thead> <tr> <th>Gamma Spec - (Full List)</th> <th>Strontium - 89,90 - (Total Sr: Isotopic Thorium, Isotopic Uranium)</th> <th>ICP Metals - 6010 (Full List); Mercury - 7471 - (CV)</th> <th>Pesticides - 8081</th> <th>PCRs - 8082</th> <th>Semi-VOA - 8270A (TCL)</th> <th>GAMMA SPEC - FULL LIST</th> </tr> </thead> <tbody> <tr> <td colspan="6">SAMPLE ANALYSIS<br/>SDGM K0218</td> </tr> </tbody> </table>   |                        |                                      |         |  |  | Gamma Spec - (Full List) | Strontium - 89,90 - (Total Sr: Isotopic Thorium, Isotopic Uranium) | ICP Metals - 6010 (Full List); Mercury - 7471 - (CV) | Pesticides - 8081 | PCRs - 8082 | Semi-VOA - 8270A (TCL) | GAMMA SPEC - FULL LIST | SAMPLE ANALYSIS<br>SDGM K0218 |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Gamma Spec - (Full List)   | Strontium - 89,90 - (Total Sr: Isotopic Thorium, Isotopic Uranium) | ICP Metals - 6010 (Full List); Mercury - 7471 - (CV) | Pesticides - 8081 | PCRs - 8082   | Semi-VOA - 8270A (TCL) | GAMMA SPEC - FULL LIST               |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| SAMPLE ANALYSIS<br>SDGM K0218  |  |  |                   |   |                        |                                      |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Sample No.   |  | Matrix *   | Sample Date       | Sample Time   |                        |                                      |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| J117R6   |  | OTHER SOLID  | 02-08-06          | 1200  | X                      | X                                    | X       | X  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| CHAIN OF POSSESSION  |  |  |                   | SPECIAL INSTRUCTIONS  |                        |                                      |         | Matrix *   |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Relinquished By/Removed From<br>BRETT TILLER                                 |  | Date/Time<br>02-08-06 09:00                          |                   | Received By/Stored In<br>EAS LOCKED STORAGE   |                        | Date/Time<br>02-08-06 12:00          |         | NOTE: Eberline - perform Gamma Spec. Iso Uranium and Iso Strontium thru tranship to Lionville Labs, if possible maintain 4 C cooling.<br>NOTE: Lionville - contact Rich<br>Weiss upon receipt. |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Relinquished By/Removed From<br>JAMES BERNHARD                               |  | Date/Time<br>2-9-06 07:15                            |                   | Received By/Stored In<br>RZ Steffler R.Z. Steffler  |                        | Date/Time<br>2-9-06 07:15            |         | SDGM K0218   |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Relinquished By/Removed From<br>RZ Steffler R.Z. Steffler                    |  | Date/Time<br>2-9-06 15:00                            |                   | Received By/Stored In<br>Fed Ex   |                        | Date/Time                            |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Relinquished By/Removed From<br>FED EX                                       |  | Date/Time  |                   | Received By/Stored In<br>JACK KEENEY  |                        | Date/Time<br>2/10/06 10:00           |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Relinquished By/Removed From<br>JACK KEENEY                                  |  | Date/Time<br>2/15/06 16:00                           |                   | Received By/Stored In   |                        | Date/Time                            |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| Relinquished By/Removed From<br>FED EX                                       |  | Date/Time<br>2-16-06 09:15                           |                   | Received By/Stored In<br>JACK KEENEY  |                        | Date/Time<br>2-16-06 09:15           |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| LABORATORY SECTION   |  | Received By  |                   | Title   |                        | Date/Time                            |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |
| FINAL SAMPLE DISPOSITION   |  | Disposal Method                                      |                   | Disposed By   |                        | Date/Time                            |         |  |  |                          |  |  |                   |             |                        |                        |                               |         |                   |    |     |     |    |    |    |    |    |                     |   |   |   |   |   |   |   |   |        |      |    |     |     |     |     |     |      |

