# SAF-RC-190
# 100N Field Remediation – Soil In-Process
# FINAL DATA PACKAGE

**COMPLETE COPY OF DATA PACKAGE TO:**

Kathy Wendt H4-21 KW 1/6/14
INITIAL/DATE

**COMMENTS:**

**SDG J02057 SAF-RC-190**

Rad only ☑ Chem only Rad & Chem

☑ Complete Partial

**Sample Location: 100-N Maintenance Area**

# ANALYTICAL REPORT

Job Number: 280-50310-1

SDG Number: J02057

Job Description: SAF# RC-190

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

Attention: Joan H Kessner

Approved for release.
Michelle A Johnston
Project Manager II
12/31/2013 2:01 PM

Designee for
Kae E Yoder, Senior Project Manager
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(303)736-0190
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12/31/2013

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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# CASE NARRATIVE

## Client: Washington Closure Hanford

## Project: WASHINGTON CLOSURE HANFORD

## Report Number: 280-50310-1

**SDG #: J02057**
**SAF#: RC-190**

**Date SDG Closed: December 13, 2013**
**Data Deliverable: 21 Day / Summary**

| CLIENT ID | LAB ID | ANALYSES REQUESTED | ANALYSES PERFORMED |
|---|---|---|---|
| J1T6W2 | 280-50310-1 | TCLP VOA-1311/8260A | TCLP VOA-1311/8260B |

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.

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 sample was received on 12/13/2013 10:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

**TCLP VOLATILES - SW846 1311/8260B**
Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to the presence of interfering, non-target compounds, a reduced aliquot size was used for the analysis of sample J1T6W2. The reporting limits have been adjusted accordingly.

The MS/MSD performed on sample J1T6W2 exhibited spike compound recoveries outside the control limits, and the associated sample results have been flagged “T”. 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.

# DATA REPORTING QUALIFIERS

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

| Lab Section | Qualifier | Description |
|---|---|---|
| GC/MS VOA | | |
| | U | Analyzed for but not detected. |
| | T | MS, MSD: Recovery exceeds upper or lower control limits. |

## SAMPLE SUMMARY

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

| Lab Sample ID | Client Sample ID | Client Matrix | Date/Time Sampled | Date/Time Received |
|---|---|---|---|---|
| 280-50310-1 | J1T6W2 | Solid | 12/11/2013 0945 | 12/13/2013 1030 |

# METHOD SUMMARY

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

| Description | Lab Location | Method | Preparation Method |
|---|---|---|---|
| **Matrix: Solid** | | | |
| TCLP Volatiles | TAL DEN | SW846 8260B | |
| TCLP Extraction | TAL DEN | | SW846 1311 |
| Purge and Trap | TAL DEN | | SW846 5030B |

**Lab References:**

TAL DEN = TestAmerica Denver

**Method References:**

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: 280-50310-1
Sdg Number: J02057

| Method | Analyst | Analyst ID |
|---|---|---|
| SW846 8260B | Lines, Jeremy N | JNL |

# SAMPLE RESULTS

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

**Client Sample ID:** **J1T6W2**

Lab Sample ID: 280-50310-1
Client Matrix: Solid

Date Sampled: 12/11/2013 0945
Date Received: 12/13/2013 1030

**8260B TCLP Volatiles-TCLP**

| | | | | | |
|---|---|---|---|---|---|
| Analysis Method: | 8260B | Analysis Batch: | 280-206856 | Instrument ID: | VMS_R1 |
| Prep Method: | 5030B | Prep Batch: | N/A | Lab File ID: | R1433.D |
| Dilution: | 1.0 | Leach Batch: | 280-206208 | Initial Weight/Volume: | 0.2 mL |
| Analysis Date: | 12/27/2013 2336 | | | Final Weight/Volume: | 20 mL |
| Prep Date: | 12/27/2013 2336 | | | | |
| Leach Date: | 12/20/2013 1715 | | | | |

