



**Waste Profile Form**

For rapid processing, complete all sections in black or blue ink and mail to: Waste Acceptance Group at MS J496.

Contact your WMC. [Click here for instructions in completing the form.](#)

Contact (if other than given below)  
Matthew Whitaker 662-7600

Reference Number  
(for Waste Acceptance Group Use Only)

|   |   |                                   |   |                               |
|---|---|-----------------------------------|---|-------------------------------|
| Generator's Z Number<br>115625  | Waste Generator's Name (print)<br>John McCann | WMC's Z Number<br>135015          | WMC's Name (print)<br>Mike Le Scouarnec   | Generator's Phone<br>665-1091 |
| Generator's Mail Stop<br>M 992  | Waste Generating Group<br>CAP                 | Waste Stream Technical Area<br>16 | Building<br>n/a   | Room<br>n/a                   |
| <b>Waste Accumulation (check only one)</b><br><input type="checkbox"/> Satellite Accumulation Area Site No: _____<br><input checked="" type="checkbox"/> Less-than-90-days Storage Area Site No: <u>5267</u><br><input type="checkbox"/> TSDF Site No: _____<br><input type="checkbox"/> Universal Waste Storage Area Site No: _____<br><input type="checkbox"/> Used Oil for Recycle Site No: _____  |   |                                   | <input type="checkbox"/> PCBs Storage Area Site No: _____<br><input type="checkbox"/> NM Special Waste Site No: _____<br><input type="checkbox"/> Rad Staging Area Site No: _____<br><input type="checkbox"/> Rad Storage Area Site No: _____<br><input type="checkbox"/> None of the Above |                               |
| <b>ER Use Only</b><br><input checked="" type="checkbox"/> ER Site SWMU/AOC No. <u>16-029(g2)</u>  |   |                                   |   |                               |
| <b>Method of Characterization (check as many as apply)</b><br><input checked="" type="checkbox"/> Chemical Physical Analysis <input checked="" type="checkbox"/> Attached Sample No: <u>See Section 5</u><br><input type="checkbox"/> Radiological Analysis <input type="checkbox"/> Attached Sample No: _____<br><input type="checkbox"/> PCB Analysis <input type="checkbox"/> Attached Sample No: _____<br><input checked="" type="checkbox"/> Acceptable Knowledge Documentation <input checked="" type="checkbox"/> Attached Documentation No: <u>See Section 5</u><br><input type="checkbox"/> MSDS <input type="checkbox"/> Attached |   |                                   |   |                               |

**Section 1 – Waste Prevention/Minimization (answer all questions)**

Can hazard segregation, elimination, or material substitution be used?  Yes (provide comments)  No

Can any of the materials in the waste stream be recycled or reused?  Yes (provide comments)  No

Has waste minimization been incorporated into procedures or other process controls?  Yes  No (provide comments)

Can this waste be generated outside a RCA?  Yes (provide comments)  No  N/A

Comments:

**Section 2 – Chemical and Physical Information**

|  |   |   |   |
|--|---|---|---|
| <b>Waste Type (check only one)</b><br><input type="checkbox"/> Unused/Unspent Chemical (complete all sections as appropriate)<br><input checked="" type="checkbox"/> Process Waste/Spent Chemical/Other (complete all sections)  | <b>Waste Category (check all that apply)</b><br><input checked="" type="checkbox"/> Inorganic<br><input checked="" type="checkbox"/> Organic<br><input type="checkbox"/> Solvent*<br><input type="checkbox"/> Degreaser*<br><input type="checkbox"/> Dioxin<br><input type="checkbox"/> Electroplating<br><input type="checkbox"/> Treated Hazardous Waste or Residue<br><input type="checkbox"/> No-Longer Contained-In<br><input type="checkbox"/> Explosive Process<br><input type="checkbox"/> Infectious/Medical<br><input type="checkbox"/> Biological<br><input type="checkbox"/> Beryllium<br><input type="checkbox"/> Empty Container (see instructions)<br><input type="checkbox"/> Battery (see instructions)<br>Asbestos <input type="checkbox"/> Friable <input type="checkbox"/> non-friable<br>PCB Source Concentration<br><input type="checkbox"/> PCB < 50 ppm<br><input type="checkbox"/> PCB ≥ 50 - < 500 ppm<br><input type="checkbox"/> PCB ≥ 500 ppm<br><input type="checkbox"/> Hazardous Waste Contaminated Soil<br><input type="checkbox"/> Untreated Hazardous Debris<br><input type="checkbox"/> Commercial Solid Waste<br><input type="checkbox"/> Other (describe below)<br>* See instructions | <b>Waste Source (check only one)</b><br><b>Waste Source A</b><br><input type="checkbox"/> Decon<br><input type="checkbox"/> Materials Processing Production<br><input type="checkbox"/> Research/Development/Testing<br><input type="checkbox"/> Scheduled Maintenance<br><input type="checkbox"/> Housekeeping - Routine<br><input type="checkbox"/> Spill Cleanup - Routine<br><input type="checkbox"/> Sampling - Routine Monitoring<br><input type="checkbox"/> Other (describe below)<br><b>Waste Source B</b><br><input type="checkbox"/> Abatement<br><input type="checkbox"/> Construction/Upgrades<br><input type="checkbox"/> Demolition<br><input type="checkbox"/> Decon/Decom<br><input checked="" type="checkbox"/> Investigative Derived<br><input type="checkbox"/> Orphan/Legacy<br><input type="checkbox"/> Remediation/Restoration<br><input type="checkbox"/> Repacking (secondary)<br><input type="checkbox"/> Unscheduled Maintenance<br><input type="checkbox"/> Housekeeping (non-routine)<br><input type="checkbox"/> Spill Cleanup (non-routine)<br><input type="checkbox"/> Non-Petroleum Tanks<br><input type="checkbox"/> Petroleum Tanks<br><input type="checkbox"/> Other (describe below) | <b>Waste Matrix (check only one)</b><br><b>Gas</b><br><input type="checkbox"/> ≤1.5 Atmospheres Pressure<br><input type="checkbox"/> >1.5 Atmospheres Pressure<br><input type="checkbox"/> Liquefied Compressed Gas<br><b>Liquid</b><br><input type="checkbox"/> Aqueous<br><input type="checkbox"/> Non-Aqueous<br><input type="checkbox"/> Suspended Solids/Aqueous<br><input type="checkbox"/> Suspended Solids/Non-Aqueous<br><b>Solid</b><br><input type="checkbox"/> Powder/Ash/Dust<br><input checked="" type="checkbox"/> Solid<br><input type="checkbox"/> Sludge<br><input type="checkbox"/> Absorbed/Solidified Liquid<br><input type="checkbox"/> Debris<br><b>Matrix Type (check only one)</b><br><input checked="" type="checkbox"/> Homogeneous<br><input type="checkbox"/> Heterogeneous (describe below) |
| <b>Radiological Information</b><br>Was Waste generated in a RCA?<br><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br><input type="checkbox"/> Non-radioactive<br><input checked="" type="checkbox"/> Radioactive – Low Level<br><input type="checkbox"/> Radioactive – Transuranic | <b>Waste Destination (check only one)</b><br><input type="checkbox"/> SWWS (complete Attachment 1)<br><input type="checkbox"/> RLWTF (complete Attachment 2)<br><input type="checkbox"/> RLWTP (complete Attachment 3)<br><input type="checkbox"/> TA-16/HE (complete Attachment 4)<br><input type="checkbox"/> NTS (complete Attachment 5)   |   |   |
| <b>Classification Information</b><br><input checked="" type="checkbox"/> Unclassified<br><input type="checkbox"/> Classified/Sensitive   | <b>Estimated Annual Volume (m<sup>3</sup>):</b><br>0.208  |   |   |