000000018

|   |                                 |  |                                    |   |                                      |                            |
|---|---------------------------------|--|------------------------------------|---|--------------------------------------|----------------------------|
| <b>Washington Closure Hanford</b>   |                                 | <b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>  |                                    |   | RC-047-134                           | Page 1 of 1                |
| Collector<br>TILLER, B.   | Company Contact<br>JOAN KESSNER | Telephone No.<br>375-4688                        | Project Coordinator<br>KESSNER, JH |   | Price Code 9N                        | Data Turnaround<br>45 Days |
| Project Designation<br>100 & 300 Area Component of the RCBRA Sediment and Ti    |                                 | Sampling Location<br>300 AREA ELEVATED, SAMPLE 2 |                                    | SAF No.<br>RC-047                       | Air Quality <input type="checkbox"/> |                            |
| Ice Chest No.<br>AFS-04-052   | Field Logbook No.<br>EL-1597    | COA<br>BESRAS6520                                |                                    | Method of Shipment<br>FED EX            |                                      |                            |
| Shipped To<br><del>MAILING SERVICE LIONVILLE</del><br>MAILING SERVICE LIONVILLE |                                 | Offsite Property No.<br>A060250                  |                                    | Bill of Lading/Air Bill No.<br>See OSPC |                                      |                            |

|  |                            |              |      |               |         |         |         |         |      |  |  |
|--|----------------------------|--------------|------|---------------|---------|---------|---------|---------|------|--|--|
| <b>POSSIBLE SAMPLE HAZARDS/REMARKS</b><br>POTENTIAL RADIOACTIVE <DOT LIMITS<br><br><b>Special Handling and/or Storage</b><br>COOL 4C "MATRIX COMPOSED OF FISH" | <b>Preservation</b>        | Cool 4C      | None | Cool 4C       | Cool 4C | Cool 4C | Cool 4C | Cool 4C |      |  |  |
|  | <b>Type of Container</b>   | aG           | G/P  | G/P           | aG      | aG      | aG      | aG      |      |  |  |
|  | <b>No. of Container(s)</b> | APX 0<br>256 | 0    | APX 0<br>1000 | 0       | 0       | 0       | 0       | 1    |  |  |
|  | <b>Volume</b>              | 750g         | 5g   | 15g           | 50g     | 50g     | 50g     | 50g     | 100g |  |  |

|                                      |  |                          |   |  |                   |             |                        |                        |  |  |
|--------------------------------------|--|--------------------------|---|--|-------------------|-------------|------------------------|------------------------|--|--|
| <b>SAMPLE ANALYSIS</b><br>SDG# K0218 |  | Gamma Spec - (Full List) | Strontium - 89,90 -- Total Sr; Isotopic Thorium; Isotopic Uranium | PCP Metals - 6010 (Full List); Mercury - 7471 - (CV) | Pesticides - 8081 | PCBs - 8087 | Semi-VOA - 8270A (TCL) | GAMMA SPEC - FULL LIST |  |  |
|--------------------------------------|--|--------------------------|---|--|-------------------|-------------|------------------------|------------------------|--|--|

| Sample No. | Matrix *    | Sample Date | Sample Time |      |  |   |  |  |  |   |
|------------|-------------|-------------|-------------|------|--|---|--|--|--|---|
| J117R7     | OTHER SOLID | 02-08-06    | 1500        | X    |  | X |  |  |  | X |
|            |             |             |             | 2006 |  |   |  |  |  |   |
|            |             |             |             |      |  |   |  |  |  |   |
|            |             |             |             |      |  |   |  |  |  |   |

|   |                               |  |                               |   |  |  |  |   |
|---|-------------------------------|--|-------------------------------|---|--|--|--|---|
| <b>CHAIN OF POSSESSION</b>                            |                               | <b>Sign/Print Names</b>                        |                               | <b>SPECIAL INSTRUCTIONS</b>   |  |  |  | <b>Matrix *</b>   |
| Relinquished By/Removed From<br>BRETT TILLER          | Date/Time<br>1700<br>02-08-06 | Received By/Stored In<br>EAS LOCKED STORAGE    | Date/Time<br>1700<br>02-08-06 | NOTE: Eberline - perform Gamma Spec, Iso Uranium and Iso Strontium then tranship to Lionville Labs. if possible maintain 4 C cooling.<br>NOTE: Lionville - contact Rich Weiss upon receipt. |  |  |  | S-Sed<br>SS-Sediment<br>SO-Soil<br>SL-Sludge<br>W - Water<br>O-Other<br>A-Air<br>DS-Drum/Seal<br>DL-Drum/Leak<br>T-Tissue<br>Wt-Whys<br>L-Liquid<br>V-Vegetation<br>X-Other |
| Relinquished By/Removed From<br>JAMES BERNHARD        | Date/Time<br>0715<br>02-09-06 | Received By/Stored In<br>RZ Steffen RZ Steffen | Date/Time<br>0715<br>2-9-06   |   |  |  |  |   |
| Relinquished By/Removed From<br>RZ Steffen RZ Steffen | Date/Time<br>1500<br>2-9-06   | Received By/Stored In<br>FED EX                | Date/Time                     |   |  |  |  |   |
| Relinquished By/Removed From<br>FED EX                | Date/Time                     | Received By/Stored In<br>FED EX                | Date/Time<br>10:00            |   |  |  |  |   |
| Relinquished By/Removed From<br>FED EX                | Date/Time<br>2/15/06 16:00    | Received By/Stored In                          | Date/Time                     |   |  |  |  |   |
| Relinquished By/Removed From<br>FED EX                | Date/Time<br>2-16-06 0915     | Received By/Stored In<br>FED EX                | Date/Time<br>2-16-06 0915     |   |  |  |  |   |

|                                 |                 |             |           |
|---------------------------------|-----------------|-------------|-----------|
| <b>LABORATORY SECTION</b>       | Received By     | Title       | Date/Time |
| <b>FINAL SAMPLE DISPOSITION</b> | Disposal Method | Disposed By | Date/Time |

61000000

SDA# K0218

Kberline Srvcce

CHAIN OF CUSTODY

ORD # R6-02-069

02/13/06 08:53:31

WORK ID: SAF# RC-047 SDG# K0218

RCVD: 02/10/06 DUE: 03/27/06

KEEP: 03/27/07 DISP: S

| <u>DASH</u> | <u>SAMPLE IDENTIFICATION</u> | <u>STORED</u> | <u>TESTS</u> |      |      |
|-------------|------------------------------|---------------|--------------|------|------|
| 01A-X       | J117R6                       | LION          | DISPOS       | E009 | E046 |
| 01B-X       | J117R6 MS                    | LION          | DISPOS       | E009 | E046 |
| 01C-X       | J117R6 DUP                   | LION          | DISPOS       | E009 | E046 |
| *****       |                              |               |              |      |      |
| 02A-X       | J117R7                       | LION          | DISPOS       | E009 | E046 |

| <u>RELEASED BY</u>  | <u>DATE</u>    | <u>TRANSFERRED TO</u> | <u>DATE</u>    | <u>RECEIVED BY</u> | <u>DATE</u> |
|---------------------|----------------|-----------------------|----------------|--------------------|-------------|
| <i>flex kennedy</i> | <i>2/15/06</i> | <i>LIONVILLE</i>      | <i>2/15/06</i> |                    |             |
|                     |                |                       |                |                    |             |
|                     |                |                       |                |                    |             |
|                     |                |                       |                |                    |             |

**Lionville Laboratory Incorporated**  
**SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: *TNU - HANFORD*

Date: *2-16-06*

Purchase Order / Project# /  
 SAMP# / SOW# / Release #: *RC-047*

LvLI Batch #: *0602C288*

Sample Custodian: *T. Hernandez*

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |   |  |
|---|---|--|
| 1. Samples Hand Delivered or <u>Shipped</u>   | Carrier <i>Fed Ex</i>   | Airbill# <i>791863063794</i>                         |
| 2. Custody seals on coolers or shipping container intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals      Comments      |
| 3. Outside of coolers or shipping containers are free from damage?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 5. Samples received cooled or ambient?<br><i>IR</i>   | Temp <i>3-4</i> °C  | Cooler # <i>N/A</i>                                  |
| 6. Custody seals on sample containers intact, signed and dated?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals                    |
| 7. coc signed and dated?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 8. Sample containers are intact?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 9. All samples on coc received? All samples received on coc?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 10. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 11. Samples properly preserved?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 12. Samples received within hold times? Short holds taken to wet lab?   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 13. VOA, TOC, TOX free of headspace?  | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> N/A              |
| 14. QC stickers placed on bottles designated by client?   | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> N/A              |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |  |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)                             | <input type="checkbox"/> Yes <input type="checkbox"/> No            | <input checked="" type="checkbox"/> No Discrepancies |

SR-002-B