| Analyte | DryWt Corrected: N | Result (mg/L) | Qualifier | MDL | RL |
|---|---|---|---|---|---|
| Benzene | | 2.3 | | 0.016 | 0.10 |
| 2-Butanone (MEK) | | 0.18 | U T | 0.18 | 1.0 |
| Carbon tetrachloride | | 0.019 | U | 0.019 | 0.10 |
| Chlorobenzene | | 0.017 | U | 0.017 | 0.10 |
| Chloroform | | 0.016 | U | 0.016 | 0.10 |
| 1,2-Dichloroethane | | 0.013 | U | 0.013 | 0.10 |
| 1,1-Dichloroethene | | 0.023 | U | 0.023 | 0.10 |
| Tetrachloroethene | | 0.020 | U | 0.020 | 0.10 |
| Trichloroethene | | 0.016 | U | 0.016 | 0.10 |
| Vinyl chloride | | 0.010 | U T | 0.010 | 0.10 |

| Surrogate | %Rec | Qualifier | Acceptance Limits |
|---|---|---|---|
| 1,2-Dichloroethane-d4 (Surr) | 106 | | 64 - 129 |
| Toluene-d8 (Surr) | 111 | | 78 - 120 |
| 4-Bromofluorobenzene (Surr) | 114 | | 78 - 121 |
| Dibromofluoromethane (Surr) | 110 | | 79 - 119 |

# QUALITY CONTROL RESULTS

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

## Surrogate Recovery Report

**8260B TCLP Volatiles**

**Client Matrix: Solid TCLP**

| Lab Sample ID | Client Sample ID | DCA %Rec | TOL %Rec | BFB %Rec | DBFM %Rec |
|---|---|---|---|---|---|
| 280-50310-1 | J1T6W2 | 106 | 111 | 114 | 110 |
| LB 280-206208/1-A | | 105 | 106 | 114 | 105 |
| LCS 280-206208/2-A | | 101 | 109 | 113 | 101 |
| 280-50310-1 MS | J1T6W2 MS | 110 | 111 | 112 | 110 |
| 280-50310-1 MSD | J1T6W2 MSD | 102 | 110 | 111 | 107 |

| Surrogate | Acceptance Limits |
|---|---|
| DCA = 1,2-Dichloroethane-d4 (Surr) | 64-129 |
| TOL = Toluene-d8 (Surr) | 78-120 |
| BFB = 4-Bromofluorobenzene (Surr) | 78-121 |
| DBFM = Dibromofluoromethane (Surr) | 79-119 |

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

**TCLP SPLPE Leachate Blank - Batch: 280-206856**

**Method: 8260B**
**Preparation: 5030B**
**TCLP**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LB 280-206208/1-A | Analysis Batch: | 280-206856 | Instrument ID: | VMS_R1 |
| Client Matrix: | Solid | Prep Batch: | N/A | Lab File ID: | R1431.D |
| Dilution: | 1.0 | Leach Batch: | 280-206208 | Initial Weight/Volume: | 2 mL |
| Analysis Date: | 12/27/2013 2253 | Units: | mg/L | Final Weight/Volume: | 20 mL |
| Prep Date: | 12/27/2013 2253 | | | | |
| Leach Date: | 12/20/2013 1715 | | | | |

| Analyte | Result | Qual | MDL | RL |
|---|---|---|---|---|
| Benzene | 0.0016 | U | 0.0016 | 0.010 |
| 2-Butanone (MEK) | 0.018 | U | 0.018 | 0.10 |
| Carbon tetrachloride | 0.0019 | U | 0.0019 | 0.010 |
| Chlorobenzene | 0.0017 | U | 0.0017 | 0.010 |
| Chloroform | 0.0016 | U | 0.0016 | 0.010 |
| 1,2-Dichloroethane | 0.0013 | U | 0.0013 | 0.010 |
| 1,1-Dichloroethene | 0.0023 | U | 0.0023 | 0.010 |
| Tetrachloroethene | 0.0020 | U | 0.0020 | 0.010 |
| Trichloroethene | 0.0016 | U | 0.0016 | 0.010 |
| Vinyl chloride | 0.0010 | U | 0.0010 | 0.010 |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 (Surr) | 105 | 64 - 129 |
| Toluene-d8 (Surr) | 106 | 78 - 120 |
| 4-Bromofluorobenzene (Surr) | 114 | 78 - 121 |
| Dibromofluoromethane (Surr) | 105 | 79 - 119 |