**Section 3 – Process and Waste Description**

Process Description:  
 TA-16, SWMU 16-001(e). Gravel and Tuff generated during borehole drilling. Waste was generated and managed according to WCSF Investigative Work Plan for S-Site Aggregate Area EP2009-0474

Waste Description:  
 Gravel and qbt4 tuff.

**Section 4 – Characteristics**

|   |   |  |  |
|---|---|--|--|
| <b>Ignitability</b> (check only one)<br>(°F) (°C)<br><input type="checkbox"/> < 73 < 22.8<br><input type="checkbox"/> 73 – 99 22.8 - 37.2<br><input type="checkbox"/> 100 – 139 37.8 - 59.4<br><input type="checkbox"/> 140 – 200 60.0 - 93.3<br><input type="checkbox"/> > 200 > 93.3<br><input type="checkbox"/> EPA Ignitable – Non-liquid<br><input type="checkbox"/> DOT Flammable Gas<br><input type="checkbox"/> DOT Oxidizer<br><input checked="" type="checkbox"/> Not Ignitable | <b>Corrosivity</b> (check only one) (pH)<br><input type="checkbox"/> ≤ 2.0<br><input type="checkbox"/> 2.1 – 4.0<br><input type="checkbox"/> 4.1 – 6.0<br><input type="checkbox"/> 6.1 – 9.0<br><input type="checkbox"/> 9.1 - 12.4<br><input type="checkbox"/> ≥ 12.5<br><input type="checkbox"/> Liquid corrosive to steel<br><input checked="" type="checkbox"/> Non-aqueous | <b>Reactivity</b> (check as many as apply)<br><input type="checkbox"/> RCRA Unstable<br><input type="checkbox"/> Water Reactive<br><input type="checkbox"/> Cyanide Bearing<br><input type="checkbox"/> Sulfide Bearing<br><input type="checkbox"/> Pyrophoric<br><input type="checkbox"/> Shock Sensitive<br><input type="checkbox"/> Explosive - DOT Div.: _____<br><input checked="" type="checkbox"/> Non-reactive | <b>Boiling Point</b> (check only one)<br>(°F) (°C)<br><input type="checkbox"/> ≤ 95 ≤ 35<br><input type="checkbox"/> > 95 > 35<br><br><input checked="" type="checkbox"/> Not applicable |
|---|---|--|--|

| Identify for all contaminants listed.   | Characterization Method  |                                     |                          |                                     | Concentration of Contaminants |                                | Regulatory Limit |
|---|--------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------|--------------------------------|------------------|
|   | AK                       | TCLP                                | Total                    | None or Non-detect                  | Minimum                       | Contaminant present at Maximum |                  |
| <b>Toxicity Characteristic Metals</b>   |                          |                                     |                          |                                     |                               |                                |                  |
| (10,000 ppm = 1%)                       |                          |                                     |                          |                                     |                               |                                |                  |
| Arsenic                                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 5.0 ppm          |
| Barium                                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | 0                             | to 0.713 ppm                   | 100.0 ppm        |
| Cadmium                                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 1.0 ppm          |
| Chromium (Total)                        | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 5.0 ppm          |
| Lead                                    | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 5.0 ppm          |
| Mercury                                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.2 ppm          |
| Selenium                                | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 1.0 ppm          |
| Silver                                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 5.0 ppm          |
| <b>Toxicity Characteristic Organics</b> |                          |                                     |                          |                                     |                               |                                |                  |
| Benzene                                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |
| Carbon Tetrachloride                    | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |
| Chlorobenzene                           | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 100.0 ppm        |
| Chloroform                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 6.0 ppm          |
| o - cresol                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 200.0 ppm        |
| m - cresol                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 200.0 ppm        |
| p - cresol                              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 200.0 ppm        |
| Cresol - mixed                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 200.0 ppm        |
| 1,4-Dichlorobenzene                     | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 7.5 ppm          |
| 1,2-Dichloroethane                      | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |
| 1,1-Dichloroethylene                    | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.7 ppm          |
| 2,4-Dinitrotoluene                      | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.13 ppm         |
| Hexachlorobenzene                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.13 ppm         |
| Hexachlorobutadiene                     | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |
| Hexachloroethane                        | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 3.0 ppm          |
| Methyl ethyl ketone                     | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 200.0 ppm        |
| Nitrobenzene                            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 2.0 ppm          |
| Pentachlorophenol                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 100.0 ppm        |
| Pyridine                                | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 5.0 ppm          |
| Tetrachloroethylene                     | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.7 ppm          |
| Trichloroethylene                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |
| 2,4,5-Trichlorophenol                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 400.0 ppm        |
| 2,4,6-Trichlorophenol                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 2.0 ppm          |
| Vinyl chloride                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.2 ppm          |
| <b>Herbicides and Pesticides</b>        |                          |                                     |                          |                                     |                               |                                |                  |
| Chlordane                               | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.03 ppm         |
| 2,4-D                                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 10.0 ppm         |
| Endrin                                  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.02 ppm         |
| Heptachlor (& its epoxide)              | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.008 ppm        |
| Lindane                                 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.4 ppm          |
| Methoxychlor                            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 10.0 ppm         |
| Toxaphene                               | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |
| 2,4,5-TP (Silvex)                       | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____                         | to _____ ppm                   | 0.5 ppm          |



