1212407

# SAF-RC-210
# 100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 100F - Soil Full Protocol
# FINAL DATA PACKAGE

**COMPLETE COPY OF DATA PACKAGE TO:**

Kathy Wendt H4-21 KW 2/21/12
INITIAL/DATE

**COMMENTS:**

**SDG J01409** **SAF-RC-210**

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

**Sample Location:** **600-299 Area 2**
**600-320 Area 8 & Area 17**
**600-318 Area 4**

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# ANALYTICAL REPORT

RECEIVED FEB 2012

Job Number: 280-25257-1

SDG Number: J01409

Job Description: SAF# RC-210

For:
Washington Closure Hanford
2620 Fermi Avenue
Richland, WA 99354

Attention: Joan H Kessner

Approved for release.
Kae E Yoder
Project Manager II
2/17/2012 12:01 PM

Kae E Yoder
Project Manager II
kae.yoder@testamericainc.com
02/17/2012

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is E87667.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

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ACCREDITED IN ACCORDANCE WITH nelac

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# CASE NARRATIVE

## Client: Washington Closure Hanford

## Project: WASHINGTON CLOSURE HANFORD

## Report Number: 280-25257-1

**SDG #: J01409**
**SAF#: RC-210**

**Date SDG Closed: February 2, 2012**
**Data Deliverable: 21 Day / Summary**

| CLIENT ID | LAB ID | ANALYSES REQUESTED | ANALYSES PERFORMED |
|---|---|---|---|
| J1N3J1 | 280-25257-1 | 6010/7471/9045 | 6010B/7471A/9045C |
| J1N3J2 | 280-25257-2 | 6010/7471/9045 | 6010B/7471A/9045C |
| J1N3J3 | 280-25257-3 | 6010/7471 | 6010B/7471A |
| J1N3J4 | 280-25257-4 | 6010/7471/WTPH-D+/8310 | 6010B/7471A/NWTPH-Dx/8310 |
| J1N3J8 | 280-25257-5 | 6010/7471 | 6010B/7471A |
| J1N3J9 | 280-25257-6 | 6010/7471/WTPH-D+/8310 | 6010B/7471A/NWTPH-Dx/8310 |

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this Case Narrative. 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 signature on the Report Cover.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

**RECEIPT**
The samples were received on 2/2/2012; the samples arrived in good condition, properly preserved and on ice. The temperature of the cooler at receipt was 3.1 C.

**GC SEMIVOLATILES - NWTPH-Dx - DRO**
Low levels of C10-C28 are present in the method blank associated with batch 280-107193. Because the concentration in the method blank is not present at a level greater than half the reporting limit, corrective action is deemed unnecessary. Associated sample results present above the MDL and/or RL have been flagged with a "B".

No other anomalies were encountered.

**HPLC - SW846 8310 - PAHs**
In some cases, the RPD between the primary and confirmation columns exceeded 40%. The lower of the two values has been reported, as interference is evident on both columns. Associated results have been flagged with an "X".

The MS aliquot of the MS/MSD performed on sample J1N3J4 exhibited a surrogate recovery outside the control limits. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

**TOTAL METALS - SW846 6010B/7471A**

Serial dilution of a digestate in batch 280-106154 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

Low levels of Barium and Calcium are present in the method blank associated with batch 280-106154. Because the concentrations in the method blank are not present at levels greater than half the reporting limit, corrective action is deemed unnecessary.

Silicon was recovered outside the control limits, biased low, in the LCS associated with batch 280-106154 and in the Matrix Spike performed on sample J1N3J1 in batch 280-106154. The associated sample results have been flagged "N". Silicon is a poor performer and has a history of reacting inconsistently. Data are reported as is.

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron, Lead and Manganese in the Matrix Spike performed on sample J1N3J1; therefore, control limits are not applicable.

The duplicate analysis of sample J1N3J1 exhibited RPD data outside the control limits for Lead, and the associated sample result has been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

**GENERAL CHEMISTRY - SW846 9045C - PH**

No anomalies were encountered.

# DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

| Lab Section | Qualifier | Description |
|---|---|---|
| GC Semi VOA | | |
| | B | Analyte was found in the associated method blank as well as in the sample. |
| | U | Analyzed for but not detected. |
| | J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| Metals | | |
| | U | Analyzed for but not detected. |
| | B | Estimated result. Result is less than the RL, but greater than MDL |
| | 4 | MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable. |
| | N | Recovery exceeds upper or lower control limits |
| | M | Sample duplicate precision not met. |
| | X | Serial dilution in the analytical batch indicates that physical and chemical interferences are present. |
| | C | The analyte was detected in both the sample and the assoicated QC blank, and the sample concentration was </= 5X the blank concentration. |
| General Chemistry | | |
| | U | Analyzed for but not detected. |
| HPLC/IC | | |
| | U | Analyzed for but not detected. |
| | X | More than 40% difference between columns, lower result reported. |
| | J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| | * | Surrogate exceeds the control limit |

# METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|
| **Matrix: Solid** | | | |
| Northwest - Semi-Volatile Petroleum Products (GC) | TAL DEN | NWTPH NWTPH-Dx | |
| Ultrasonic Extraction | TAL DEN | | SW846 3550C |
| PAHs (HPLC) | TAL DEN | SW846 8310 | |
| Ultrasonic Extraction | TAL DEN | | SW846 3550C |
| Metals (ICP) | TAL DEN | SW846 6010B | |
| Preparation, Metals | TAL DEN | | SW846 3050B |
| Mercury (CVAA) | TAL DEN | SW846 7471A | |
| Preparation, Mercury | TAL DEN | | SW846 7471A |
| pH | TAL DEN | SW846 9045C | |
| Deionized Water Leaching Procedure | TAL DEN | | ASTM DI Leach |
| ASTM D-2216 | TAL DEN | ASTM D-2216 | |

**Lab References:**

TAL DEN = TestAmerica Denver

**Method References:**

ASTM = ASTM International

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## METHOD / ANALYST SUMMARY

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

| Method | Analyst | Analyst ID |
|---|---|---|
| NWTPH NWTPH-Dx | Birdsell, Matthew R | MRB |
| NWTPH NWTPH-Dx | Pavlakovich, Adam M | AMP |
| SW846 6010B | Harre, John K | JKH |
| SW846 7471A | Rawlings, Brendon L | BLR |
| SW846 9045C | Woolley, Mark | MW |
| ASTM D-2216 | Berry III, Paul B | PBB |
| SW846 8310 | Fiedler, Heather K | HKF |

## SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time Sampled | Date/Time Received |
|---|---|---|---|---|
| 280-25257-1 | J1N3J1 | Solid | 01/31/2012 1030 | 02/02/2012 0930 |
| 280-25257-2FD | J1N3J2 | Solid | 01/31/2012 1030 | 02/02/2012 0930 |
| 280-25257-3EB | J1N3J3 | Solid | 01/31/2012 1020 | 02/02/2012 0930 |
| 280-25257-4 | J1N3J4 | Solid | 01/31/2012 0906 | 02/02/2012 0930 |
| 280-25257-5 | J1N3J8 | Solid | 01/31/2012 1000 | 02/02/2012 0930 |
| 280-25257-6 | J1N3J9 | Solid | 01/31/2012 0939 | 02/02/2012 0930 |

# SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J4**

Lab Sample ID: 280-25257-4
Client Matrix: Solid
% Moisture: 15.6

Date Sampled: 01/31/2012 0906
Date Received: 02/02/2012 0930

**NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | NWTPH-Dx | Analysis Batch: | 280-108095 | Instrument ID: | GCS_U |
| Prep Method: | 3550C | Prep Batch: | 280-107193 | Lab File ID: | 030B3001.D |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 30.1 g |
| Analysis Date: | 02/13/2012 2245 | | | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/10/2012 1855 | | | Injection Volume: | 1 uL |

| Analyte | DryWt Corrected: Y | Result (ug/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| C10-C36 | | 36000 | | 1200 | 4700 |
| C10-C28 | | 17000 | B | 800 | 4700 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| o-Terphenyl | 83 | | 49 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J9**

Lab Sample ID: 280-25257-6
Client Matrix: Solid
% Moisture: 8.1

Date Sampled: 01/31/2012 0939
Date Received: 02/02/2012 0930

**NWTPH-Dx Northwest - Semi-Volatile Petroleum Products (GC)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | NWTPH-Dx | Analysis Batch: | 280-108024 | Instrument ID: | GCS_U |
| Prep Method: | 3550C | Prep Batch: | 280-106375 | Lab File ID: | 013B1301.D |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 31.0 g |
| Analysis Date: | 02/15/2012 1448 | | | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/06/2012 1820 | | | Injection Volume: | 1 uL |

| Analyte | DryWt Corrected: Y | Result (ug/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| C10-C36 | | 32000 | | 1100 | 4200 |
| C10-C28 | | 19000 | | 710 | 4200 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| o-Terphenyl | 92 | | 49 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J4**

Lab Sample ID: 280-25257-4
Client Matrix: Solid
% Moisture: 15.6

Date Sampled: 01/31/2012 0906
Date Received: 02/02/2012 0930

**8310 PAHs (HPLC)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 8310 | Analysis Batch: | 280-107117 | Instrument ID: | CHHPLC_G |
| Prep Method: | 3550C | Prep Batch: | 280-106370 | Initial Weight/Volume: | 32.1 g |
| Dilution: | 1.0 | | | Final Weight/Volume: | 4000 uL |
| Analysis Date: | 02/11/2012 0441 | | | Injection Volume: | 20 uL |
| Prep Date: | 02/06/2012 1545 | | | Result Type: | PRIMARY |

| Analyte | DryWt Corrected: Y | Result (ug/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Acenaphthene | | 11 | U | 11 | 110 |
| Acenaphthylene | | 10 | U | 10 | 110 |
| Anthracene | | 3.4 | U | 3.4 | 22 |
| Benzo[a]anthracene | | 23 | | 3.5 | 17 |
| Benzo[a]pyrene | | 52 | | 7.1 | 17 |
| Benzo[b]fluoranthene | | 60 | | 4.7 | 17 |
| Benzo[g,h,i]perylene | | 45 | | 8.0 | 33 |
| Benzo[k]fluoranthene | | 23 | | 4.4 | 17 |
| Chrysene | | 26 | J | 5.4 | 44 |
| Dibenzo(a,h)anthracene | | 12 | U | 12 | 33 |
| Fluoranthene | | 21 | J X | 14 | 44 |
| Fluorene | | 5.8 | U | 5.8 | 33 |
| Indeno[1,2,3-cd]pyrene | | 51 | | 13 | 33 |
| Naphthalene | | 13 | U | 13 | 110 |
| Phenanthrene | | 21 | J | 13 | 44 |
| Pyrene | | 21 | J | 13 | 44 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| Terphenyl-d14 (SUR) | 100 | | 72 - 115 |

## Analytical Data

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J9**

Lab Sample ID: 280-25257-6
Client Matrix: Solid
% Moisture: 8.1

Date Sampled: 01/31/2012 0939
Date Received: 02/02/2012 0930

**8310 PAHs (HPLC)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 8310 | Analysis Batch: | 280-107117 | Instrument ID: | CHHPLC_G |
| Prep Method: | 3550C | Prep Batch: | 280-106370 | Initial Weight/Volume: | 30.5 g |
| Dilution: | 1.0 | | | Final Weight/Volume: | 4000 uL |
| Analysis Date: | 02/11/2012 0613 | | | Injection Volume: | 20 uL |
| Prep Date: | 02/06/2012 1545 | | | Result Type: | PRIMARY |

| Analyte | DryWt Corrected: Y | Result (ug/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Acenaphthene | | 11 | U | 11 | 110 |
| Acenaphthylene | | 9.6 | U | 9.6 | 110 |
| Anthracene | | 3.3 | U | 3.3 | 21 |
| Benzo[a]anthracene | | 3.4 | U | 3.4 | 16 |
| Benzo[a]pyrene | | 8.0 | J X | 6.9 | 16 |
| Benzo[b]fluoranthene | | 22 | | 4.5 | 16 |
| Benzo[g,h,i]perylene | | 32 | X | 7.7 | 32 |
| Benzo[k]fluoranthene | | 8.9 | J | 4.2 | 16 |
| Chrysene | | 7.3 | J | 5.2 | 43 |
| Dibenzo(a,h)anthracene | | 12 | U | 12 | 32 |
| Fluoranthene | | 15 | J X | 14 | 43 |
| Fluorene | | 5.7 | U | 5.7 | 32 |
| Indeno[1,2,3-cd]pyrene | | 32 | | 13 | 32 |
| Naphthalene | | 13 | U | 13 | 110 |
| Phenanthrene | | 13 | U | 13 | 43 |
| Pyrene | | 13 | U | 13 | 43 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| Terphenyl-d14 (SUR) | 95 | | 72 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J1**

Lab Sample ID: 280-25257-1
Client Matrix: Solid
% Moisture: 9.9

Date Sampled: 01/31/2012 1030
Date Received: 02/02/2012 0930

**6010B Metals (ICP)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 6010B | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Prep Method: | 3050B | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 1.05 g |
| Analysis Date: | 02/15/2012 0140 | | | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Aluminum | | 8950 | | 1.6 | 5.3 |
| Antimony | | 2.1 | M | 0.40 | 0.63 |
| Arsenic | | 3.1 | | 0.70 | 1.1 |
| Barium | | 89.4 | | 0.080 | 0.53 |
| Beryllium | | 0.54 | | 0.035 | 0.21 |
| Boron | | 2.5 | | 1.0 | 2.1 |
| Cadmium | | 0.14 | B | 0.043 | 0.21 |
| Calcium | | 4790 | | 14.9 | 52.9 |
| Chromium | | 14.7 | | 0.061 | 0.21 |
| Cobalt | | 6.5 | X | 0.11 | 1.1 |
| Copper | | 14.5 | | 0.23 | 1.1 |
| Iron | | 20000 | | 4.0 | 5.3 |
| Lead | | 665 | X M | 0.29 | 0.53 |
| Magnesium | | 5070 | | 3.9 | 21.1 |
| Manganese | | 315 | | 0.11 | 1.1 |
| Molybdenum | | 0.27 | U | 0.27 | 2.1 |
| Nickel | | 12.9 | X | 0.13 | 4.2 |
| Potassium | | 2450 | | 43.3 | 317 |
| Selenium | | 0.91 | U | 0.91 | 1.1 |
| Silicon | | 363 | N X | 6.0 | 10.6 |
| Silver | | 0.17 | U | 0.17 | 0.21 |
| Sodium | | 237 | | 62.4 | 127 |
| Vanadium | | 39.6 | | 0.099 | 2.1 |
| Zinc | | 87.5 | X | 0.42 | 1.1 |

**7471A Mercury (CVAA)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 7471A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Prep Method: | 7471A | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 0.56 g |
| Analysis Date: | 02/10/2012 1738 | | | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Mercury | | 0.016 | B | 0.0066 | 0.020 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J2**

Lab Sample ID: 280-25257-2FD
Client Matrix: Solid
% Moisture: 9.9

Date Sampled: 01/31/2012 1030
Date Received: 02/02/2012 0930

**6010B Metals (ICP)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 6010B | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Prep Method: | 3050B | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 1.02 g |
| Analysis Date: | 02/15/2012 0158 | | | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Aluminum | | 8420 | | 1.7 | 5.4 |
| Antimony | | 1.2 | | 0.41 | 0.65 |
| Arsenic | | 4.0 | | 0.72 | 1.1 |
| Barium | | 93.4 | | 0.083 | 0.54 |
| Beryllium | | 0.52 | | 0.036 | 0.22 |
| Boron | | 3.5 | | 1.1 | 2.2 |
| Cadmium | | 0.17 | B | 0.045 | 0.22 |
| Calcium | | 5590 | | 15.3 | 54.4 |
| Chromium | | 14.5 | | 0.063 | 0.22 |
| Cobalt | | 6.5 | X | 0.11 | 1.1 |
| Copper | | 15.5 | | 0.24 | 1.1 |
| Iron | | 20000 | | 4.1 | 5.4 |
| Lead | | 460 | X | 0.29 | 0.54 |
| Magnesium | | 4910 | | 4.0 | 21.8 |
| Manganese | | 314 | | 0.11 | 1.1 |
| Molybdenum | | 0.28 | U | 0.28 | 2.2 |
| Nickel | | 13.0 | X | 0.13 | 4.4 |
| Potassium | | 2340 | | 44.6 | 326 |
| Selenium | | 0.94 | U | 0.94 | 1.1 |
| Silicon | | 346 | N X | 6.2 | 10.9 |
| Silver | | 0.17 | U | 0.17 | 0.22 |
| Sodium | | 212 | | 64.2 | 131 |
| Vanadium | | 39.1 | | 0.10 | 2.2 |
| Zinc | | 100 | X | 0.43 | 1.1 |

**7471A Mercury (CVAA)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 7471A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Prep Method: | 7471A | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 0.50 g |
| Analysis Date: | 02/10/2012 1750 | | | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Mercury | | 0.016 | B | 0.0074 | 0.023 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J3**

Lab Sample ID: 280-25257-3EB
Client Matrix: Solid
% Moisture: 0.0

Date Sampled: 01/31/2012 1020
Date Received: 02/02/2012 0930

**6010B Metals (ICP)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 6010B | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Prep Method: | 3050B | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 1.07 g |
| Analysis Date: | 02/15/2012 0201 | | | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Aluminum | | 223 | | 1.4 | 4.7 |
| Antimony | | 0.36 | U | 0.36 | 0.56 |
| Arsenic | | 0.62 | U | 0.62 | 0.93 |
| Barium | | 2.4 | | 0.071 | 0.47 |
| Beryllium | | 0.036 | B | 0.031 | 0.19 |
| Boron | | 0.92 | U | 0.92 | 1.9 |
| Cadmium | | 0.038 | U | 0.038 | 0.19 |
| Calcium | | 48.1 | C | 13.2 | 46.7 |
| Chromium | | 0.22 | | 0.054 | 0.19 |
| Cobalt | | 0.12 | B X | 0.093 | 0.93 |
| Copper | | 0.27 | B | 0.20 | 0.93 |
| Iron | | 415 | | 3.6 | 4.7 |
| Lead | | 1.4 | X | 0.25 | 0.47 |
| Magnesium | | 32.2 | | 3.5 | 18.7 |
| Manganese | | 5.3 | | 0.093 | 0.93 |
| Molybdenum | | 0.24 | U | 0.24 | 1.9 |
| Nickel | | 0.20 | B X | 0.11 | 3.7 |
| Potassium | | 56.0 | B | 38.3 | 280 |
| Selenium | | 0.80 | U | 0.80 | 0.93 |
| Silicon | | 138 | N X | 5.3 | 9.3 |
| Silver | | 0.15 | U | 0.15 | 0.19 |
| Sodium | | 55.1 | U | 55.1 | 112 |
| Vanadium | | 0.46 | B | 0.088 | 1.9 |
| Zinc | | 1.4 | X | 0.37 | 0.93 |

**7471A Mercury (CVAA)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 7471A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Prep Method: | 7471A | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 0.51 g |
| Analysis Date: | 02/10/2012 1752 | | | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Mercury | | 0.0065 | U | 0.0065 | 0.020 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J4**

Lab Sample ID: 280-25257-4
Client Matrix: Solid
% Moisture: 15.6

Date Sampled: 01/31/2012 0906
Date Received: 02/02/2012 0930

**6010B Metals (ICP)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 6010B | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Prep Method: | 3050B | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 1.06 g |
| Analysis Date: | 02/15/2012 0203 | | | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Aluminum | | 9160 | | 1.7 | 5.6 |
| Antimony | | 0.42 | U | 0.42 | 0.67 |
| Arsenic | | 57.5 | | 0.74 | 1.1 |
| Barium | | 84.9 | | 0.085 | 0.56 |
| Beryllium | | 0.66 | | 0.037 | 0.22 |
| Boron | | 1.1 | U | 1.1 | 2.2 |
| Cadmium | | 0.046 | U | 0.046 | 0.22 |
| Calcium | | 4460 | | 15.8 | 55.9 |
| Chromium | | 12.1 | | 0.065 | 0.22 |
| Cobalt | | 7.6 | X | 0.11 | 1.1 |
| Copper | | 14.6 | | 0.24 | 1.1 |
| Iron | | 23200 | | 4.2 | 5.6 |
| Lead | | 142 | X | 0.30 | 0.56 |
| Magnesium | | 4890 | | 4.1 | 22.4 |
| Manganese | | 345 | | 0.11 | 1.1 |
| Molybdenum | | 0.29 | U | 0.29 | 2.2 |
| Nickel | | 11.4 | X | 0.14 | 4.5 |
| Potassium | | 1830 | | 45.9 | 336 |
| Selenium | | 0.96 | U | 0.96 | 1.1 |
| Silicon | | 342 | N X | 6.3 | 11.2 |
| Silver | | 0.18 | U | 0.18 | 0.22 |
| Sodium | | 244 | | 66.0 | 134 |
| Vanadium | | 54.6 | | 0.11 | 2.2 |
| Zinc | | 50.0 | X | 0.45 | 1.1 |

**7471A Mercury (CVAA)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 7471A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Prep Method: | 7471A | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 0.50 g |
| Analysis Date: | 02/10/2012 1754 | | | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Mercury | | 0.0079 | U | 0.0079 | 0.024 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J8**

Lab Sample ID: 280-25257-5
Client Matrix: Solid
% Moisture: 5.1

Date Sampled: 01/31/2012 1000
Date Received: 02/02/2012 0930

**6010B Metals (ICP)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 6010B | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Prep Method: | 3050B | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 1.11 g |
| Analysis Date: | 02/15/2012 0205 | | | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Aluminum | | 7930 | | 1.5 | 4.7 |
| Antimony | | 0.36 | U | 0.36 | 0.57 |
| Arsenic | | 2.8 | | 0.63 | 0.95 |
| Barium | | 81.4 | | 0.072 | 0.47 |
| Beryllium | | 0.62 | | 0.031 | 0.19 |
| Boron | | 1.0 | B | 0.93 | 1.9 |
| Cadmium | | 0.074 | B | 0.039 | 0.19 |
| Calcium | | 3540 | | 13.4 | 47.4 |
| Chromium | | 9.3 | | 0.055 | 0.19 |
| Cobalt | | 6.6 | X | 0.095 | 0.95 |
| Copper | | 11.7 | | 0.21 | 0.95 |
| Iron | | 21000 | | 3.6 | 4.7 |
| Lead | | 58.5 | X | 0.26 | 0.47 |
| Magnesium | | 4070 | | 3.5 | 19.0 |
| Manganese | | 333 | | 0.095 | 0.95 |
| Molybdenum | | 0.25 | U | 0.25 | 1.9 |
| Nickel | | 8.9 | X | 0.12 | 3.8 |
| Potassium | | 1930 | | 38.9 | 285 |
| Selenium | | 0.82 | U | 0.82 | 0.95 |
| Silicon | | 307 | N X | 5.4 | 9.5 |
| Silver | | 0.15 | U | 0.15 | 0.19 |
| Sodium | | 195 | | 56.0 | 114 |
| Vanadium | | 50.4 | | 0.089 | 1.9 |
| Zinc | | 47.8 | X | 0.38 | 0.95 |

**7471A Mercury (CVAA)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 7471A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Prep Method: | 7471A | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 0.67 g |
| Analysis Date: | 02/10/2012 1756 | | | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Mercury | | 0.0052 | U | 0.0052 | 0.016 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Client Sample ID:** **J1N3J9**

Lab Sample ID: 280-25257-6
Client Matrix: Solid
% Moisture: 8.1

Date Sampled: 01/31/2012 0939
Date Received: 02/02/2012 0930

**6010B Metals (ICP)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 6010B | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Prep Method: | 3050B | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 1.16 g |
| Analysis Date: | 02/15/2012 0208 | | | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Aluminum | | 9610 | | 1.5 | 4.7 |
| Antimony | | 0.36 | U | 0.36 | 0.56 |
| Arsenic | | 18.2 | | 0.62 | 0.94 |
| Barium | | 96.6 | | 0.071 | 0.47 |
| Beryllium | | 0.67 | | 0.031 | 0.19 |
| Boron | | 3.6 | | 0.92 | 1.9 |
| Cadmium | | 0.038 | U | 0.038 | 0.19 |
| Calcium | | 7700 | | 13.2 | 46.9 |
| Chromium | | 14.4 | | 0.054 | 0.19 |
| Cobalt | | 7.5 | X | 0.094 | 0.94 |
| Copper | | 18.0 | | 0.20 | 0.94 |
| Iron | | 22900 | | 3.6 | 4.7 |
| Lead | | 62.9 | X | 0.25 | 0.47 |
| Magnesium | | 5010 | | 3.5 | 18.8 |
| Manganese | | 306 | | 0.094 | 0.94 |
| Molybdenum | | 0.24 | U | 0.24 | 1.9 |
| Nickel | | 12.7 | X | 0.12 | 3.8 |
| Potassium | | 1960 | | 38.5 | 281 |
| Selenium | | 0.81 | U | 0.81 | 0.94 |
| Silicon | | 366 | N X | 5.3 | 9.4 |
| Silver | | 0.15 | U | 0.15 | 0.19 |
| Sodium | | 259 | | 55.4 | 113 |
| Vanadium | | 53.4 | | 0.088 | 1.9 |
| Zinc | | 64.1 | X | 0.37 | 0.94 |

**7471A Mercury (CVAA)**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 7471A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Prep Method: | 7471A | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | | | Initial Weight/Volume: | 0.51 g |
| Analysis Date: | 02/10/2012 1759 | | | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |

| Analyte | DryWt Corrected: Y | Result (mg/Kg) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Mercury | | 0.011 | B | 0.0071 | 0.022 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**General Chemistry**

**Client Sample ID:** **J1N3J1**

Lab Sample ID: 280-25257-1
Client Matrix: Solid

Date Sampled: 01/31/2012 1030
Date Received: 02/02/2012 0930

| Analyte | Result | Qual | Units | RL | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| pH adj. to 25 deg C-Soluble | 8.86 | | SU | 0.0100 | 0.0100 | 1.0 | 9045C |
| Analysis Batch: 280-106054 | Analysis Date: 02/02/2012 1757 | | | | | | DryWt Corrected: N |
| Percent Moisture | 9.9 | | % | 0.10 | 0.10 | 1.0 | D-2216 |
| Analysis Batch: 280-106476 | Analysis Date: 02/07/2012 0859 | | | | | | DryWt Corrected: N |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**General Chemistry**

**Client Sample ID:** **J1N3J2**

Lab Sample ID: 280-25257-2FD
Client Matrix: Solid

Date Sampled: 01/31/2012 1030
Date Received: 02/02/2012 0930

| Analyte | Result | Qual | Units | RL | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| pH adj. to 25 deg C-Soluble | 8.76 | | SU | 0.0100 | 0.0100 | 1.0 | 9045C |
| Analysis Batch: 280-106054 | Analysis Date: 02/02/2012 1801 | | | | | | DryWt Corrected: N |
| Percent Moisture | 9.9 | | % | 0.10 | 0.10 | 1.0 | D-2216 |
| Analysis Batch: 280-106476 | Analysis Date: 02/07/2012 0859 | | | | | | DryWt Corrected: N |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**General Chemistry**

**Client Sample ID:** **J1N3J3**

Lab Sample ID: 280-25257-3EB
Client Matrix: Solid

Date Sampled: 01/31/2012 1020
Date Received: 02/02/2012 0930

| Analyte | Result | Qual | Units | RL | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Percent Moisture | 0.10 | U | % | 0.10 | 0.10 | 1.0 | D-2216 |

Analysis Batch: 280-106476 Analysis Date: 02/07/2012 0859 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**General Chemistry**

**Client Sample ID:** **J1N3J4**

Lab Sample ID: 280-25257-4
Client Matrix: Solid

Date Sampled: 01/31/2012 0906
Date Received: 02/02/2012 0930

| Analyte | Result | Qual | Units | RL | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Percent Moisture | 15.6 | | % | 0.10 | 0.10 | 1.0 | D-2216 |

Analysis Batch: 280-106476 Analysis Date: 02/07/2012 0859 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**General Chemistry**

**Client Sample ID:** **J1N3J8**

Lab Sample ID: 280-25257-5
Client Matrix: Solid

Date Sampled: 01/31/2012 1000
Date Received: 02/02/2012 0930

| Analyte | Result | Qual | Units | RL | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Percent Moisture | 5.1 | | % | 0.10 | 0.10 | 1.0 | D-2216 |

Analysis Batch: 280-106476 Analysis Date: 02/07/2012 0859 DryWt Corrected: N

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**General Chemistry**

**Client Sample ID:** **J1N3J9**

Lab Sample ID: 280-25257-6
Client Matrix: Solid

Date Sampled: 01/31/2012 0939
Date Received: 02/02/2012 0930

| Analyte | Result | Qual | Units | RL | RL | Dil | Method |
|---|---|---|---|---|---|---|---|
| Percent Moisture | 8.1 | | % | 0.10 | 0.10 | 1.0 | D-2216 |

Analysis Batch: 280-106476 Analysis Date: 02/07/2012 0859 DryWt Corrected: N

# QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

## QC Association Summary

| Lab Sample ID | Client Sample ID | Report Basis | Client Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| **GC Semi VOA** | | | | | |
| **Prep Batch: 280-106375** | | | | | |
| LCS 280-106375/2-A | Lab Control Sample | T | Solid | 3550C | |
| MB 280-106375/1-A | Method Blank | T | Solid | 3550C | |
| 280-25257-6 | J1N3J9 | T | Solid | 3550C | |
| 280-25257-6MS | Matrix Spike | T | Solid | 3550C | |
| 280-25257-6MSD | Matrix Spike Duplicate | T | Solid | 3550C | |
| **Prep Batch: 280-107193** | | | | | |
| LCS 280-107193/2-A | Lab Control Sample | T | Solid | 3550C | |
| MB 280-107193/1-A | Method Blank | T | Solid | 3550C | |
| 280-25257-4 | J1N3J4 | T | Solid | 3550C | |
| 280-25257-4MS | Matrix Spike | T | Solid | 3550C | |
| 280-25257-4MSD | Matrix Spike Duplicate | T | Solid | 3550C | |
| **Analysis Batch:280-108024** | | | | | |
| LCS 280-106375/2-A | Lab Control Sample | T | Solid | NWTPH-Dx | 280-106375 |
| MB 280-106375/1-A | Method Blank | T | Solid | NWTPH-Dx | 280-106375 |
| 280-25257-6 | J1N3J9 | T | Solid | NWTPH-Dx | 280-106375 |
| 280-25257-6MS | Matrix Spike | T | Solid | NWTPH-Dx | 280-106375 |
| 280-25257-6MSD | Matrix Spike Duplicate | T | Solid | NWTPH-Dx | 280-106375 |
| **Analysis Batch:280-108095** | | | | | |
| LCS 280-107193/2-A | Lab Control Sample | T | Solid | NWTPH-Dx | 280-107193 |
| MB 280-107193/1-A | Method Blank | T | Solid | NWTPH-Dx | 280-107193 |
| 280-25257-4 | J1N3J4 | T | Solid | NWTPH-Dx | 280-107193 |
| 280-25257-4MS | Matrix Spike | T | Solid | NWTPH-Dx | 280-107193 |
| 280-25257-4MSD | Matrix Spike Duplicate | T | Solid | NWTPH-Dx | 280-107193 |

**Report Basis**
T = Total

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

## QC Association Summary

| Lab Sample ID | Client Sample ID | Report Basis | Client Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| **Metals** | | | | | |
| **Prep Batch: 280-106154** | | | | | |
| LCS 280-106154/2-A | Lab Control Sample | T | Solid | 3050B | |
| MB 280-106154/1-A | Method Blank | T | Solid | 3050B | |
| 280-25257-1 | J1N3J1 | T | Solid | 3050B | |
| 280-25257-1DU | Duplicate | T | Solid | 3050B | |
| 280-25257-1MS | Matrix Spike | T | Solid | 3050B | |
| 280-25257-2FD | J1N3J2 | T | Solid | 3050B | |
| 280-25257-3EB | J1N3J3 | T | Solid | 3050B | |
| 280-25257-4 | J1N3J4 | T | Solid | 3050B | |
| 280-25257-5 | J1N3J8 | T | Solid | 3050B | |
| 280-25257-6 | J1N3J9 | T | Solid | 3050B | |
| **Prep Batch: 280-106606** | | | | | |
| LCS 280-106606/2-A | Lab Control Sample | T | Solid | 7471A | |
| MB 280-106606/1-A | Method Blank | T | Solid | 7471A | |
| 280-25257-1 | J1N3J1 | T | Solid | 7471A | |
| 280-25257-1DU | Duplicate | T | Solid | 7471A | |
| 280-25257-1MS | Matrix Spike | T | Solid | 7471A | |
| 280-25257-2FD | J1N3J2 | T | Solid | 7471A | |
| 280-25257-3EB | J1N3J3 | T | Solid | 7471A | |
| 280-25257-4 | J1N3J4 | T | Solid | 7471A | |
| 280-25257-5 | J1N3J8 | T | Solid | 7471A | |
| 280-25257-6 | J1N3J9 | T | Solid | 7471A | |
| **Analysis Batch:280-107326** | | | | | |
| LCS 280-106606/2-A | Lab Control Sample | T | Solid | 7471A | 280-106606 |
| MB 280-106606/1-A | Method Blank | T | Solid | 7471A | 280-106606 |
| 280-25257-1 | J1N3J1 | T | Solid | 7471A | 280-106606 |
| 280-25257-1DU | Duplicate | T | Solid | 7471A | 280-106606 |
| 280-25257-1MS | Matrix Spike | T | Solid | 7471A | 280-106606 |
| 280-25257-2FD | J1N3J2 | T | Solid | 7471A | 280-106606 |
| 280-25257-3EB | J1N3J3 | T | Solid | 7471A | 280-106606 |
| 280-25257-4 | J1N3J4 | T | Solid | 7471A | 280-106606 |
| 280-25257-5 | J1N3J8 | T | Solid | 7471A | 280-106606 |
| 280-25257-6 | J1N3J9 | T | Solid | 7471A | 280-106606 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

## QC Association Summary

| Lab Sample ID | Client Sample ID | Report Basis | Client Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| **Metals** | | | | | |
| **Analysis Batch:280-107669** | | | | | |
| LCS 280-106154/2-A | Lab Control Sample | T | Solid | 6010B | 280-106154 |
| MB 280-106154/1-A | Method Blank | T | Solid | 6010B | 280-106154 |
| 280-25257-1 | J1N3J1 | T | Solid | 6010B | 280-106154 |
| 280-25257-1DU | Duplicate | T | Solid | 6010B | 280-106154 |
| 280-25257-1MS | Matrix Spike | T | Solid | 6010B | 280-106154 |
| 280-25257-2FD | J1N3J2 | T | Solid | 6010B | 280-106154 |
| 280-25257-3EB | J1N3J3 | T | Solid | 6010B | 280-106154 |
| 280-25257-4 | J1N3J4 | T | Solid | 6010B | 280-106154 |
| 280-25257-5 | J1N3J8 | T | Solid | 6010B | 280-106154 |
| 280-25257-6 | J1N3J9 | T | Solid | 6010B | 280-106154 |

**Report Basis**
T = Total

| | | | | | |
|---|---|---|---|---|---|
| **General Chemistry** | | | | | |
| **Prep Batch: 280-106046** | | | | | |
| 280-25257-1 | J1N3J1 | S | Solid | DI Leach | |
| 280-25257-1DU | Duplicate | S | Solid | DI Leach | |
| 280-25257-2FD | J1N3J2 | S | Solid | DI Leach | |
| **Analysis Batch:280-106054** | | | | | |
| LCS 280-106054/4 | Lab Control Sample | T | Water | 9045C | |
| LCSD 280-106054/5 | Lab Control Sample Duplicate | T | Water | 9045C | |
| 280-25257-1 | J1N3J1 | S | Solid | 9045C | |
| 280-25257-1DU | Duplicate | S | Solid | 9045C | |
| 280-25257-2FD | J1N3J2 | S | Solid | 9045C | |
| **Analysis Batch:280-106476** | | | | | |
| 280-25257-1 | J1N3J1 | T | Solid | D-2216 | |
| 280-25257-1DU | Duplicate | T | Solid | D-2216 | |
| 280-25257-2FD | J1N3J2 | T | Solid | D-2216 | |
| 280-25257-3EB | J1N3J3 | T | Solid | D-2216 | |
| 280-25257-4 | J1N3J4 | T | Solid | D-2216 | |
| 280-25257-5 | J1N3J8 | T | Solid | D-2216 | |
| 280-25257-6 | J1N3J9 | T | Solid | D-2216 | |

**Report Basis**
S = Soluble
T = Total

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

## QC Association Summary

| Lab Sample ID | Client Sample ID | Report Basis | Client Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| **HPLC/IC** | | | | | |
| **Prep Batch: 280-106370** | | | | | |
| LCS 280-106370/2-A | Lab Control Sample | T | Solid | 3550C | |
| MB 280-106370/1-A | Method Blank | T | Solid | 3550C | |
| 280-25257-4 | J1N3J4 | T | Solid | 3550C | |
| 280-25257-4MS | Matrix Spike | T | Solid | 3550C | |
| 280-25257-4MSD | Matrix Spike Duplicate | T | Solid | 3550C | |
| 280-25257-6 | J1N3J9 | T | Solid | 3550C | |
| **Analysis Batch:280-107117** | | | | | |
| LCS 280-106370/2-A | Lab Control Sample | T | Solid | 8310 | 280-106370 |
| MB 280-106370/1-A | Method Blank | T | Solid | 8310 | 280-106370 |
| 280-25257-4 | J1N3J4 | T | Solid | 8310 | 280-106370 |
| 280-25257-4MS | Matrix Spike | T | Solid | 8310 | 280-106370 |
| 280-25257-4MSD | Matrix Spike Duplicate | T | Solid | 8310 | 280-106370 |
| 280-25257-6 | J1N3J9 | T | Solid | 8310 | 280-106370 |

**Report Basis**
T = Total

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Method Blank - Batch: 280-106375**

**Method: NWTPH-Dx**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | MB 280-106375/1-A | Analysis Batch: | 280-108024 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-106375 | Lab File ID: | 010B1001.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 30.1 g |
| Analysis Date: | 02/15/2012 1322 | Units: | ug/Kg | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/06/2012 1820 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| Analyte | Result | Qual | MDL | RL |
|---|---|---|---|---|
| C10-C36 | 990 | U | 990 | 4000 |
| C10-C28 | 680 | U | 680 | 4000 |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| o-Terphenyl | 88 | 49 - 115 |

**Lab Control Sample - Batch: 280-106375**

**Method: NWTPH-Dx**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LCS 280-106375/2-A | Analysis Batch: | 280-108024 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-106375 | Lab File ID: | 011B1101.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 31.2 g |
| Analysis Date: | 02/15/2012 1351 | Units: | ug/Kg | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/06/2012 1820 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| Analyte | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|
| C10-C36 | 64100 | 67200 | 105 | 57 - 115 | |
| C10-C28 | 64100 | 68200 | 106 | 53 - 115 | |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| o-Terphenyl | 98 | 49 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 280-106375**

**Method: NWTPH-Dx**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 280-25257-6 | Analysis Batch: | 280-108024 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-106375 | Lab File ID: | 014B1401.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 30.1 g |
| Analysis Date: | 02/15/2012 1516 | | | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/06/2012 1820 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MSD Lab Sample ID: | 280-25257-6 | Analysis Batch: | 280-108024 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-106375 | Lab File ID: | 015B1501.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 31.1 g |
| Analysis Date: | 02/15/2012 1544 | | | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/06/2012 1820 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| | % Rec. | | | | | | |
|---|---|---|---|---|---|---|---|
| Analyte | MS | MSD | Limit | RPD | RPD Limit | MS Qual | MSD Qual |
| C10-C36 | 105 | 96 | 57 - 115 | 9 | 23 | | |
| C10-C28 | 106 | 97 | 56 - 115 | 10 | 23 | | |

| Surrogate | MS % Rec | MSD % Rec | Acceptance Limits |
|---|---|---|---|
| o-Terphenyl | 106 | 97 | 49 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Method Blank - Batch: 280-107193**

**Method: NWTPH-Dx**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | MB 280-107193/1-A | Analysis Batch: | 280-108095 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-107193 | Lab File ID: | 028B2801.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 32.5 g |
| Analysis Date: | 02/13/2012 2148 | Units: | ug/Kg | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/10/2012 1855 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| Analyte | Result | Qual | MDL | RL |
|---|---|---|---|---|
| C10-C36 | 920 | U | 920 | 3700 |
| C10-C28 | 829 | J | 630 | 3700 |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| o-Terphenyl | 94 | 49 - 115 |

**Lab Control Sample - Batch: 280-107193**

**Method: NWTPH-Dx**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LCS 280-107193/2-A | Analysis Batch: | 280-108095 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-107193 | Lab File ID: | 029B2901.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 31.7 g |
| Analysis Date: | 02/13/2012 2217 | Units: | ug/Kg | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/10/2012 1855 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| Analyte | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|
| C10-C36 | 63100 | 63900 | 101 | 57 - 115 | |
| C10-C28 | 63100 | 64600 | 102 | 53 - 115 | |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| o-Terphenyl | 103 | 49 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 280-107193**

**Method: NWTPH-Dx**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 280-25257-4 | Analysis Batch: | 280-108095 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-107193 | Lab File ID: | 031B3101.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 30.3 g |
| Analysis Date: | 02/13/2012 2313 | | | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/10/2012 1855 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MSD Lab Sample ID: | 280-25257-4 | Analysis Batch: | 280-108095 | Instrument ID: | GCS_U |
| Client Matrix: | Solid | Prep Batch: | 280-107193 | Lab File ID: | 032B3201.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 30.4 g |
| Analysis Date: | 02/13/2012 2342 | | | Final Weight/Volume: | 1000 uL |
| Prep Date: | 02/10/2012 1855 | | | Injection Volume: | 1 uL |
| Leach Date: | N/A | | | | |

| | % Rec. | | | | | | |
|---|---|---|---|---|---|---|---|
| Analyte | MS | MSD | Limit | RPD | RPD Limit | MS Qual | MSD Qual |
| C10-C36 | 91 | 90 | 57 - 115 | 1 | 23 | | |
| C10-C28 | 94 | 92 | 56 - 115 | 3 | 23 | | |

| Surrogate | MS % Rec | MSD % Rec | Acceptance Limits |
|---|---|---|---|
| o-Terphenyl | 96 | 93 | 49 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Method Blank - Batch: 280-106370**

**Method: 8310**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | MB 280-106370/1-A | Analysis Batch: | 280-107117 | Instrument ID: | CHHPLC_G |
| Client Matrix: | Solid | Prep Batch: | 280-106370 | Lab File ID: | G0210029.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 32.6 g |
| Analysis Date: | 02/11/2012 0340 | Units: | ug/Kg | Final Weight/Volume: | 4000 uL |
| Prep Date: | 02/06/2012 1545 | | | Injection Volume: | 20 uL |
| Leach Date: | N/A | | | Column ID: | PRIMARY |

| Analyte | Result | Qual | MDL | RL |
|---|---|---|---|---|
| Acenaphthene | 9.2 | U | 9.2 | 92 |
| Acenaphthylene | 8.3 | U | 8.3 | 92 |
| Anthracene | 2.8 | U | 2.8 | 18 |
| Benzo[a]anthracene | 2.9 | U | 2.9 | 14 |
| Benzo[a]pyrene | 5.9 | U | 5.9 | 14 |
| Benzo[b]fluoranthene | 3.9 | U | 3.9 | 14 |
| Benzo[g,h,i]perylene | 6.6 | U | 6.6 | 28 |
| Benzo[k]fluoranthene | 3.6 | U | 3.6 | 14 |
| Chrysene | 4.5 | U | 4.5 | 37 |
| Dibenzo(a,h)anthracene | 10 | U | 10 | 28 |
| Fluoranthene | 12 | U | 12 | 37 |
| Fluorene | 4.9 | U | 4.9 | 28 |
| Indeno[1,2,3-cd]pyrene | 11 | U | 11 | 28 |
| Naphthalene | 11 | U | 11 | 92 |
| Phenanthrene | 11 | U | 11 | 37 |
| Pyrene | 11 | U | 11 | 37 |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| Terphenyl-d14 (SUR) | 95 | 72 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Lab Control Sample - Batch: 280-106370**

**Method: 8310**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LCS 280-106370/2-A | Analysis Batch: | 280-107117 | Instrument ID: | CHHPLC_G |
| Client Matrix: | Solid | Prep Batch: | 280-106370 | Lab File ID: | G0210030.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 30.1 g |
| Analysis Date: | 02/11/2012 0411 | Units: | ug/Kg | Final Weight/Volume: | 4000 uL |
| Prep Date: | 02/06/2012 1545 | | | Injection Volume: | 20 uL |
| Leach Date: | N/A | | | Column ID: | PRIMARY |

| Analyte | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|
| Acenaphthene | 1990 | 2060 | 103 | 78 - 116 | |
| Acenaphthylene | 1990 | 2000 | 100 | 76 - 115 | |
| Anthracene | 1990 | 2100 | 106 | 74 - 115 | |
| Benzo[a]anthracene | 1990 | 2180 | 110 | 85 - 120 | |
| Benzo[a]pyrene | 1990 | 2090 | 105 | 74 - 121 | |
| Benzo[b]fluoranthene | 1990 | 2180 | 109 | 85 - 115 | |
| Benzo[g,h,i]perylene | 1990 | 2260 | 113 | 85 - 120 | |
| Benzo[k]fluoranthene | 1990 | 2080 | 105 | 85 - 115 | |
| Chrysene | 1990 | 2060 | 103 | 83 - 115 | |
| Dibenzo(a,h)anthracene | 1990 | 2130 | 107 | 83 - 115 | |
| Fluoranthene | 1990 | 2110 | 106 | 83 - 115 | |
| Fluorene | 1990 | 2080 | 104 | 80 - 115 | |
| Indeno[1,2,3-cd]pyrene | 1990 | 2190 | 110 | 85 - 123 | |
| Naphthalene | 1990 | 2060 | 103 | 80 - 121 | |
| Phenanthrene | 1990 | 2090 | 105 | 80 - 115 | |
| Pyrene | 1990 | 2100 | 105 | 75 - 116 | |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| Terphenyl-d14 (SUR) | 99 | 72 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 280-106370**

**Method: 8310**
**Preparation: 3550C**

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 280-25257-4 | Analysis Batch: | 280-107117 | Instrument ID: | CHHPLC_G |
| Client Matrix: | Solid | Prep Batch: | 280-106370 | Lab File ID: | G0210032.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 30.9 g |
| Analysis Date: | 02/11/2012 0512 | | | Final Weight/Volume: | 4000 uL |
| Prep Date: | 02/06/2012 1545 | | | Injection Volume: | 20 uL |
| Leach Date: | N/A | | | Column ID: | PRIMARY |

| | | | | | |
|---|---|---|---|---|---|
| MSD Lab Sample ID: | 280-25257-4 | Analysis Batch: | 280-107117 | Instrument ID: | CHHPLC_G |
| Client Matrix: | Solid | Prep Batch: | 280-106370 | Lab File ID: | G0210033.D |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 31.2 g |
| Analysis Date: | 02/11/2012 0543 | | | Final Weight/Volume: | 4000 uL |
| Prep Date: | 02/06/2012 1545 | | | Injection Volume: | 20 uL |
| Leach Date: | N/A | | | Column ID: | PRIMARY |

| Analyte | % Rec. MS | % Rec. MSD | Limit | RPD | RPD Limit | MS Qual | MSD Qual |
|---|---|---|---|---|---|---|---|
| Acenaphthene | 86 | 99 | 78 - 116 | 0 | 20 | | |
| Acenaphthylene | 84 | 93 | 76 - 115 | 3 | 21 | | |
| Anthracene | 89 | 100 | 74 - 115 | 2 | 20 | | |
| Benzo[a]anthracene | 92 | 103 | 85 - 120 | 2 | 20 | | |
| Benzo[a]pyrene | 86 | 100 | 74 - 121 | 2 | 20 | | |
| Benzo[b]fluoranthene | 88 | 100 | 85 - 115 | 1 | 20 | | |
| Benzo[g,h,i]perylene | 94 | 109 | 85 - 120 | 2 | 20 | | |
| Benzo[k]fluoranthene | 87 | 99 | 85 - 115 | 0 | 20 | | |
| Chrysene | 86 | 97 | 83 - 115 | 2 | 20 | | |
| Dibenzo(a,h)anthracene | 90 | 102 | 83 - 115 | 1 | 20 | | |
| Fluoranthene | 89 | 100 | 83 - 115 | 2 | 20 | | |
| Fluorene | 88 | 98 | 80 - 115 | 3 | 20 | | |
| Indeno[1,2,3-cd]pyrene | 93 | 104 | 85 - 123 | 3 | 20 | | |
| Naphthalene | 88 | 97 | 80 - 121 | 3 | 20 | | |
| Phenanthrene | 88 | 98 | 80 - 115 | 2 | 20 | | |
| Pyrene | 89 | 99 | 75 - 116 | 3 | 20 | | |

| Surrogate | MS % Rec | | MSD % Rec | Acceptance Limits |
|---|---|---|---|---|
| Terphenyl-d14 (SUR) | 67 | * | 97 | 72 - 115 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Method Blank - Batch: 280-106154**

**Method: 6010B**
**Preparation: 3050B**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | MB 280-106154/1-A | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Client Matrix: | Solid | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 1 g |
| Analysis Date: | 02/15/2012 0135 | Units: | mg/Kg | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Result | Qual | MDL | RL |
|---|---|---|---|---|
| Aluminum | 1.6 | U | 1.6 | 5.0 |
| Antimony | 0.38 | U | 0.38 | 0.60 |
| Arsenic | 0.66 | U | 0.66 | 1.0 |
| Barium | 0.0790 | B | 0.076 | 0.50 |
| Beryllium | 0.033 | U | 0.033 | 0.20 |
| Boron | 0.98 | U | 0.98 | 2.0 |
| Cadmium | 0.041 | U | 0.041 | 0.20 |
| Calcium | 14.32 | B | 14.1 | 50.0 |
| Chromium | 0.058 | U | 0.058 | 0.20 |
| Cobalt | 0.10 | U | 0.10 | 1.0 |
| Copper | 0.22 | U | 0.22 | 1.0 |
| Iron | 3.8 | U | 3.8 | 5.0 |
| Lead | 0.27 | U | 0.27 | 0.50 |
| Magnesium | 3.7 | U | 3.7 | 20.0 |
| Manganese | 0.10 | U | 0.10 | 1.0 |
| Molybdenum | 0.26 | U | 0.26 | 2.0 |
| Nickel | 0.12 | U | 0.12 | 4.0 |
| Potassium | 41.0 | U | 41.0 | 300 |
| Selenium | 0.86 | U | 0.86 | 1.0 |
| Silicon | 5.7 | U | 5.7 | 10.0 |
| Silver | 0.16 | U | 0.16 | 0.20 |
| Sodium | 59.0 | U | 59.0 | 120 |
| Vanadium | 0.094 | U | 0.094 | 2.0 |
| Zinc | 0.40 | U | 0.40 | 1.0 |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Lab Control Sample - Batch: 280-106154**

**Method: 6010B**
**Preparation: 3050B**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LCS 280-106154/2-A | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Client Matrix: | Solid | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 1 g |
| Analysis Date: | 02/15/2012 0138 | Units: | mg/Kg | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|
| Aluminum | 200 | 199.0 | 99 | 82 - 116 | |
| Antimony | 50.0 | 49.92 | 100 | 82 - 110 | |
| Arsenic | 100 | 98.78 | 99 | 85 - 110 | |
| Barium | 200 | 207.0 | 103 | 87 - 112 | |
| Beryllium | 5.00 | 5.18 | 104 | 84 - 114 | |
| Boron | 100 | 96.57 | 97 | 81 - 110 | |
| Cadmium | 10.0 | 9.55 | 95 | 87 - 110 | |
| Calcium | 5000 | 5116 | 102 | 82 - 114 | |
| Chromium | 20.0 | 20.23 | 101 | 84 - 114 | |
| Cobalt | 50.0 | 50.33 | 101 | 87 - 110 | |
| Copper | 25.0 | 25.76 | 103 | 88 - 110 | |
| Iron | 100 | 101.6 | 102 | 87 - 120 | |
| Lead | 50.0 | 50.51 | 101 | 86 - 110 | |
| Magnesium | 5000 | 5010 | 100 | 90 - 110 | |
| Manganese | 50.0 | 51.02 | 102 | 88 - 110 | |
| Molybdenum | 100 | 101.0 | 101 | 86 - 110 | |
| Nickel | 50.0 | 50.86 | 102 | 87 - 110 | |
| Potassium | 5000 | 5297 | 106 | 89 - 110 | |
| Selenium | 200 | 192.4 | 96 | 83 - 110 | |
| Silicon | 1000 | 84.81 | 8 | 10 - 70 | N |
| Silver | 5.00 | 4.97 | 99 | 87 - 114 | |
| Sodium | 5000 | 5412 | 108 | 90 - 112 | |
| Vanadium | 50.0 | 50.62 | 101 | 88 - 110 | |
| Zinc | 50.0 | 50.52 | 101 | 76 - 114 | |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Matrix Spike - Batch: 280-106154**

**Method: 6010B**
**Preparation: 3050B**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | 280-25257-1 | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Client Matrix: | Solid | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 1.04 g |
| Analysis Date: | 02/15/2012 0147 | Units: | mg/Kg | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Sample Result/Qual | | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | 8950 | | 213 | 10670 | 804 | 50 - 200 | 4 |
| Antimony | 2.1 | | 53.4 | 30.28 | 53 | 20 - 200 | |
| Arsenic | 3.1 | | 107 | 95.82 | 87 | 76 - 111 | |
| Barium | 89.4 | | 213 | 297.8 | 98 | 52 - 159 | |
| Beryllium | 0.54 | | 5.34 | 5.27 | 89 | 72 - 105 | |
| Boron | 2.5 | | 107 | 89.07 | 81 | 75 - 107 | |
| Cadmium | 0.14 | B | 10.7 | 9.05 | 83 | 40 - 130 | |
| Calcium | 4790 | | 5340 | 11270 | 121 | 43 - 165 | |
| Chromium | 14.7 | | 21.3 | 33.54 | 88 | 70 - 200 | |
| Cobalt | 6.5 | | 53.4 | 51.70 | 85 | 72 - 106 | |
| Copper | 14.5 | | 26.7 | 40.60 | 98 | 37 - 187 | |
| Iron | 20000 | | 107 | 20190 | 187 | 70 - 200 | 4 |
| Lead | 665 | | 53.4 | 803.4 | 260 | 70 - 200 | 4 |
| Magnesium | 5070 | | 5340 | 9595 | 85 | 64 - 145 | |
| Manganese | 315 | | 53.4 | 353.3 | 72 | 40 - 200 | 4 |
| Molybdenum | 0.27 | U | 107 | 89.71 | 84 | 75 - 103 | |
| Nickel | 12.9 | | 53.4 | 58.19 | 85 | 61 - 126 | |
| Potassium | 2450 | | 5340 | 7371 | 92 | 56 - 172 | |
| Selenium | 0.91 | U | 213 | 178.0 | 83 | 76 - 104 | |
| Silicon | 363 | | 1070 | 514.3 | 14 | 20 - 200 | N |
| Silver | 0.17 | U | 5.34 | 4.79 | 90 | 75 - 141 | |
| Sodium | 237 | | 5340 | 5401 | 97 | 78 - 111 | |
| Vanadium | 39.6 | | 53.4 | 88.69 | 92 | 50 - 169 | |
| Zinc | 87.5 | | 53.4 | 131.3 | 82 | 70 - 200 | |

## Quality Control Results

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Duplicate - Batch: 280-106154**

**Method: 6010B**
**Preparation: 3050B**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | 280-25257-1 | Analysis Batch: | 280-107669 | Instrument ID: | MT_025 |
| Client Matrix: | Solid | Prep Batch: | 280-106154 | Lab File ID: | 25A4021412.asc |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 1.04 g |
| Analysis Date: | 02/15/2012 0144 | Units: | mg/Kg | Final Weight/Volume: | 100 mL |
| Prep Date: | 02/14/2012 1330 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Sample Result/Qual | | Result | RPD | Limit | Qual |
|---|---|---|---|---|---|---|
| Aluminum | 8950 | | 8602 | 4 | 40 | |
| Antimony | 2.1 | | 4.94 | 80 | 40 | M |
| Arsenic | 3.1 | | 2.87 | 9 | 30 | |
| Barium | 89.4 | | 85.85 | 4 | 30 | |
| Beryllium | 0.54 | | 0.572 | 6 | 30 | |
| Boron | 2.5 | | 2.59 | 5 | 30 | |
| Cadmium | 0.14 | B | 0.152 | 5 | 30 | B |
| Calcium | 4790 | | 4679 | 2 | 30 | |
| Chromium | 14.7 | | 14.31 | 3 | 40 | |
| Cobalt | 6.5 | | 6.40 | 2 | 30 | |
| Copper | 14.5 | | 14.46 | 0.2 | 30 | |
| Iron | 20000 | | 18870 | 6 | 40 | |
| Lead | 665 | | 2737 | 122 | 40 | M |
| Magnesium | 5070 | | 4961 | 2 | 30 | |
| Manganese | 315 | | 305.5 | 3 | 40 | |
| Molybdenum | 0.27 | U | 0.28 | NC | 30 | U |
| Nickel | 12.9 | | 12.81 | 0.6 | 30 | |
| Potassium | 2450 | | 2378 | 3 | 40 | |
| Selenium | 0.91 | U | 0.92 | NC | 30 | U |
| Silicon | 363 | | 330.4 | 9 | 40 | N |
| Silver | 0.17 | U | 0.17 | NC | 30 | U |
| Sodium | 237 | | 231.9 | 2 | 30 | |
| Vanadium | 39.6 | | 40.08 | 1 | 30 | |
| Zinc | 87.5 | | 94.31 | 7 | 40 | |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Method Blank - Batch: 280-106606**

**Method: 7471A**
**Preparation: 7471A**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | MB 280-106606/1-A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Client Matrix: | Solid | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 0.6 g |
| Analysis Date: | 02/10/2012 1733 | Units: | mg/Kg | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Result | Qual | MDL | RL |
|---|---|---|---|---|
| Mercury | 0.0055 | U | 0.0055 | 0.017 |

**Lab Control Sample - Batch: 280-106606**

**Method: 7471A**
**Preparation: 7471A**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LCS 280-106606/2-A | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Client Matrix: | Solid | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 0.6 g |
| Analysis Date: | 02/10/2012 1736 | Units: | mg/Kg | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|
| Mercury | 0.417 | 0.448 | 107 | 87 - 111 | |

**Matrix Spike - Batch: 280-106606**

**Method: 7471A**
**Preparation: 7471A**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | 280-25257-1 | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Client Matrix: | Solid | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 0.55 g |
| Analysis Date: | 02/10/2012 1743 | Units: | mg/Kg | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Sample Result/Qual | | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|---|---|
| Mercury | 0.016 | B | 0.505 | 0.574 | 111 | 87 - 111 | |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Duplicate - Batch: 280-106606**

**Method: 7471A**
**Preparation: 7471A**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | 280-25257-1 | Analysis Batch: | 280-107326 | Instrument ID: | MT_033 |
| Client Matrix: | Solid | Prep Batch: | 280-106606 | Lab File ID: | 120210ab.txt |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 0.55 g |
| Analysis Date: | 02/10/2012 1740 | Units: | mg/Kg | Final Weight/Volume: | 50 mL |
| Prep Date: | 02/10/2012 1200 | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Sample Result/Qual | | Result | RPD | Limit | Qual |
|---|---|---|---|---|---|---|
| Mercury | 0.016 | B | 0.0138 | 14 | 20 | B |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Lab Control Sample/**
**Lab Control Sample Duplicate Recovery Report - Batch: 280-106054**

**Method: 9045C**
**Preparation: N/A**

| | | | | | |
|---|---|---|---|---|---|
| LCS Lab Sample ID: | LCS 280-106054/4 | Analysis Batch: | 280-106054 | Instrument ID: | WC_pH Probe |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 020212H.txt |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 1.0 mL |
| Analysis Date: | 02/02/2012 1753 | Units: | SU | Final Weight/Volume: | 1.0 mL |
| Prep Date: | N/A | | | | |
| Leach Date: | N/A | | | | |

| | | | | | |
|---|---|---|---|---|---|
| LCSD Lab Sample ID: | LCSD 280-106054/5 | Analysis Batch: | 280-106054 | Instrument ID: | WC_pH Probe |
| Client Matrix: | Water | Prep Batch: | N/A | Lab File ID: | 020212H.txt |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | 1.0 mL |
| Analysis Date: | 02/02/2012 1755 | Units: | SU | Final Weight/Volume: | 1.0 mL |
| Prep Date: | N/A | | | | |
| Leach Date: | N/A | | | | |

| Analyte | % Rec. LCS | % Rec. LCSD | Limit | RPD | RPD Limit | LCS Qual | LCSD Qual |
|---|---|---|---|---|---|---|---|
| pH adj. to 25 deg C-Soluble | 101 | 100 | 97 - 103 | 0 | 5 | | |

**Duplicate - Batch: 280-106054**

**Method: 9045C**
**Preparation: N/A**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | 280-25257-1 | Analysis Batch: | 280-106054 | Instrument ID: | WC_pH Probe |
| Client Matrix: | Solid | Prep Batch: | N/A | Lab File ID: | 020212H.txt |
| Dilution: | 1.0 | Leach Batch: | 280-106046 | Initial Weight/Volume: | 1.0 mL |
| Analysis Date: | 02/02/2012 1800 | Units: | SU | Final Weight/Volume: | 1.0 mL |
| Prep Date: | N/A | | | | |
| Leach Date: | 02/02/2012 1703 | | | | |

| Analyte | Sample Result/Qual | Result | RPD | Limit | Qual |
|---|---|---|---|---|---|
| pH adj. to 25 deg C-Soluble | 8.86 | 8.860 | 0 | 5 | |

Client: Washington Closure Hanford

Job Number: 280-25257-1
Sdg Number: J01409

**Duplicate - Batch: 280-106476**

**Method: D-2216**
**Preparation: N/A**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | 280-25257-1 | Analysis Batch: | 280-106476 | Instrument ID: | No Equipment |
| Client Matrix: | Solid | Prep Batch: | N/A | Lab File ID: | N/A |
| Dilution: | 1.0 | Leach Batch: | N/A | Initial Weight/Volume: | |
| Analysis Date: | 02/07/2012 0859 | Units: | % | Final Weight/Volume: | |
| Prep Date: | N/A | | | | |
| Leach Date: | N/A | | | | |

| Analyte | Sample Result/Qual | Result | RPD | Limit | Qual |
|---|---|---|---|---|---|
| Percent Moisture | 9.9 | 10.1 | 2 | 20 | |

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-210-010 | Page 1 of 1 |
|---|---|---|---|
| Collector: MOORE, BR | Company Contact: Joan Kessner; Telephone No.: (509) 375-4688 | Project Coordinator: KESSNER, JH | Price Code: ~~8C~~ JR 1/30/12 8L; Data Turnaround: JR 1/30/12 ~~15 Days~~ 21 Days |
| Project Designation: 100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 1 | Sampling Location: 600-299 Area 2 | SAF No.: RC-210 | |
| Ice Chest No.: WCH-11-058 | Field Logbook No.: EL-1651-02; COA: JR 1/30/12 ~~0602998100~~ 0602992000 | Method of Shipment: FedEx | |
| Shipped To: TestAmerica Incorporated, Richland (Denver) | Offsite Property No.: A110 126 | Bill of Lading/Air Bill No.: See OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*None*

**Special Handling and/or Storage**

*Cool 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | Cool 4C | | | | | | | | | |
| Type of Container | G/P | G/P | | | | | | | | | |
| No. of Container(s) | 1 | 1 | | | | | | | | | |
| Volume | 60mL | 60mL | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | See item (2) in Special Instructions. | | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | JR 1/30/12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J1N3J1 | SOIL | 1-31-12 | 1030 | X | X | | | | | | | MAIN | ~~MAIN~~ |
| J1N3J2 | SOIL | 1-31-12 | 1030 | X | X | | | | | | | | DUP |
| J1N3J3 | SOIL | 1-31-12 | 1020 | X | ~~JR 1/30/12~~ | | | | | | | | EB |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| Brandt Mook | 1-31-12 1300 | JenRussell JenRussell | 1-31-12 1300 |
| JenRussell JenRussell | 1-31-12 1445 | A. Freier (106041) A. Freier | 1-31-12 1445 |
| A. Freier (106041) A. Freier | 2-1-12 1140 WCH | Fed Ex | |
| | | [illegible] | 2/2/12 0930 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

(2) ~~IC Anions - 9056 Modified {Bromide, Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate}; NO2/NO3 - 353.2;~~ pH (Soil) - 9045 {pH Measurement}

JR 1/30/12

SOG
J01409

REVIEWED BY CMB DATE 2/1/12

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

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

WCH-EE-011

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-210-011 | Page 1 of 1 |
|---|---|---|---|
| Collector: MOORE, BR | Company Contact: Joan Kessner; Telephone No.: (509) 375-4688 | Project Coordinator: KESSNER, JH | Price Code: ~~8C~~ 8L (JR 1/30/12); Data Turnaround: ~~15 Days~~ 21 Days (JR 1/30/12) |
| Project Designation: 100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 1 | Sampling Location: 600-320 Area 8 | SAF No.: RC-210 | |
| Ice Chest No.: WCH-11-058 | Field Logbook No.: EL-1651-02; COA: 0603202000 | Method of Shipment: FedEx | |
| Shipped To: TestAmerica Incorporated, Richland (Denver) | Offsite Property No.: A110126 | Bill of Lading/Air Bill No.: See OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*None*

**Special Handling and/or Storage**

*Cool 4C*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | | | | Cool 4C | Cool 4C | Cool 4C | | | | | | |
| Type of Container | | | | G/P | G | aG | | | | | | |
| No. of Container(s) | | | | 1 | 1 | 1 | | | | | | |
| Volume | | | | 60mL | 120mL | 120mL | | | | | | |
| SAMPLE ANALYSIS | | | | See item (1) in Special Instructions. | TPH-Diesel Range - WTPH-D + | PAHs - 8310 | | | | | | |
| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | |
| J1N3J4 | SOIL | 1-31-12 | 0906 | X | X | X | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — **Sign/Print Names**

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| Brandt Moore | 1-31-12 1300 | JenRussell JenRussell | 1-31-12 1300 |
| JenRussell JenRussell | 1-31-12 1445 | 1060#1 A. Freier A. Freier | 1-31-12 1445 |
| 1060#1 A. Freier A. Freier | WCH 1140 2-1-12 | Fed Ex | |
| | | [illegible] | 2/2/12 0930 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Close-out List) (Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc); Mercury - 7471 - (CV) {Mercury}

SDG J01409

REVIEWED BY CMB DATE 2/1/12

Matrix *: S=Soil; SE=Sediment; SO=Solid; SI=Sludge; W = Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other

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

WCH-EE-011

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-210-013 | Page 1 of 1 |
|---|---|---|---|
| Collector: MOORE, BR | Company Contact: Joan Kessner; Telephone No.: (509) 375-4688 | Project Coordinator: KESSNER, JH | Price Code: ~~8C~~ 8L (JR 1/30/12); Data Turnaround: ~~15 Days~~ 21 Days (JR 1/30/12) |
| Project Designation: 100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 1 | Sampling Location: 600-318 Area 4 | SAF No.: RC-210 | |
| Ice Chest No.: WCH-11-058 | Field Logbook No.: EL-1651-02; COA: 0603182000 | Method of Shipment: FedEx | |
| Shipped To: TestAmerica Incorporated, Richland (Denver) | Offsite Property No.: A110126 | Bill of Lading/Air Bill No.: See OSPC | |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*None*

**Special Handling and/or Storage**

*Cool 4C*

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | | | | | | | | | | |
| Type of Container | G/P | | | | | | | | | | |
| No. of Container(s) | 1 | | | | | | | | | | |
| Volume | 60mL | | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | | | | | | | | | | |

| Sample No. | Matrix * | Sample Date | Sample Time | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| J1N3J8 | SOIL | 1-31-12 | 1000 | X | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| CHAIN OF POSSESSION | Sign/Print Names | SPECIAL INSTRUCTIONS | Matrix * |
|---|---|---|---|
| Relinquished By/Removed From: Brandt Moore 1-31-12 1300 | Received By/Stored In: Jen Russell/Jen Russell 1-31-12 1300 | (1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury} | S=Soil; SE=Sediment; SO=Solid; SI=Sludge; W = Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; WI=Wipe; L=Liquid; V=Vegetation; X=Other |
| Relinquished By/Removed From: Jen Russell/Jen Russell 1-31-12 1445 | Received By/Stored In: 106041 A. Freier A. Freier 1-31-12 1445 | | |
| Relinquished By/Removed From: WCH A. Freier A. Freier 2-1-12 1060#1 1140 | Received By/Stored In: Fed Ex | | |
| Relinquished By/Removed From: | Received By/Stored In: [illegible] 2/2/12 0930 | | |
| Relinquished By/Removed From: | Received By/Stored In: | | |
| Relinquished By/Removed From: | Received By/Stored In: | | |

SDG J01409

REVIEWED BY CMB DATE 2/1/12

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

WCH-EE-011

| Washington Closure Hanford | CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST | RC-210-014 | Page 1 of 1 |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Collector<br>MOORE, BR | Company Contact<br>Joan Kessner | Telephone No.<br>(509) 375-4688 | Project Coordinator<br>KESSNER, JH |
| Price Code ~~8C~~ 8L JR 1/30/12 | Data Turnaround ~~15 Days~~ 21 Days JR 1/30/12 | | |
| Project Designation<br>100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 1 | Sampling Location<br>600-320 Area 7 | | SAF No.<br>RC-210 |
| Ice Chest No. WCH-11-058 | Field Logbook No.<br>EL-1651-02 | COA<br>0603202000 | Method of Shipment<br>FedEx |
| Shipped To<br>TestAmerica Incorporated, Richland (Denver) | Offsite Property No. A110126 | | Bill of Lading/Air Bill No.<br>See OSPC |

**POSSIBLE SAMPLE HAZARDS/REMARKS**

*None*

**Special Handling and/or Storage**

*Cool 4C*

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Preservation | Cool 4C | Cool 4C | Cool 4C | | | | | | | | | |
| Type of Container | G/P | G | aG | | | | | | | | | |
| No. of Container(s) | 1 | 1 | 1 | | | | | | | | | |
| Volume | 60mL | 120mL | 120mL | | | | | | | | | |
| SAMPLE ANALYSIS | See item (1) in Special Instructions. | TPH-Diesel Range - WTPH-D + | PAHs - 8310 | | | | | | | | | |
| Sample No. / Matrix * / Sample Date / Sample Time | | | | | | | | | | | | |
| J1N3J9 / SOIL / 1-31-12 / 0939 | X | X | X | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

**CHAIN OF POSSESSION** — Sign/Print Names

| Relinquished By/Removed From | Date/Time | Received By/Stored In | Date/Time |
|---|---|---|---|
| Brandt Moore | 1-31-12 1300 | Jen Russell Jen Russell | 1-31-12 1300 |
| Jen Russell Jen Russell | 1-31-12 1445 | A. Freier A. Freier 1060#1 | 1-31-12 1445 |
| A. Freier A. Freier 1060#1 (WCH) | 2-1-12 1140 | Fed Ex | |
| | | W. Phillips | 2/2/12 0920 |
| | | | |
| | | | |

**SPECIAL INSTRUCTIONS**

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

SDG J01409

REVIEWED BY CMB DATE 2/1/12

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

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

WCH-EE-011

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Project 28002142 -Gantry -Sand

Analytical Due:

Report Due: 2/13/12

# Sample Check-in List

Date/Time Received: 2/2/12 0930 GM Screen Result 12 microR/hr

Client: Washington Closure Hanford SDG #: J01409 NA[ ] SAF #: RC-210 NA [ ]

Job Number: 25257 Chain of Custody # RC-210-010, 011, 013, 014

Shipping Container ID: WCH-11-058 Air Bill # 7980 1295 3099

1. Custody Seals on shipping container intact? NA [ ] Yes [✓] No [ ]
2. Custody Seals dated and signed? NA [ ] Yes [✓] No [ ]
3. Chain of Custody record present? NA [ ] Yes [✓] No [ ]
4. Cooler Temperature °C: 3.1 NA [ ] 5. Vermiculite/packing materials is NA [ ] Wet [ ] Dry [✓]
6. Number of samples in shipping container: 6
7. Sample holding times exceeded? NA [ ] Yes [ ] No [✓]
8. Samples have:
   - [✓] Tape
   - [ ] Custody Seals
   - [ ] Hazard Lables
   - [✓] Appropriate Sample Lables
9. Samples are:
   - [✓] In Good Condition
   - [ ] Broken
   - [ ] Leaking
   - [ ] Have Air Bubbles
   (Only for samples requiring no head space.)
10. Sample pH taken? NA [✓] pH<2 [ ] pH>2 [ ] pH>9 [ ] Amount $HNO_3$ Added _____
11. Sample Location, Sample Collector Listed? *
    *For documentation only. No corrective action needed.
12. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
13. Description of anomalies (include sample numbers): _____

Sample Custodian: [signature] Date: 2/2/12

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

Client Informed on _____ by _____ Person Contacted _____

[ ] No action necessary; process as is.

Project Manager [signature] Date 2/3/12



LS-023, Rev. 7, 1/08

From: (509) 376-7768
1162 SHIPPING DEPT
US DOE
2355 STEVENS DR

RICHLAND, WA 99354

Origin ID: PSCA

FedEx Express

J12101112190225

Ship Date: 01FEB12
ActWgt: 48.0 LB
CAD: 5851986/INET3250

Delivery Address Bar Code

Ref # 06022992000
Invoice #
PO #
Dept #

SHIP TO: (303) 736-0190 BILL THIRD PARTY

**KAE YODER**
**TEST AMERICA**
**4955 YARROW ST # A110126**

**ARVADA, CO 80002**

THU - 02 FEB A1
PRIORITY OVERNIGHT

TRK# 0201 7980 1295 3099

**XH WHHA**

80002
CO-US
DEN

512G1/BF59/A278

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