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

**Lab Control Sample - Batch: 280-206856**

**Method: 8260B**
**Preparation: 5030B**
**TCLP**

| | | | | | |
|---|---|---|---|---|---|
| Lab Sample ID: | LCS 280-206208/2-A | Analysis Batch: | 280-206856 | Instrument ID: | VMS_R1 |
| Client Matrix: | Solid | Prep Batch: | N/A | Lab File ID: | R1430.D |
| Dilution: | 1.0 | Leach Batch: | 280-206208 | Initial Weight/Volume: | 2 mL |
| Analysis Date: | 12/27/2013 2231 | Units: | mg/L | Final Weight/Volume: | 20 mL |
| Prep Date: | 12/27/2013 2231 | | | | |
| Leach Date: | 12/20/2013 1715 | | | | |

| Analyte | Spike Amount | Result | % Rec. | Limit | Qual |
|---|---|---|---|---|---|
| Benzene | 0.0500 | 0.0507 | 101 | 74 - 135 | |
| 2-Butanone (MEK) | 0.200 | 0.213 | 107 | 44 - 150 | |
| Carbon tetrachloride | 0.0500 | 0.0551 | 110 | 67 - 135 | |
| Chlorobenzene | 0.0500 | 0.0460 | 92 | 76 - 135 | |
| Chloroform | 0.0500 | 0.0503 | 101 | 76 - 120 | |
| 1,2-Dichloroethane | 0.0500 | 0.0525 | 105 | 70 - 135 | |
| 1,1-Dichloroethene | 0.0500 | 0.0492 | 98 | 71 - 136 | |
| Tetrachloroethene | 0.0500 | 0.0528 | 106 | 70 - 135 | |
| Trichloroethene | 0.0500 | 0.0529 | 106 | 73 - 135 | |
| Vinyl chloride | 0.0500 | 0.0686 | 137 | 40 - 144 | |

| Surrogate | % Rec | Acceptance Limits |
|---|---|---|
| 1,2-Dichloroethane-d4 (Surr) | 101 | 64 - 129 |
| Toluene-d8 (Surr) | 109 | 78 - 120 |
| 4-Bromofluorobenzene (Surr) | 113 | 78 - 121 |
| Dibromofluoromethane (Surr) | 101 | 79 - 119 |

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 280-206856**

**Method: 8260B**
**Preparation: 5030B**
**TCLP**

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 280-50310-1 | Analysis Batch: | 280-206856 | Instrument ID: | VMS_R1 |
| Client Matrix: | Solid | Prep Batch: | N/A | Lab File ID: | R1434.D |
| Dilution: | 1.0 | Leach Batch: | 280-206208 | Initial Weight/Volume: | 0.2 mL |
| Analysis Date: | 12/27/2013 2358 | | | Final Weight/Volume: | 20 mL |
| Prep Date: | 12/27/2013 2358 | | | | |
| Leach Date: | 12/20/2013 1715 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| MSD Lab Sample ID: | 280-50310-1 | Analysis Batch: | 280-206856 | Instrument ID: | VMS_R1 |
| Client Matrix: | Solid | Prep Batch: | N/A | Lab File ID: | R1435.D |
| Dilution: | 1.0 | Leach Batch: | 280-206208 | Initial Weight/Volume: | 0.2 mL |
| Analysis Date: | 12/28/2013 0020 | | | Final Weight/Volume: | 20 mL |
| Prep Date: | 12/28/2013 0020 | | | | |
| Leach Date: | 12/20/2013 1715 | | | | |

| Analyte | % Rec. MS | % Rec. MSD | Limit | RPD | RPD Limit | MS Qual | MSD Qual |
|---|---|---|---|---|---|---|---|
| Benzene | 83 | 59 | 74 - 135 | 4 | 20 | | |
| 2-Butanone (MEK) | 167 | 164 | 44 - 150 | 2 | 32 | T | T |
| Carbon tetrachloride | 111 | 109 | 67 - 135 | 1 | 21 | | |
| Chlorobenzene | 91 | 91 | 76 - 135 | 0 | 20 | | |
| Chloroform | 105 | 104 | 76 - 120 | 1 | 20 | | |
| 1,2-Dichloroethane | 128 | 126 | 70 - 135 | 1 | 20 | | |
| 1,1-Dichloroethene | 100 | 97 | 71 - 136 | 2 | 20 | | |
| Tetrachloroethene | 100 | 101 | 70 - 135 | 1 | 20 | | |
| Trichloroethene | 105 | 103 | 73 - 135 | 2 | 20 | | |
| Vinyl chloride | 147 | 142 | 40 - 144 | 3 | 24 | T | |

| Surrogate | MS % Rec | MSD % Rec | Acceptance Limits |
|---|---|---|---|
| 1,2-Dichloroethane-d4 (Surr) | 110 | 102 | 64 - 129 |
| Toluene-d8 (Surr) | 111 | 110 | 78 - 120 |
| 4-Bromofluorobenzene (Surr) | 112 | 111 | 78 - 121 |
| Dibromofluoromethane (Surr) | 110 | 107 | 79 - 119 |