# Additional Constituents - Chemicals

associated Excel file: 15015 6-29.xlsm  
evaluation date: 6/29/2010

Sampling event ID: 2549  
SWMU ev2549  
Stockpile Number ev2549

| Analyte                      | CAS/ Symbol | conc<br>entra<br>tion | Unit  | Results<br>(ppm) | MIN (ppm) | MAX (ppm) | MIN. %   | MAX. %       | comments   |
|------------------------------|-------------|-----------------------|-------|------------------|-----------|-----------|----------|--------------|--|
| Acetone                      | 67-64-1     | 45                    | ug/kg | 0.045            | 0         | 0.045     | 0        | 4.5E-06      |  |
| Aluminum                     | Al          | 3830                  | mg/kg | 3830.000         | 0         | 3830.000  | 0        | 0.383        |  |
| Amino-2,6-dinitrotoluene[4-] | 19406-51-0  | 38                    | ug/kg | 0.038            | 0         | 0.038     | 0        | 3.8E-06      |  |
| Amino-4,6-dinitrotoluene[2-] | 35572-78-2  | 60                    | ug/kg | 0.060            | 0         | 0.060     | 0        | 6.0E-06      |  |
| Anthracene                   | 120-12-7    | 71                    | ug/kg | 0.071            | 0         | 0.071     | 0        | 7.1E-06      |  |
| Benzo(a)anthracene           | 56-55-3     | 130                   | ug/kg | 0.130            | 0         | 0.130     | 0        | 1.3E-05      |  |
| Benzo(a)pyrene               | 50-32-8     | 110                   | ug/kg | 0.110            | 0         | 0.110     | 0        | 1.1E-05      |  |
| Benzo(b)fluoranthene         | 205-99-2    | 88                    | ug/kg | 0.088            | 0         | 0.088     | 0        | 8.8E-06      |  |
| Benzo(g,h,i)perylene         | 191-24-2    | 120                   | ug/kg | 0.120            | 0         | 0.120     | 0        | 1.2E-05      |  |
| Benzo(k)fluoranthene         | 207-08-9    | 100                   | ug/kg | 0.100            | 0         | 0.100     | 0        | 1.0E-05      |  |
| Beryllium                    | Be          | 0.28                  | mg/kg | 0.280            | 0         | 0.280     | 0        | 2.8E-05      |  |
| Calcium                      | Ca          | 8260                  | mg/kg | 8260.000         | 0         | 8260.000  | 0        | 0.826        |  |
| Chrysene                     | 218-01-9    | 130                   | ug/kg | 0.130            | 0         | 0.130     | 0        | 1.3E-05      |  |
| Cobalt                       | Co          | 3.8                   | mg/kg | 3.800            | 0         | 3.800     | 0        | 3.8E-04      |  |
| Copper                       | Cu          | 18.9                  | mg/kg | 18.900           | 0         | 18.900    | 0        | 1.9E-03      |  |
| Fluoranthene                 | 206-44-0    | 290                   | ug/kg | 0.290            | 0         | 0.290     | 0        | 2.9E-05      |  |
| HMX                          | 2691-41-0   | 37                    | ug/kg | 0.037            | 0         | 0.037     | 0        | 3.7E-06      |  |
| Indeno(1,2,3-cd)pyrene       | 193-39-5    | 77                    | ug/kg | 0.077            | 0         | 0.077     | 0        | 7.7E-06      |  |
| Iron                         | Fe          | 6750                  | mg/kg | 6750.000         | 0         | 6750.000  | 0        | 0.675        |  |
| Magnesium                    | Mg          | 1170                  | mg/kg | 1170.000         | 0         | 1170.000  | 0        | 0.117        |  |
| Manganese                    | Mn          | 131                   | mg/kg | 131.000          | 0         | 131.000   | 0        | 0.013        |  |
| Nickel                       | Ni          | 4.6                   | mg/kg | 4.600            | 0         | 4.600     | 0        | 4.6E-04      |  |
| Phenanthrene                 | 85-01-8     | 250                   | ug/kg | 0.250            | 0         | 0.250     | 0        | 2.5E-05      |  |
| Potassium                    | K           | 554                   | mg/kg | 554.000          | 0         | 554.000   | 0        | 0.055        |  |
| Pyrene                       | 129-00-0    | 250                   | ug/kg | 0.250            | 0         | 0.250     | 0        | 2.5E-05      |  |
| RDX                          | 121-82-4    | 330                   | ug/kg | 0.330            | 0         | 0.330     | 0        | 3.3E-05      |  |
| Trichloroethane[1,1,1-]      | 71-55-6     | 5.1                   | ug/kg | 5.1E-03          | 0         | 5.1E-03   | 0        | 5.1E-07      |  |
| Trinitrotoluene[2,4,6-]      | 118-96-7    | 1000                  | ug/kg | 1.000            | 0         | 1.000     | 0        | 1.0E-04      |  |
| Uranium                      | U           | 0.64                  | mg/kg | 0.640            | 0         | 0.640     | 0        | 6.4E-05      |  |
| Vanadium                     | V           | 15.4                  | mg/kg | 15.400           | 0         | 15.400    | 0        | 1.5E-03      |  |
| Zinc                         | Zn          | 91.6                  | mg/kg | 91.600           | 0         | 91.600    | 0        | 9.2E-03      |  |
| <b>TOTAL</b>                 |             |                       |       | <b>0</b>         | <b>0</b>  | <b>0</b>  | <b>0</b> | <b>2.083</b> | <b>% (all analytes from all pages were added for this total)</b> |

NOTE 1: This table contains all detected, non D-coded analytes

NOTE 2: Highlighted analytes are potentially F-coded

# Solid Waste Evaluation Summary

|                |   |
|----------------|---|
| <b>RCRA</b>    |   |
| between these  | 41 analytes pass<br>40 analytes pass as undetected<br>0 analytes fail   |
| <b>Detects</b> | <p>PCBs: none detected 0<br/>         Non-wastewater LDR: 24 pass 1 FAIL<br/>         Hazardous soil LDR: 25 pass 0 FAIL</p> <p>11 analytes with potential F-code<br/>         13 analytes with potential K-code<br/>         8 analytes with potential U-code<br/>         0 analytes with potential P-code</p> <p>Residential Soil (mg/kg) : 36 pass 0 FAIL<br/>         Industrial/ Occupational Soil (mg/kg) : 36 pass 0 FAIL<br/>         Construction Worker Soil (mg/kg) : 31 pass 0 FAIL<br/>         Recreational Soil (mg/kg) : 36 pass 0 FAIL<br/>         soil background: 15 pass 6 FAIL<br/>         Canyon Sediment background: 15 pass 6 FAIL<br/>         Qbt 2,3,4 background: 12 pass 9 FAIL<br/>         Qbt 1v background: 9 pass 12 FAIL<br/>         Qbt 1g, Qct,Qbo background: 7 pass 14 FAIL</p> <p>total dose: 0.3064 mRem/year</p> <p>analysed for H-3<br/>         analysed for Pu-239<br/>         37 isotopes,<br/>         12 were detected<br/>         24 undetected</p> <p>Residen-tial SAL: 3 pass 0 FAIL<br/>         Indust-rial SAL: 3 pass 0 FAIL<br/>         Constr. Worker SAL: 4 pass 0 FAIL<br/>         Recrea-tional SAL: 4 pass 0 FAIL<br/>         Soil: 6 pass 3 FAIL<br/>         Canyon Sedi-ment: 6 pass 3 FAIL<br/>         QBT2,3,4: 7 pass 2 FAIL<br/>         Qbt 1v: 8 pass 1 FAIL<br/>         Qbt 1g, Qct, Qbo: 9 pass 0 FAIL</p> |
| <b>RAD</b>     | <p>Not TRU</p>  |

Remark: The Evaluator may overwrite any result of automatic evaluation, but a short written explanation must be added

| Sample ID      | associated blanks | associated duplicate |
|----------------|-------------------|----------------------|
| WST16-10-15015 | WST16-10-13921    |                      |

|                     |
|---------------------|
| Imported data files |
| ev2549.txt          |

SWMU ev2549

## RCRA Characteristics Form

associated Excel file: 15015 6-29.xlsm

Stockpile Number ev2549

evaluation date: 6/29/2010

| Analyte                     | CAS/ Symbol | Potential Haz Code | Reg. limit | concentration | unit of measure | Qualifier | Pass/Fail | comments |
|-----------------------------|-------------|--------------------|------------|---------------|-----------------|-----------|-----------|----------|
| Arsenic                     | As          |                    | 5000       | 20            | ug/L            | U         | pass      |          |
| Barium                      | Ba          | D005               | 100000     | 713           | ug/L            | NQ        | pass      |          |
| Cadmium                     | Cd          |                    | 1000       | 10            | ug/L            | U         | pass      |          |
| Chromium                    | Cr          |                    | 5000       | 20            | ug/L            | U         | pass      |          |
| Lead                        | Pb          |                    | 5000       | 9             | ug/L            | U         | pass      |          |
| Mercury                     | Hg          |                    | 200        | 1             | ug/L            | U         | pass      |          |
| Selenium                    | Se          |                    | 1000       | 8.6           | ug/L            | U         | pass      |          |
| Silver                      | Ag          |                    | 5000       | 20            | ug/L            | U         | pass      |          |
| Endrin                      | 72-20-8     |                    | 20         | 0.5           | ug/L            | U         | pass      |          |
| BHC[gamma-]                 | 58-89-9     |                    | 400        | 0.5           | ug/L            | U         | pass      |          |
| Methoxychlor[4,4'-]         | 72-43-5     |                    | 10000      | 1             | ug/L            | U         | pass      |          |
| Toxaphene (Technical Grade) | 8001-35-2   |                    | 500        | 20            | ug/L            | UJ        | pass      |          |
| D[2,4-]                     | 94-75-7     |                    | 10000      | 40            | ug/L            | U         | pass      |          |
| TP[2,4,5-]                  | 93-72-1     |                    | 1000       | 10            | ug/L            | U         | pass      |          |
| Benzene                     | 71-43-2     |                    | 500        | 50            | ug/L            | U         | pass      |          |
| Carbon Tetrachloride        | 56-23-5     |                    | 500        | 50            | ug/L            | U         | pass      |          |
| Chlordane(alpha/gamma)      | 57-74-9     |                    | 30         | 5             | ug/L            | UJ        | pass      |          |
| Chlordane[gamma-]           | 5103-74-2   | D020               |            | NA            | ug/L            |           | NA        |          |
| Chlordane[alpha-]           | 5103-71-9   | D020               |            | NA            | ug/L            |           | NA        |          |
| Chlorobenzene               | 108-90-7    |                    | 100000     | 50            | ug/L            | U         | pass      |          |
| Chloroform                  | 67-66-3     |                    | 6000       | 50            | ug/L            | U         | pass      |          |
| Methylphenol[2-]            | 95-48-7     |                    | 200000     | 50            | ug/L            | U         | pass      |          |
| Methylphenol[3-]            | 108-39-4    |                    | 200000     | 50            | ug/L            | U         | pass      |          |
| Methylphenol[4-]            | 106-44-5    |                    | 200000     | 50            | ug/L            | U         | pass      |          |
| Methylphenol[3-,4-]         | 65794-96-9  |                    | 200000     | 50            | ug/L            | U         | pass      |          |
| Methylphenol(total)         | 8027-16-5   |                    | 200000     | 100           | ug/L            | UU        | pass      |          |
| Dichlorobenzene[1,4-]       | 106-46-7    |                    | 7500       | 50            | ug/L            | U         | pass      |          |
| Dichloroethane[1,2-]        | 107-06-2    |                    | 500        | 50            | ug/L            | U         | pass      |          |
| Dichloroethene[1,1-]        | 75-35-4     |                    | 700        | 50            | ug/L            | U         | pass      |          |
| Dinitrotoluene[2,4-]        | 121-14-2    |                    | 130        | 50            | ug/L            | U         | pass      |          |
| Heptachlor                  | 76-44-8     |                    | 8          | 0.5           | ug/L            | UJ        | pass      |          |
| Hexachlorobenzene           | 118-74-1    |                    | 130        | 50            | ug/L            | U         | pass      |          |
| Hexachlorobutadiene         | 87-68-3     |                    | 500        | 50            | ug/L            | U         | pass      |          |
| Hexachloroethane            | 67-72-1     |                    | 3000       | 50            | ug/L            | U         | pass      |          |
| Butanone[2-]                | 78-93-3     |                    | 200000     | 200           | ug/L            | U         | pass      |          |
| Nitrobenzene                | 98-95-3     |                    | 2000       | 50            | ug/L            | U         | pass      |          |
| Pentachlorophenol           | 87-86-5     |                    | 100000     | 250           | ug/L            | U         | pass      |          |
| Pyridine                    | 110-86-1    |                    | 5000       | 100           | ug/L            | U         | pass      |          |
| Tetrachloroethene           | 127-18-4    |                    | 700        | 50            | ug/L            | U         | pass      |          |
| Trichloroethene             | 79-01-6     |                    | 500        | 50            | ug/L            | U         | pass      |          |
| Trichlorophenol[2,4,5-]     | 95-95-4     |                    | 400000     | 50            | ug/L            | U         | pass      |          |
| Trichlorophenol[2,4,6-]     | 88-06-2     |                    | 2000       | 50            | ug/L            | U         | pass      |          |
| Vinyl Chloride              | 75-01-4     |                    | 200        | 100           | ug/L            | U         | pass      |          |

NOTE 1: If multiple results exist for given analyte, first, the highest detected result is chosen. If there are no detected results, the lowest undetected result is chosen.

NOTE 2: Often chlordane is analyzed as alpha and gamma isomers. If no total chlordane result exist, total concentration will be calculated from individual isomer results.

NOTE 3: Most frequently 2-Methylphenol is analyzed separately and 3- and 4-methylphenols are reported together.

Often, raw data contain only two results - for 2- methylphenol and 4-methylphenol. In such case 4-methyl is in fact a result for two isomers together: 3-methyl + 4-methylphenol. The macro evaluates present data and calculates concentrations for 3-, 4-, and total methylphenols. Results reported separately for 3- and 4- methylphenols with calc. remark are, in fact, partial total, 3- + 4-methylphenol together.

NOTE 4: Undetected results pass automatically, without comparing to standard. Detected results pass only if reported concentration is lower than legal standard.

NOTE 5: CAS number is highlighted in pink if there is a large discrepancy between sample and duplicate.

## Detected Chemicals Form

| Analyte                      | CAS/<br>Symbol | concentration | unit of<br>measure | Non-<br>wastewater<br>LDR | Hazardous<br>Soil LDR | Potential Haz F-codes         | Potential Haz K-codes   | Potential Haz U-codes          | Potential Haz<br>P-codes | comments |
|------------------------------|----------------|---------------|--------------------|---------------------------|-----------------------|-------------------------------|---|--------------------------------|--------------------------|----------|
| Acetone                      | 67-64-1        | 0.045         | mg/kg              | pass                      | pass                  |                               |   | F003,U002 codes not applicable |                          |          |
| Aluminum                     | Al             | 3830          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Amino-2,6-dinitrotoluene[4-] | 19408-51-0     | 0.038         | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Amino-4,6-dinitrotoluene[2-] | 35572-78-2     | 0.06          | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Anthracene                   | 120-12-7       | 0.071         | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Arsenic                      | As             | 2.1           | mg/kg              | pass                      | pass                  | F032,F034, F035,              | K031, K060, K161, K171, K172, K176, K084, K101, K102,                                     |                                |                          |          |
| Barium                       | Ba             | 221           | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Benzo(a)anthracene           | 56-55-3        | 0.13          | mg/kg              | pass                      | pass                  | F032,F034,                    | K001, K035, K141, K142, K143, K144, K145, K147, K148, K170,                               | U018,                          |                          |          |
| Benzo(a)pyrene               | 50-32-8        | 0.11          | mg/kg              | pass                      | pass                  | F032, F034, F037, F038,       | K001, K035, K141, K142, K143, K144, K147, K148, K170,                                     | U022,                          |                          |          |
| Benzo(b)fluoranthene         | 205-99-2       | 0.088         | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Benzo(g,h,i)perylene         | 191-24-2       | 0.12          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Benzo(k)fluoranthene         | 207-08-9       | 0.1           | mg/kg              | pass                      | pass                  | F034,                         | K141, K142, K143, K144, K147, K148, K170,   |                                |                          |          |
| Beryllium                    | Be             | 0.28          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Cadmium                      | Cd             | 0.14          | mg/kg              | pass                      | pass                  | F006,                         | K061, K069, K100, K064,   |                                |                          |          |
| Calcium                      | Ca             | 8260          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Chromium                     | Cr             | 10.3          | mg/kg              | pass                      | pass                  | F032, F034, F035, F037, F038, | K090,   | U050,                          |                          |          |
| Chrysene                     | 218-01-9       | 0.13          | mg/kg              | pass                      | pass                  | F037, F038,                   | K001, K035,   |                                |                          |          |
| Cobalt                       | Co             | 3.8           | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Copper                       | Cu             | 18.9          | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Fluoranthene                 | 206-44-0       | 0.29          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| HMX                          | 2691-41-0      | 0.037         | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Indeno(1,2,3-cd)pyrene       | 193-39-5       | 0.077         | mg/kg              | pass                      | pass                  | F032,F034,                    | K001, K035, K141, K142, K147, K148,   | U120,                          |                          |          |
| Iron                         | Fe             | 6750          | mg/kg              | pass                      | pass                  |                               |   | U137,                          |                          |          |
| Lead                         | Pb             | 18.3          | mg/kg              | pass                      | pass                  | F035,F037, F038,              | K002, K003, K005, K048, K049, K051, K062, K064, K066, K100, K176, K046, K052, K061, K069, |                                |                          |          |
| Magnesium                    | Mg             | 1170          | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Manganese                    | Mn             | 131           | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Mercury                      | Hg             | 0.268         | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Nickel                       | Ni             | 4.6           | mg/kg              | pass                      | pass                  | F006,                         | K175, K071, K106,   | U151,                          |                          |          |
| Phenanthrene                 | 85-01-8        | 0.25          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Potassium                    | K              | 554           | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Pyrene                       | 129-00-0       | 0.25          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| RDX                          | 121-82-4       | 0.33          | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Selenium                     | Se             | 20.7          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Silver                       | Ag             | 0.045         | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Trichloroethane[1,1,1-]      | 71-55-6        | 0.0051        | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Trinitrotoluene[2,4,6-]      | 118-96-7       | 1             | mg/kg              | pass                      | pass                  | F001, F002, F024, F025,       | K019, K020, K028, K029, K073, K096,   | U226,                          |                          |          |
| Uranium                      | U              | 0.64          | mg/kg              |                           |                       |                               |   |                                |                          |          |
| Vanadium                     | V              | 15.4          | mg/kg              | pass                      | pass                  |                               |   |                                |                          |          |
| Zinc                         | Zn             | 91.6          | mg/kg              | FAIL                      | pass                  |                               |   |                                |                          |          |

## Detected Chemicals: SSL and Background check

| Analyte                      | CAS/Symbol | concentration | unit of measure | Residential Soil (mg/kg) | Industrial/Occupational Soil (mg/kg) | Construction Worker Soil (mg/kg) | Recreational Soil (mg/kg) | soil background | Canyon Sediment background | Qbt 2,3,4 background | Qbt 1v background | Qbt 1g, Qct,Qbo background |
|------------------------------|------------|---------------|-----------------|--------------------------|--------------------------------------|----------------------------------|---------------------------|-----------------|----------------------------|----------------------|-------------------|----------------------------|
| Acetone                      | 67-64-1    | 0.045         | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Aluminum                     | Al         | 3830          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | FAIL                       |
| Amino-2,6-dinitrotoluene[4-] | 19406-51-0 | 0.038         | mg/kg           | pass                     | pass                                 | NA                               | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Amino-4,6-dinitrotoluene[2-] | 35572-78-2 | 0.06          | mg/kg           | pass                     | pass                                 | NA                               | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Anthracene                   | 120-12-7   | 0.071         | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Arsenic                      | As         | 2.1           | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | FAIL              | FAIL                       |
| Barium                       | Ba         | 221           | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | FAIL                       | FAIL                 | FAIL              | FAIL                       |
| Benzo(a)anthracene           | 56-55-3    | 0.13          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Benzo(a)pyrene               | 50-32-8    | 0.11          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Benzo(b)fluoranthene         | 205-99-2   | 0.088         | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Benzo(g,h,i)perylene         | 191-24-2   | 0.12          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Benzo(k)fluoranthene         | 207-08-9   | 0.1           | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Beryllium                    | Be         | 0.28          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Cadmium                      | Cd         | 0.14          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Calcium                      | Ca         | 8260          | mg/kg           | NA                       | NA                                   | NA                               | NA                        | FAIL            | FAIL                       | FAIL                 | FAIL              | FAIL                       |
| Chromium                     | Cr         | 10.3          | mg/kg           | pass                     | pass                                 | NA                               | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Chrysene                     | 218-01-9   | 0.13          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Cobalt                       | Co         | 3.8           | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Copper                       | Cu         | 18.9          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Fluoranthene                 | 206-44-0   | 0.29          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | FAIL            | FAIL                       | FAIL                 | FAIL              | FAIL                       |
| HMX                          | 2691-41-0  | 0.037         | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Indeno(1,2,3-cd)pyrene       | 193-39-5   | 0.077         | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Iron                         | Fe         | 6750          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | FAIL                       |
| Lead                         | Pb         | 18.3          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | FAIL                       |
| Magnesium                    | Mg         | 1170          | mg/kg           | NA                       | NA                                   | NA                               | NA                        | FAIL            | pass                       | FAIL                 | pass              | FAIL                       |
| Manganese                    | Mn         | 131           | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Mercury                      | Hg         | 0.268         | mg/kg           | pass                     | pass                                 | NA                               | pass                      | FAIL            | FAIL                       | FAIL                 | FAIL              | FAIL                       |
| Nickel                       | Ni         | 4.6           | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | FAIL                       |
| Phenanthrene                 | 85-01-8    | 0.25          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| Potassium                    | K          | 554           | mg/kg           | NA                       | NA                                   | NA                               | NA                        | pass            | pass                       | pass                 | pass              | pass                       |
| Pyrene                       | 129-00-0   | 0.25          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | NA              | NA                         | NA                   | NA                | NA                         |
| RDX                          | 121-82-4   | 0.33          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Selenium                     | Se         | 20.7          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Silver                       | Ag         | 0.045         | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Trichloroethane[1,1,1-]      | 71-55-6    | 0.0051        | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Trinitrotoluene[2,4,6-]      | 118-96-7   | 1             | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Uranium                      | U          | 0.64          | mg/kg           | pass                     | pass                                 | NA                               | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Vanadium                     | V          | 15.4          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | pass            | pass                       | pass                 | pass              | pass                       |
| Zinc                         | Zn         | 91.6          | mg/kg           | pass                     | pass                                 | pass                             | pass                      | FAIL            | FAIL                       | FAIL                 | FAIL              | FAIL                       |

SWMU ev2549

**Radioisotopes Form**

associated Excel file: 15015 6-29.xlsm

Stockpile Number ev2549

evaluation date: 6/29/2010

| Analyte             | CAS/ Symbol | concentration | unit of measure | Qualifier | comments |
|---------------------|-------------|---------------|-----------------|-----------|----------|
| Bismuth-214         | Bi-214      | 3.79          | pCi/g           | NQ        |          |
| Gross alpha         | GROSSA      | 10.4          | pCi/g           | J-        |          |
| Gross beta          | GROSSB      | 27.6          | pCi/g           | J-        |          |
| Lead-212            | Pb-212      | 1.21          | pCi/g           | J         |          |
| Plutonium-238       | Pu-238      | 0.0252        | pCi/g           | NQ        |          |
| Potassium-40        | K-40        | 26.2          | pCi/g           | NQ        |          |
| Radium 226/228      | calc.       | 1.5           | pCi/g           |           |          |
| Radium-228          | Ra-228      | 1.5           | pCi/g           | NQ        |          |
| Thallium-208        | Tl-208      | 0.482         | pCi/g           | NQ        |          |
| Thorium-234         | Th-234      | 2.56          | pCi/g           | NQ        |          |
| Uranium-234         | U-234       | 0.527         | pCi/g           | NQ        |          |
| Uranium-238         | U-238       | 0.392         | pCi/g           | NQ        |          |
| Americium-241       | Am-241      | -0.004        | pCi/g           | U         |          |
| Bismuth-211         | Bi-211      | 0.47          | pCi/g           | U         |          |
| Cadmium-109         | Cd-109      | 1.79          | pCi/g           | U         |          |
| Cerium-139          | Ce-139      | 0.023         | pCi/g           | U         |          |
| Cesium-134          | Cs-134      | -0.021        | pCi/g           | U         |          |
| Cesium-137          | Cs-137      | 0.033         | pCi/g           | U         |          |
| Cobalt-60           | Co-60       | 0.018         | pCi/g           | U         |          |
| Europium-152        | Eu-152      | 0             | pCi/g           | U         |          |
| Lead-214            | Pb-214      | 0             | pCi/g           | U         |          |
| Mercury-203         | Hg-203      | 0.018         | pCi/g           | U         |          |
| Plutonium-239/240   | Pu-239/240  | 0.0006        | pCi/g           | U         |          |
| Radium-223          | Ra-223      | 0.47          | pCi/g           | U         |          |
| Radium-224          | Ra-224      | -2.6          | pCi/g           | U         |          |
| Radium-226          | Ra-226      | 0.98          | pCi/g           | U         |          |
| Ruthenium-106       | Ru-106      | 0.22          | pCi/g           | U         |          |
| Sodium-22           | Na-22       | 0.05          | pCi/g           | U         |          |
| Strontium-85        | Sr-85       | -0.058        | pCi/g           | U         |          |
| Strontium-90        | Sr-90       | -0.08         | pCi/g           | U         |          |
| Thorium-227         | Th-227      | 0.47          | pCi/g           | U         |          |
| Thorium-231         | Th-231      | 0.16          | pCi/g           | U         |          |
| Tin-113             | Sn-113      | -0.004        | pCi/g           | U         |          |
| Tritium             | H-3         | -0.03         | pCi/g           | U         |          |
| Uranium-235         | U-235       | 0.16          | pCi/g           | U         |          |
| Yttrium-88          | Y-88        | -0.003        | pCi/g           | U         |          |
| calculated Gross AB | GrossABc    | 38            |                 |           |          |





BILL RICHARDSON  
Governor

DIANE DENISH  
Lieutenant Governor

NEW MEXICO  
ENVIRONMENT DEPARTMENT

*Hazardous Waste Bureau*

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RON CURRY  
Secretary

SARAH COTTRELL  
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

June 10, 2010

George J. Rael  
Environmental Operations Manager  
Los Alamos Site Office  
Department of Energy  
3747 West Jemez Road, Mail Stop A316  
Los Alamos, NM 87544

Michael J. Graham  
Associate Director Environmental Programs  
Los Alamos National Security, LLC  
P.O. Box 1663, MS M991  
Los Alamos, NM 87545

**RE: NOTICE OF APPROVAL  
REQUEST FOR "NO LONGER CONTAINED-IN" DETERMINATION FOR  
DRILL CUTTINGS AND ASSOCIATED CONTACT WASTE FROM THE  
CONSOLIDATED UNIT 16-003(d)-99 INVESTIGATION  
LOS ALAMOS NATIONAL LABORATORY  
EPA ID #NM0890010515**

Dear Messrs. Rael and Graham:

The New Mexico Environment Department (NMED) has reviewed the United States Department of Energy (DOE) and the Los Alamos National Security L.L.C.'s (LANS) (collectively, the Permittees) document entitled *Request for "Contained-In" Determination for Drill Cuttings and Associated Contact Waste from the Consolidated Unit 16-003(d)-99 Investigation*, dated May 26, 2010 and referenced by ENV-RCRA-10-102. NMED hereby approves the Permittees' request for a "no longer contained-in" determination.

The Permittees generated less than 30 gallons of contact waste and approximately 2 cubic yards of drill cuttings during the investigation of Consolidated Unit (CU) 16-003(d)-99. The CU 16-003(3)-99 consists of Solid Waste Management Units 16-001(e), 16-003(d), 16-003(e), 16-003(f), and 16-003(g). The Permittees state that the analytical results for the cuttings indicate

Messrs. Rael and Graham  
June 10, 2010  
Page 2

that the waste is not characteristic, but it contains low concentrations of potentially listed contaminants.

The Permittees provide a comparison of the maximum detected concentration of F-listed organic constituents (i.e., methylene chloride and 1,1,1-trichloroethane) with the New Mexico Residential Soil Screening Levels (SSLs) and the U.S. Environmental Protection Agency (EPA) Regional Screening Levels (RSLs). The analytical results demonstrate that the concentrations of methylene chloride and 1,1,1-trichloroethane are below both the SSLs and RSLs. Based on the information provided, NMED hereby determines that the detected concentrations do not pose a threat to human health and the environment, and the waste does not need to be managed as hazardous waste.

The Permittees also request that NMED determine that the EPA Land Disposal Restriction (LDR) Treatment Standards do not apply to the drill cuttings and associated waste, the waste may be disposed of as nonhazardous waste, and the drill cuttings may be land applied in accordance with the NMED-approved NOI Decision Tree, *Land Application of IDW Solids from Construction of Wells and Boreholes*. The Permittees provided a comparison of the maximum detected concentrations of methylene chloride and 1,1,1-trichloroethane with the LDR Treatment Standards and demonstrated that the maximum detected concentrations are below the Standards. NMED concurs that the LDRs do not apply to the waste and the waste may be disposed of as a nonhazardous waste.

Please contact Neelam Dhawan at (505) 476-6042, should you have any questions.

Sincerely,



James P. Bearzi  
Chief  
Hazardous Waste Bureau

cc:

J. Kieling, NMED HWB  
D. Cobrain, NMED HWB  
N. Dhawan, NMED HWB  
A. Vollmer, NMED HWB  
S. Yanicak, NMED DOE OB, MS J993  
T. Skibitski, NMED DOE OB  
L. King, EPA 6PD-N  
C. Rodriguez, LASO-EO, MS A316  
A. Grieggs, ENV-RCRA, MS K490

File: Reading and LANL 2010, TA-16, 16-003(d)-99

## **Due Diligence Review for Investigation-Derived Wastes from the 300s Line May 2010**

Drill cuttings, concrete cuttings, and associated contact waste generated during the investigation of the 300s line will be characterized using analytical data from the drill cuttings (sample numbers WST-16-10-9900 through -9906, -9908 through -9910, -12212, -13294, -13297, -13910 through, -13913, -15015, through -15018, -15020 through -15023, -15322 through -15326). The maximum concentrations of potentially listed contaminants detected in the drill cuttings are shown in Table 1. The drill cuttings consist primarily of Qbt 2,3,4 tuff. Other potentially listed inorganics (arsenic, cadmium, mercury, and thallium) were detected at or below maximum Qbt 2,3,4 background values and are not included in this due diligence. Acetone, isopropyl benzene, ethylbenzene, and xylene were also detected but are present in quantities too low to cause the IDW to be ignitable; therefore, the IDW is not listed for these contaminants. Methylene chloride and 1,1,1-trichloroethane were also detected in some of the samples from SWMU 16-001(e) drill cuttings. They are covered under a separate contained-in approval because they may have originated from a spent solvent source.

This due diligence review covers consolidated units 16-003(d)-99 and 16-026(b)-99. Consolidated unit 16-003(d)-99 consists of SWMUs 16-001(e), dry well, and 16-003(d-g), eight HE sumps. These SWMUs are located along the 300 Line which includes process Buildings 16-300, -301, -302, -304, -305, -306, and -307. Consolidated unit 16-026(b)-99 consists of SWMUs 16-026(b-e) and 16-029(a-d). The consolidated unit contains HE sumps, drainlines, and outfalls associated with inactive rest houses on the west side of the 300 Line. The 300 Line was built in late 1951 for casting explosives. Buildings were converted to other uses when casting explosives were replaced by plastic bonded explosives. The 300 Line sumps discharged to a single outfall. The work conducted in this area supported weapons research and included mock explosives preparation, explosives casting, filament winding, and plastics and plastics component development.

A due diligence document review to identify the sources of contamination was conducted based on the guidance provided by the Environmental Protection Agency's (EPA's) Management of Remediation Waste under RCRA (EPA 530-F-98-026), Determination of When Contamination is caused by Listed Hazardous Waste, which states:

Where a facility owner/operator makes a good faith effort to determine if a material is a listed hazardous waste but cannot make such a determination because documentation regarding a source of contamination, contaminant, or waste is unavailable or inconclusive, EPA has stated that one may assume the source, contaminant or waste is not listed hazardous waste and, therefore, provided the material in question does not exhibit a characteristic of hazardous waste, RCRA requirements do not apply.

Following is a summary of the good faith effort LANL undertook to determine whether the detected organic compounds were from listed sources.

Documents identified in the PRS Database for consolidated units 16-003(d)-99 and 16-026(b)-99 with process information or data (see Table 2) were reviewed to determine whether the contaminants originated from listed sources. Existing data for the consolidated unit summarized

in the 2007 S-Site Aggregate Area Investigation Work Plan and the data in the RACER database for the S-site aggregate area were reviewed to determine whether there was an upgradient source of these contaminants. The data did not identify an upgradient source. Therefore, only documentation for the 300s line was reviewed.

Based on the documentation review, the conclusions regarding the sources of the contamination are:

- The waste would be F-listed for toluene if the source of the contamination was spent solvents. According to the 1993 RFI Work Plan for OU 1082, the solvents used at the 300s line and potentially discharged included acetone, 1,1,1-trichloroethane, chloroethene, methylene chloride, methyl ethyl ketone, and trichlorotrifluoroethane (Freon PCA). The documentation did not identify releases of toluene to these consolidated units. Toluene is also a constituent of asphalt, which is ubiquitous throughout this consolidated unit. Because no listed source of toluene was identified and a non-listed source of toluene is also present, there is no conclusive evidence that the toluene is from a listed source and the drill cuttings and associated contact waste are not F-listed.
- The waste would also be F-listed if the source of the contamination was electroplating, wood preserving, petroleum refining, and/or manufacturing of chlorinated aliphatic hydrocarbons. The documentation did not identify these processes, nor would they be typical of weapons-related operations. Therefore, the drill cuttings and associated contact waste are not F-listed.
- The waste would be K-listed only if the sources of the contamination were specific processes in nitrobenzene production, dinitrotoluene production, veterinary pharmaceutical production, wood preserving, coking, ferroalloy production, inorganic pigment production, iron and steel production, primary copper production, secondary lead production, ink formulation, pesticide production, non-explosive organic and inorganic chemical production, and/or petroleum refining. The documentation did not identify these processes. Therefore, the drill cuttings and associated contact waste are not K-listed.
- The waste would U-listed only if the source of the contamination was land application (e.g., spills or disposal) of unused/unspent commercial chemical products listed in 40 CFR §261.33. No documentation identified the land application of unused/unspent commercial chemical products; therefore, U-listings would not be applied to the drill cuttings and associated contact waste.

Based on this good faith effort, listed sources of the contaminants detected at consolidated units 16-003(d)-99 and 16-029(h)-99 were not identified. Therefore, the drill cuttings and associated contact waste need not be managed as listed waste.

## References

Ryti, R.T., P.A. Longmire, D.E. Broxton, S.L. Reneau, and E.V. McDonald. "Inorganic and Radionuclide Background Data for Soils, Canyon Sediments, and Bandelier Tuff at Los Alamos National Laboratory." September 22, 1988

Table 1. Potentially Listed Contaminants

| Analyte                    | Maximum Concentration (mg/kg) | Potential F-listing           | Potential K-listings   | Potential U-listings | Potential P-listings |
|----------------------------|-------------------------------|-------------------------------|--|----------------------|----------------------|
| Antimony                   | 3.8                           |                               | K161,K021,K177,<br>K031,K060,K161,K171,<br>K172,K176,K084,K101,<br>K102, |                      |                      |
| Arsenic                    | 6.7                           | F032,F034,F035,               | K001,K035,K141,K142,<br>K143,K144,K145,K147,<br>K148,K170,               | U018,                |                      |
| Benzo(a)anthracene         | 0.45                          | F032,F034,                    | K001,K035,K141,K142,<br>K144,K145,K147,K148,<br>K170,                    | U022,                |                      |
| Benzo(a)pyrene             | 0.36                          | F032,F034,F037,F038,          | K001,K035,K141,K142,<br>K143,K144,K147,K148,<br>K170,                    |                      |                      |
| Benzo(b)fluoranthene       | 0.53                          |                               |  |                      |                      |
| Benzo(g,h,i)perylene       | 0.23                          |                               |  |                      |                      |
| Benzo(k)fluoranthene       | 0.34                          | F034,                         | K141,K142,K143,K144,<br>K147,K148,K170,                                  |                      |                      |
| Bis(2-ethylhexyl)phthalate | 0.18                          |                               |  | U028,                |                      |
| Cadmium                    | 0.27                          | F006,                         | K061,K069,K100,K064,   |                      | P022,                |
| Carbon Disulfide           | 0.0026                        | F005,                         |  |                      |                      |
| Chromium                   | 14.6                          | F032,F034,F035,F037,<br>F038, |  |                      |                      |
| Chrysene                   | 0.43                          | F037,F038,                    | K001,K035,   | U050,                |                      |

Table 1 (continued)

| Analyte                  | Maximum Concentration (mg/kg) | Potential F-listing | Potential K-listings   | Potential U-listings | Potential P-listings |
|--------------------------|-------------------------------|---------------------|--|----------------------|----------------------|
| ✓ DDD[4,4'-]             | 0.000538                      |                     |  | U060,                |                      |
| ✓ DDT[4,4'-]             | 0.00056                       |                     |  | U061,                |                      |
| ✓ Dibenz(a,h)anthracene  | 0.0411                        | F032,F034,          | K001,K035,K141,K142,<br>K144,K145,K147,K148,<br>K170,                              | U063,                |                      |
| ✓ Dichlorobenzene[1,4-]  | 0.00061                       | F024,F025,          | K085,K105,K149,K150,   | U072,                |                      |
| ✓ Dinitrotoluene[2,4-]   | 0.017                         |                     | K111,K025,   | U105,                |                      |
| ✓ Fluoranthene           | 1.1                           |                     | K001,K035,   | U120,                |                      |
| ✓ Indeno(1,2,3-cd)pyrene | 0.27                          | F032,F034,          | K001,K035,K141,K142,<br>K147,K148,   | U137,                |                      |
| ✓ Lead                   | 20.7                          | F035,F037,F038,     | K002,K003,K005,K048,<br>K049,K051,K062,K086,<br>K100,K176,K046,K052,<br>K061,K069, |                      |                      |
| ✓ Mercury                | 0.268                         |                     | K175,K071,K106,  | U151,                |                      |
| ✓ Naphthalene            | 0.29                          | F024,F025,F034,     | K001,K035,K087,K145,<br>K060,  | U165,                |                      |
| ✓ Nickel                 | 10.3                          | F006,               |  |                      |                      |
| ✓ Toluene                | 0.014                         | F005,F024,F025,     | K015,K036,K037,K149,<br>K151,  | U220,                |                      |

Table 1 (continued)

| Analyte                 | Maximum Concentration (mg/kg) | Potential F-listing  | Potential K-listings               | Potential U-listings | Potential P-listings |
|-------------------------|-------------------------------|----------------------|------------------------------------|----------------------|----------------------|
| Trichloroethane[1,1,1-] | 0.082                         | F001,F002,F024,F025, | K019,K020,K028,K029,<br>K073,K096, | U226,                |                      |
| Trinitrobenzene[1,3,5-] | 0.14                          |                      |                                    | U234,                |                      |

<sup>1</sup>Inorganics are included only if they exceed Qbt 2,3,4 background values (Ryti, et.al., 1998)

**Table 2. Documents Reviewed**

| Date                               | Title   | DocType                 | ERId No. |
|------------------------------------|---|-------------------------|----------|
| April 20, 1990 – December 31, 1990 | Liquid Release Notifications  | Spill Log               | NA       |
| 9/30/2007                          | Historical Investigation Report (HIR) for S-Site Aggregate Area   | HIR                     | 097685   |
| 9/30/2007                          | Investigation Work Plan for S-Site Aggregate Area   | Investigation Work Plan | 097687   |
| 9/30/1997                          | RFI Report for TAs -11, -13, -16: PRSs 11-012(a,b), 13-003(a), 16-006(c,d), 16-010(a), 16-021(a), 16-026(c,d,v), 16-028(a), 16-030(g) | RFI Report              | 062539   |
| 7/1/1993                           | RFI Work Plan for Operable Unit 1082  | RFI Work Plan           | 020948   |