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

**Matrix Spike/**
**Matrix Spike Duplicate Recovery Report - Batch: 280-206856**

**Method: 8260B**
**Preparation: 5030B**
**TCLP**

| | | | | | |
|---|---|---|---|---|---|
| MS Lab Sample ID: | 280-50310-1 | Units: | mg/L | MSD Lab Sample ID: | 280-50310-1 |
| Client Matrix: | Solid | | | Client Matrix: | Solid |
| Dilution: | 1.0 | | | Dilution: | 1.0 |
| Analysis Date: | 12/27/2013 2358 | | | Analysis Date: | 12/28/2013 0020 |
| Prep Date: | 12/27/2013 2358 | | | Prep Date: | 12/28/2013 0020 |
| Leach Date: | 12/20/2013 1715 | | | Leach Date: | 12/20/2013 1715 |

| Analyte | Sample Result/Qual | | MS Spike Amount | MSD Spike Amount | MS Result/Qual | | MSD Result/Qual | |
|---|---|---|---|---|---|---|---|---|
| Benzene | 2.3 | | 0.500 | 0.500 | 2.70 | | 2.58 | |
| 2-Butanone (MEK) | 0.18 | U | 2.00 | 2.00 | 3.35 | T | 3.28 | T |
| Carbon tetrachloride | 0.019 | U | 0.500 | 0.500 | 0.554 | | 0.546 | |
| Chlorobenzene | 0.017 | U | 0.500 | 0.500 | 0.455 | | 0.455 | |
| Chloroform | 0.016 | U | 0.500 | 0.500 | 0.526 | | 0.518 | |
| 1,2-Dichloroethane | 0.013 | U | 0.500 | 0.500 | 0.642 | | 0.632 | |
| 1,1-Dichloroethene | 0.023 | U | 0.500 | 0.500 | 0.499 | | 0.487 | |
| Tetrachloroethene | 0.020 | U | 0.500 | 0.500 | 0.501 | | 0.506 | |
| Trichloroethene | 0.016 | U | 0.500 | 0.500 | 0.523 | | 0.513 | |
| Vinyl chloride | 0.010 | U | 0.500 | 0.500 | 0.737 | T | 0.712 | |

Client: Washington Closure Hanford

Job Number: 280-50310-1
Sdg Number: J02057

## QC Association Summary

| Lab Sample ID | Client Sample ID | Report Basis | Client Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| **GC/MS VOA** | | | | | |
| **Prep Batch: 280-206208** | | | | | |
| LCS 280-206208/2-A | Lab Control Sample | P | Solid | 1311 | |
| LB 280-206208/1-A | TCLP SPLPE Leachate Blank | P | Solid | 1311 | |
| 280-50310-1 | J1T6W2 | P | Solid | 1311 | |
| 280-50310-1MS | Matrix Spike | P | Solid | 1311 | |
| 280-50310-1MSD | Matrix Spike Duplicate | P | Solid | 1311 | |
| **Analysis Batch:280-206856** | | | | | |
| LCS 280-206208/2-A | Lab Control Sample | P | Solid | 8260B | |
| LB 280-206208/1-A | TCLP SPLPE Leachate Blank | P | Solid | 8260B | |
| 280-50310-1 | J1T6W2 | P | Solid | 8260B | |
| 280-50310-1MS | Matrix Spike | P | Solid | 8260B | |
| 280-50310-1MSD | Matrix Spike Duplicate | P | Solid | 8260B | |

**Report Basis**
P = TCLP

# Login Sample Receipt Checklist

Client: Washington Closure Hanford

Job Number: 280-50310-1
SDG Number: J02057

**Login Number: 50310**
**List Number: 1**
**Creator: Dedio, Michael T**

**List Source: TestAmerica Denver**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | True | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time. | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | N/A | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | N/A | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |