

**4057**

**IMPROVED STORAGE OF SOIL AND DEBRIS  
REMOVAL ACTION 17 ANNUAL REPORT  
JANUARY 1993**

**01/15/93**

**DOE-FN/EPA  
DOE-0864-93  
250  
REPORT**

4057

**Improved Storage of  
Soil and Debris  
Removal Action 17  
Annual Report**

**Fernald Environmental Management Project  
Fernald, Ohio**

*January 1993*

**United States Department of Energy**

**Improved Storage of  
Soil and Debris  
Removal Action 17  
Annual Report**

**Fernald Environmental Management Project  
Fernald, Ohio**

*January 1993*

**United States Department of Energy**

**Improved Storage of Soil and Debris  
Removal Action 17  
Annual Report**

**CONTENTS**

**SECTION**

|                                       |            |
|---------------------------------------|------------|
| Executive Summary                     | iii        |
| <b>1.0 Introduction</b>               | <b>1-1</b> |
| <b>2.0 Generation Information</b>     | <b>2-1</b> |
| 2.1 Generated Soil and Debris         | 2-1        |
| 2.2 Planned Activities                | 2-1        |
| <b>3.0 Classification Information</b> | <b>3-1</b> |

**ATTACHMENTS**

|          |                                   |
|----------|-----------------------------------|
| <i>A</i> | <i>Generated Soil and Debris</i>  |
| <i>B</i> | <i>Planned Activities</i>         |
| <i>C</i> | <i>Classification Information</i> |

## LIST OF ACRONYMS

4057

|                |   |
|----------------|---|
| ACM            | Asbestos Containing Material  |
| AEA            | Atomic Energy Act   |
| D & D          | Decontamination and Decommissioning   |
| DOE            | United States Department of Energy  |
| DOT            | United States Department of Transportation  |
| F&ME           | Facilities and Materials Evaluation   |
| FEMP           | Fernald Environmental Management Project  |
| HF             | Hydrofluoric Acid   |
| H & V          | Heating and Ventilation   |
| IAWWT(BDN-ETS) | Interim Advanced Wastewater Treatment(Biodenitrification effluent Treatment System) |
| IDW            | Investigation Derived Waste   |
| LLWR           | Low level Radiological Waste  |
| MC&A           | Material Control and Accountability   |
| MEF            | Material Evaluation form  |
| MSC            | Metal Shipping Container  |
| MAWS           | Minimum Additive Waste Stabilization  |
| NAR            | Nitric Acid Recovery  |
| OU             | Operable Unit   |
| RAWP           | Removal Action Work Plan  |
| RCRA           | Resource Conservation and Recovery Act  |
| S/L            | Sea/Land Container  |
| RI/FS          | Remedial Investigation/Feasibility study  |
| TBD            | To Be Determined  |
| TCLP           | Toxicity Characteristic Leaching Procedure  |
| UN             | Uranyl Nitrate  |
| VOC            | Volatile Organic Compound   |
| WMB            | White Metal Box   |
| WSC            | Wooden Shipping Container   |

## EXECUTIVE SUMMARY

This report provides the status of soil and debris generation associated with site activities at the Fernald Environmental Management Project (FEMP). An inventory is presented for an estimated 22,305 cubic yards of soil and debris generated during fiscal year 1992 (October 1, 1991 through September 30, 1992). The disposition of these materials is provided along with information supporting their classification. Estimated volumes and generation dates for activities planned for fiscal year 1993 and out years are also presented. The status of planned activities will be updated through future submittal of this annual report.

**SECTION 1.0****INTRODUCTION**

Production activities at the Fernald Environmental Management Project (FEMP) ceased in 1989 and the mission is now site clean-up and remediation. Removal Action 17 Work Plan provides a response to a Removal Site Evaluation (RSE) and Section IX of the Amended Consent Agreement between the United States Environmental Protection Agency (USEPA) and the United States Department of Energy (DOE) for the Improved Storage of Soil and Debris (Removal Action 17) generated at the FEMP. Section 3.9 of the Removal Action 17 Work Plan requires submittal of an Annual Report to the United States Environmental Protection Agency documenting generated quantities of soil and debris, generation location, material disposition, information used to support material classification, and a listing of what future removals are planned.

**GENERATION INFORMATION**

This report provides the status of soil and debris generated at FEMP as a result of construction projects, removal actions and maintenance activities. The information is presented as completed and planned activities. Completed activities are those for which a waste has been generated and the material is either stored on site or shipped offsite, depending on its classification. Planned activities are future projects expected to generate soil and debris. A site map of the FEMP facility locations (Figure 2-1) is presented for reference.

**2.1 Generated Soil and Debris**

Generated soil and debris is presented in Attachment A. The information presented identifies soil and debris generated during fiscal year 1992. The fiscal year extends from October 1 to September 30. The soil and debris streams listed in this report were generated and entered into the FEMP Material Control and Accountability (MC&A) system during fiscal year 1992. The disposition of the generated soil and debris include material stored onsite and material shipped offsite to a Department of Energy approved facility. Approximately 22,305 cubic yards of soil and debris were generated during FEMP fiscal year 1992.

**2.2 Planned Activities**

Planned Activities are presented in Attachment B. The list of projects for planned activities represents an estimate of future soil and debris generation. This estimate is subject to change and will be updated in future annual reports.

**CLASSIFICATION INFORMATION**

Attachment C of this report is comprised of information used to classify soil and debris and to facilitate the proper disposition of the material. This section is a compilation of individual evaluations. Each evaluation corresponds to an entry in Attachment A and is identified by an evaluation number. There is no evaluation submitted for projects with "pending" in the classification column of Attachment A. Evaluations for these projects will be provided in future annual reports. Material is classified as hazardous waste, low level radiological waste or mixed waste (radiological mixed with hazardous waste). The FEMP system for classifying soil and debris employs process knowledge and analytical data. Soil and debris is characterized for RCRA hazardous waste and radiological contamination.

4057

**ATTACHMENT A**

**GENERATED SOIL AND DEBRIS**

RAMP 17 ANNUAL REPORT OF GENERATED SOIL & DEBRIS - FEMP FY 92

| PROJECT TITLE  | PROJECT TYPE | LOCATION          | MATERIAL<br>(Soil, Concrete,<br>etc.) | CLASSIFICATION<br>(Haz. LLRW, Mixed,<br>ACM) | CONTAINER | DISPOSITION  |                    | VOLUME<br>GENER-<br>ATED<br>(Cu.<br>Yd.) |
|--|--------------|-------------------|---------------------------------------|--|-----------|--|--------------------|--|
|  |              |                   |                                       |  |           | ONSITE<br>STORAGE  | SHIPPED<br>OFFSITE |  |
|  |              |                   |                                       | EVAL. #                                      |           |  |                    |  |
| Waste Pit Area<br>Runoff Control<br>(RA #22)           | R            | Waste Pit<br>Area | Soil & Debris                         | LLRW   | 1         | 1 S/L<br>39 WMB<br>111 MSC                               | X<br>X<br>X        | 495                                      |
| Analytical<br>Laboratory<br>Upgrade -<br>Phase I       | C            | Lab<br>Building   | Soil & Debris                         | LLRW   | 2         | 2 S/L<br>7 WMB<br>1 MSC<br>Soil Pile                     | X<br>X<br>X        | 1064                                     |
| Analytical<br>Laboratory<br>Upgrade -<br>Phase II      | C            | Lab<br>Building   | Soil & Debris                         | LLRW   | 3         | 5 S/L<br>9 S/L<br>56 WMB<br>4 WMB<br>18 MSC<br>141 MSC   | X<br>X<br>X<br>X   | 1287                                     |
| Plant 1 Pad<br>Removal Action<br>#7                    | R            | Plant 1           | Soil & Debris                         | LLRW   | 4         | 1 S/L<br>596 WMB<br>289 MSC                              | X<br>X<br>X        | 2700                                     |
| K-65 Area S11o #3                                      | R            | K-65 Area         | Debris                                | LLRW   | 5         | 1 WMB<br>4 WMB   | X                  | 15                                       |
| K-65 Area S11o 1<br>& 2 Removal<br>Action #4           | R            | K-65 Area         | Debris                                | Pending                                      |           | 30 WMB<br>5 MSC  | X<br>X             | 105                                      |
| Decontamination &<br>Decommissioning<br>(D&D) Facility | C            | D&D<br>Building   | Debris                                | LLRW   | 6         | 101 S/L<br>3 S/L<br>32 WMB<br>17 WMB<br>12 MSC<br>45 MSC | X<br>X<br>X<br>X   | 4998                                     |

Legend  
 ACM = Asbestos Containing Material  
 MSC = Metal Shipping Container (3 cu. yds.)  
 S/L = Sea/Land Container (45 cu. yds.)  
 WMB = White Metal Box (3 cu. yds.)  
 R = Removal action and other activities.  
 M = Maintenance activities.  
 C = Construction activities.

| PROJECT TITLE                  | PROJECT TYPE | LOCATION           | MATERIAL<br>(Soil, Concrete) | CLASSIFICATION<br>(Haz. LLRW, Mixed, ACH) |         | CONTAINER                           | DISPOSITION    |                 | VOLUME<br>GENERATED<br>(Cu. Yd.) |
|--------------------------------|--------------|--------------------|------------------------------|---|---------|-------------------------------------|----------------|-----------------|----------------------------------|
|                                |              |                    |                              | ACH                                       | EVAL. # |                                     | ONSITE STORAGE | SHIPPED OFFSITE |                                  |
| Storm Sewer Cleanout           | M            | Plant 1 Pad        | Asbestos Material            | ACM                                       | 7       | 4 WMB                               | X              |                 | 12                               |
| Plant 5 Storage Pad            | C            | Plant 5            | Soil & Debris                | LLRW                                      | 8       | 2 WMB<br>129 WMB<br>1 MSC<br>83 MSC | X              | X               | 645                              |
| Plant 4 Maintenance            | M            | Plant 4            | Debris                       | Pending                                   |         | 12 WMB<br>15 MSC                    | X              |                 | 81                               |
| Boiler Plant Reconstruction    | M            | Boiler Plant       | Debris                       | LLRW                                      | 9       | 2 WMB<br>5 MSC                      | X              |                 | 21                               |
| EPA/Parsons Office Trailers    | C            | South of Lab Bldg. | Soil & Debris                | LLRW                                      | 10      | 22 WMB<br>7 MSC                     | X              | X               | 87                               |
| Plant 5 Duplex Office Trailers | C            | S.W. of Plant 5    | Soil & Debris                | LLRW                                      | 11      | 56 WMB<br>12 MSC                    | X              |                 | 204                              |
| Pit 5 Liner Repair/Pit 6 RA #6 | R            | OUI                | Debris                       | Pending                                   |         | 1 WMB                               | X              |                 | 3                                |
| Northeast Utilities Upgrade    | M            | Boiler Plant       | Debris                       | Pending                                   |         | 1 WMB                               | X              |                 | 3                                |
| Plant 1 Treatability Study     | R            | Plant 1 Pad        | Soil & Debris                | LLRW                                      | 12      | 6 WMB                               | X              |                 | 18                               |

S/L = Sea/Land Container (45 cu. yds.)  
WMB = White Metal Box (3 cu. yds.)  
MSC = Metal Shipping Container (3 cu. yds.)  
ACM = Asbestos Containing Material

RAMP 17 ANNUAL REPORT OF GENERATED SOIL & DEBRIS - FEMP FY 92 PAGE 3

| PROJECT TITLE  | PROJECT TYPE | LOCATION              | MATERIAL<br>(Soil, Concrete) | CLASSIFICATION<br>(Haz. LLRW, Mixed,<br>ACH)<br>-----<br>EVAL. # | CONTAINER        | DISPOSITION       |                    | VOLUME<br>GENER-<br>ATED<br>(Cu.<br>Yd.) |
|--|--------------|-----------------------|------------------------------|--|------------------|-------------------|--------------------|--|
|  |              |                       |                              |  |                  | ONSITE<br>STORAGE | SHIPPED<br>OFFSITE |  |
| Plant 8 Dust Collector                                 | M            | Northeast Plant 8     | Debris                       | Pending  | 1 S/L            | X                 |                    | 45                                       |
| Radon Treatment System (RTS) Upgrade                   | M            | K-65                  | Debris                       | Pending  | 1 WMB            | X                 |                    | 3  |
| Plant 1 Pad Leased Tension Support Structures. (RA #7) | R            | Plant 1 Pad           | Debris                       | LLRW   | 1 WMB<br>16 WMB  | X                 | X                  | 51                                       |
| Experimental Treatment Facility (ETF)                  | C            | Northwest Waste P1t 5 | Soil & Debris                | Pending  | 82 WMB<br>33 MSC | X<br>X            |                    | 345                                      |
| Material Handling Upgrade Project - Plant 1            | C            | Plant 1               | Debris                       | LLRW   | 1 WMB            |                   | X                  | 3  |
| Leakproof Dikes  | C            | Sitewide              | Debris                       | LLRW   | 1 WMB            |                   | X                  | 3  |
| Railroad Upgrade                                       | C            | Tracks 10 & 11        | Soil & Debris                | Mixed  | 3 WMB            | X                 |                    | 9  |
| Warehouse 54D  | C            | Bldg. 54D             | Soil & Debris                | LLRW   | 1 WMB            |                   | X                  | 3  |
| Cooling Tower Repair                                   | M            | Boiler Plant          | Debris                       | LLRW   | 2 S/L            |                   | X                  | 90                                       |

S/L = Sea/Land Container (45 cu. yds.)  
WMB = White Metal Box (3 cu. yds.)  
MSC = Metal Sampling Container (3 cu. yds.)

| PROJECT TITLE   | PROJECT TYPE | LOCATION    | MATERIAL<br>(Soil, Concrete) | CLASSIFICATION<br>(Haz. LLRW, Mixed, ACM)<br>-----<br>EVAL. # | CONTAINER                | DISPOSITION       |                    | VOLUME<br>GENER-<br>ATED<br>(Cu.<br>Yd.) |
|---|--------------|-------------|------------------------------|---|--------------------------|-------------------|--------------------|--|
|   |              |             |                              |   |                          | ONSITE<br>STORAGE | SHIPPED<br>OFFSITE |  |
| Plant 1 Baler   | M            | Plant 1     | Debris                       | LLRW 19   | 6 S/L<br>1 WMB<br>1 MSC  |                   | X<br>X<br>X        | 276                                      |
| Site Clean Up   | M            | Site-wide   | Debris                       | Pending   | 2 WMB<br>1 MSC           | X<br>X            |                    | 9  |
| Building 12<br>Maintenance                                      | M            | Building 12 | Debris                       | Pending   | 4 WMB                    | X                 |                    | 12                                       |
| Rust Work Order<br>1334 (Replacement<br>of Wooden<br>Sidewalks) | C            | Site-wide   | Soil                         | LLRW 20   | 1 WMB                    | X                 |                    | 3  |
| Pit 5 Sampling<br>Project (RA #18)                              | R            | Pit 5       | Debris                       | Pending   | 2 WMB<br>2 MSC           | X<br>X            |                    | 12                                       |
| Plant 1 Wood Pile<br>(RA #7)                                    | R            | Plant 1     | Debris                       | LLRW 21   | 62 S/L<br>3 WMB<br>3 MSC |                   | X<br>X<br>X        | 2808                                     |

S/L - Sea/Land Container (45 cu. yds.)  
WMB - White Metal Box (3 cu. yds.)  
MSC - Metal Sampling Container (3 cu. yds.)

4057

| PROJECT TITLE                               | PROJECT TYPE | LOCATION                           | MATERIAL<br>(Soil, Concrete) | CLASSIFICATION<br>(Haz. LLRW, Mixed,<br>ACH) | CONTAINER                          | DISPOSITION       |                    | VOLUME<br>GENER-<br>ATED<br>(Cu.<br>Yd.) |
|---|--------------|------------------------------------|------------------------------|--|------------------------------------|-------------------|--------------------|--|
|   |              |                                    |                              |  |                                    | ONSITE<br>STORAGE | SHIPPED<br>OFFSITE |  |
| Plant 6 Water Treatment                     | M            | Plant 6                            | Debris                       | Pending                                      | 1 WMB                              | X                 |                    | 3  |
| Nitric Acid Recovery (NAR) Tower (RA #25)   | R            | N.A.R. Tower                       | Debris                       | Pending                                      | 1 WMB                              | X                 |                    | 3  |
| Plantwide Roof Repair                       | M            | Plantwide                          | Debris                       | LLRW   | 22                                 |                   | X                  | 3  |
| Building 12 Electric Shop                   | M            | Building 12                        | Debris                       | Pending                                      | 2 MSC                              | X                 |                    | 6  |
| #2729 Dust Collector Plant 8                | M            | Plant 8                            | Debris                       | Pending                                      | 1 WMB                              | X                 |                    | 3  |
| ASI Well Abandonment                        | R            | Site-wide                          | Debris                       | Pending                                      | 1 MSC                              | X                 |                    | 3  |
| South Plume Groundwater Treatment (RA #3)   | R            | On & Offsite                       | Soil & Debris                | Pending                                      | 1 WMB<br>2 MSC<br>145 MSC<br>2 MSC | X<br>X            | X<br>X             | 450                                      |
| Sewage Treatment Plant (Rose Garden) RA #14 | R            | Sewage Treatment Plant Incinerator | Soil & Debris                | Pending                                      | 126 MSC                            | X                 |                    | 378                                      |
| UNH Grave                                   | C            | OU3                                | Debris                       | Pending                                      | 11 WSC                             | X                 |                    | 33                                       |

S/L = Sea/Land Container (45 cu. yds.)  
 WMB = White Metal Box (3 cu. yds.)  
 MSC = Metal Shipping Container (3 cu. yds.)  
 WSC = Wooden Shipping Container (3.0 cu. yds.)

4057

| PROJECT TITLE  | PROJECT TYPE | LOCATION                           | MATERIAL<br>(Soil, Concrete) | CLASSIFICATION<br>(Haz. LLRW, Mixed ACM) | CONTAINER      | DISPOSITION    |                 | VOLUME<br>GENERATED<br>(Cu. Yd.) |
|--|--------------|------------------------------------|------------------------------|--|----------------|----------------|-----------------|----------------------------------|
|  |              |                                    |                              |  |                | ONSITE STORAGE | SHIPPED OFFSITE |                                  |
|  |              |                                    |                              | EVAL. #                                  |                |                |                 |                                  |
| Rust Fab Shop/<br>Perched Water                                  | M            | Lab Machine Shop                   | Debris                       | Pending                                  | 1 MSC          | X              |                 | 3                                |
| Clearwell<br>Modifications                                       | C            | K-65 Area                          | Debris                       | Pending                                  | 4 MSC          | X              |                 | 12                               |
| Services Building<br>Maintenance                                 | M            | Services Building                  | Debris                       | Pending                                  | 1 WMB<br>2 MSC | X<br>X         |                 | 9                                |
| Diesel Fuel<br>Spill/Boiler Plant                                | R            | Boiler Plant                       | Soil & Debris                | Pending                                  | 1 MSC          | X              |                 | 3                                |
| Process Water<br>Break Tank                                      | C            | South of Boiler<br>Plant Coal Pile | Soil & Debris                | LLRW                                     | 1 MSC<br>8 MSC | X              | X               | 27                               |
| Transitional<br>Additional<br>Contractor Office<br>Space (TACOS) | C            | T-76<br>T-77                       | Debris                       | LLRW                                     | 1 MSC<br>5 MSC | X              | X               | 18                               |
| Plant 9<br>Maintenance   | M            | Plant 9                            | Debris                       | LLRW                                     | 1 S/L<br>3 MSC |                | X<br>X          | 54                               |

S/L = Sea/Land Container (45 cu. yds.)  
 WMB = White Metal Box (3 cu. yds.)  
 MSC = Metal Shipping Container (3 cu. yds.)

4057

| PROJECT TITLE                    | PROJECT TYPE | LOCATION                | MATERIAL<br>(Soil, Concrete) | CLASSIFICATION<br>(Haz. LLRW, Mixed, ACH) |                         | CONTAINER       | DISPOSITION       |                    | VOLUME<br>GENERATED<br>(Cu. Yd.) |
|----------------------------------|--------------|-------------------------|------------------------------|---|-------------------------|-----------------|-------------------|--------------------|----------------------------------|
|                                  |              |                         |                              | -----<br>-----<br>-----                   | -----<br>-----<br>----- |                 | ONSITE<br>STORAGE | SHIPPED<br>OFFSITE |                                  |
|                                  |              |                         |                              | -----<br>-----<br>-----                   | -----<br>-----<br>----- |                 |                   |                    |                                  |
| Admin. Bldg. Renovation          | C            | Admin. Bldg.            | Debris                       | Non RCRA                                  | 26                      | 3 MSC           | X                 | X                  | 9                                |
| Work Order 1319                  | C            | Admin. Bldg.            | Debris                       | LLRW                                      | 27                      | 1 WMB           | X                 | X                  | 3                                |
| Building 71 Truck Dock Shelter   | C            | Building 71             | Soil & Debris                | Non RCRA                                  | 28                      | 3 MSC<br>30 MSC | X                 | X                  | 99                               |
| ASI Well Construction            | R            | Site-wide               | Debris                       | Pending                                   |                         | 6 MSC           | X                 | X                  | 18                               |
| Effluent Flow                    | R            | OU5                     | Debris                       | Pending                                   |                         | 1 MSC           | X                 | X                  | 3                                |
| UltraViolet Disinfection Upgrade | C            | East of Production Area | Debris                       | Non RCRA                                  | 29                      | 1 MSC           | X                 | X                  | 3                                |
| General Sump                     | C            | East of Plant 2/3       | Soil & Debris                | Non RCRA                                  | 30                      | 6 MSC           | X                 | X                  | 18                               |
| Plant 8 Oliver Vacuum Filter     | M            | Plant 8                 | Debris                       | Pending                                   |                         | 3 S/L<br>3 MSC  | X                 | X                  | 144                              |

S/L = Sea/Land Container (45 cu. yds.)  
 WMB = White Metal Box (3 cu. yds.)  
 MSC = Metal Shipping Container (3 cu. yds.)

| PROJECT TITLE                           | PROJECT TYPE | LOCATION         | MATERIAL (SOIL, CONCRETE) | CLASSIFICATION (HAZ. LLRM, MIXED ACM) | CONTAINER                | DISPOSITION    |                 | VOLUME GENERATED (Cu. Yd.) |
|---|--------------|------------------|---------------------------|---------------------------------------|--------------------------|----------------|-----------------|----------------------------|
|   |              |                  |                           |                                       |                          | ONSITE STORAGE | SHIPPED OFFSITE |                            |
| Heavy Equipment Garage                  | C            | Garage           | Debris                    | Pending                               | 1 MSC                    | X              |                 | 3                          |
| Plant 1 Pad (RA #7)                     | R            | Plant 1          | Debris                    | Pending                               | 3 S/L<br>3 S/L           | X              | X               | 270                        |
| Plant 2/3 Baier                         | M            | Plant 2/3        | Debris                    | LLRW                                  | 12 S/L<br>2 WMB<br>1 MSC |                | X<br>X<br>X     | 549                        |
| Plant 5 Duplex Office Area              | C            | Plant 5          | Soil & Debris             | Pending                               | 56 WMB<br>19 MSC         | X<br>X         |                 | 225                        |
| Rust Fab Shop #45/Storm Water Runoff    | M            | Lab Machine Shop | Debris                    | Pending                               | 1 MSC                    | X              |                 | 3                          |
| Silos 1 & 2 BentogROUT Addition - RA #4 | R            | Silos 1 & 2      | Debris                    | Pending                               | 20 WMB<br>5 MSC          | X<br>X         |                 | 75                         |
| Water Treatment                         | M            | Plant 1          | Soil & Debris             | LLRW                                  | 1 S/L<br>9 WMB           |                | X<br>X          | 72                         |
| Site-wide Asbestos Abatement            | C            | Site-wide        | Debris                    | ACM                                   | 31 WMB                   | X              |                 | 93                         |

S/L - Sea/Land Container (45 cu. yds.)  
WMB - White Metal Box (3 cu. yds.)  
MSC - Metal Shipping Container (3 cu. yds.)  
WSC - Wooden Shipping Container

| PROJECT TITLE   | PROJECT TYPE | LOCATION       | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED<br>ACM) | CONTAINER      | DISPOSITION       |                    | VOLUME<br>GENERATED<br>(Cu. Yd.) |
|---|--------------|----------------|------------------------------|---|----------------|-------------------|--------------------|----------------------------------|
|   |              |                |                              |   |                | ONSITE<br>STORAGE | SHIPPED<br>OFFSITE |                                  |
|   |              |                |                              | EVAL. #                                     |                |                   |                    |                                  |
| Underground<br>Storage Tank<br>Closures - Soil<br>Pile          | R            | Site-wide      | Soil                         | Pending                                     | Not Applicable | X                 |                    | 4,000<br>Est.                    |
| Decontamination &<br>Decommissioning<br>Facility - Soil<br>Pile | C            | D & D Building | Soil                         | Pending                                     | Not Applicable | X                 |                    | 300<br>Est.                      |
| TOTAL   |              |                |                              |   |                |                   |                    | 22,305                           |

**ATTACHMENT B**

**PLANNED ACTIVITIES**

RAMP 17 ANNUAL REPORT - CAP PLANNED ACTIVITIES

| PROJECT TITLE                          | PROJECT TYPE | LOCATION                      | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|--|--------------|-------------------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| Lab Pad & Chemical Storage Bldg.       | C            | West of New Lab (Building 15) | Soil & Debris                | LLRW                                 | 120                 | FY 93                                 |
| Waste Pit Improvements (RA #22)        | R            | Waste Pit                     | Debris                       | Pending                              | 444                 | FY 93                                 |
| Service Bldg. Addition                 | C            | Service Bldg.                 | Soil & Debris                | Pending                              | 212                 | FY 93                                 |
| Maintenance Warehouse                  | M            | Maintenance Bldg.             | Soil                         | Pending                              | 180                 | FY 93                                 |
| Utilities Heavy Equipment Storage      | C            | Building 46                   | Soil                         | Pending                              | 130                 | FY 93                                 |
| Heating & Ventilation System Bldg. 25  | M            | Bldg. 25                      | Debris                       | Pending                              | 6                   | FY 93                                 |
| Air Conditioning System Bldg. 28       | M            | Bldg. 28                      | Debris                       | Pending                              | 18                  | FY 93                                 |
| Heating & Ventilation System Bldg. 12  | M            | Bldg. 12                      | Debris                       | Pending                              | 207                 | Unknown                               |
| Heating & Ventilation System - Plant 1 | M            | Plant 1                       | Debris                       | Pending                              | 591                 | Unknown                               |

Notes  
 TBD = To Be Determined  
 D&D = Decontamination & Decommissioning  
 IDM = Investigation Derived Waste  
 MAWS = Minimum Additive Waste Stabilization

H&V = Heating & Ventilation  
 HF = Hydrofluoric Acid  
 UN = Uranyl Nitrate  
 RI/FS = Remedial Investigation/ Feasibility Study

NAR = Nitric Acid Recovery  
 IAWMT (BDN-ETS) = Interim Advanced Wastewater Treatment (Biodenitrification - Effluent Treatment System)

Project Type  
 R = Removal action and other activities.  
 C = Construction activities.  
 M = Maintenance activities.

4057

| PROJECT TITLE                                      | PROJECT TYPE | LOCATION                 | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|--|--------------|--------------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| Clean Scrap Metal Storage Pad                      | C            | New D & D                | Soil & Debris                | Pending                              | TBD                 | FY 93 - FY 94                         |
| Plant 1 Pad - Phases C, D, E                       | C            | Plant 1                  | Debris                       | Pending                              | To Be Determined    | FY 93 - FY 94                         |
| Thorium Repackaging                                | M            | TBD                      | Debris                       | Pending                              | To Be Determined    | FY 93 - FY 94                         |
| Plant 8 East & West Pads (Upgrade)                 | C            | Plant 8                  | Debris                       | Pending                              | 2000                | FY 93 - FY 94                         |
| New Training and Educational (TEOF) Building       | C            | TBD                      | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Cafeteria Upgrade                                  | M            | Cafeteria                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Equipment Certification Facility                   | C            | TBD                      | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| New Fuel Tank Facility                             | C            | TBD                      | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Abandoned Sump near Pilot Plant Removal Action #24 | R            | Pilot Plant              | Debris                       | Pending                              | 5                   | FY 93 - FY 94                         |
| South Plume - Part 1 Removal Action #3             | R            | South of Production Area | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| South Plume - Part 2 Removal Action #3             | R            | South of Production Area | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |

4057

| PROJECT TITLE  | PROJECT TYPE | LOCATION              | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|--|--------------|-----------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| IAWWT (8DN-ETS)  | R            | Water Treatment Plant | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Storm Sewer Improvements Removal Action #16  | R            | Storm Sewer System    | Debris                       | Pending                              | 2                   | FY 93 - FY 94                         |
| Plant 9 Upgrade  | M            | Plant 9               | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Perched Water Plants 2/3, 6, 8 Removal Action #1                                       | R            | Plants 2/3, 6, 8      | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Contaminated Soils Adjacent to Sewage Treatment Plant/Incinerator - Removal Action #14 | R            | Treatment Plant       | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Plant 1 Pad Removal Action #7  | R            | Plant 1               | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Soil Washing   | R            | Plant 8 & 9           | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| D & D Facility   | C            | D & D Facility        | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Pit 5 Removal Action #18   | R            | Pit 5                 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Scrap Metal Piles - Removal Action #15   | R            | OU3                   | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |

4057

| PROJECT TITLE   | PROJECT TYPE | LOCATION                   | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|---|--------------|----------------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| RI/FS Sampling,<br>(IDW) &<br>Treatability<br>Studies               | R            | Site-wide                  | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Plant 7 Removal<br>Action #19                                       | R            | OU3                        | Debris                       | Pending                              | 673                 | FY 93 - FY 94                         |
| Firing Range  | C            | OU2                        | Soil & Debris                | Pending                              | TBD                 | FY 93 - FY 94                         |
| Waste Pit Area<br>Containment<br>Improvements<br>Removal Action #22 | R            | OU1                        | Debris                       | Pending                              | 200                 | FY 93 - FY 94                         |
| Pilot Plant<br>Buildings 13B,<br>13C, 13D - Removal<br>Action #24   | R            | Bldg.<br>13B<br>13C<br>13D | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| MAWS Project<br>(Waste Pit 5 Soil<br>Washing &<br>Vitrification)    | C            | Waste Pit 5                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Temporary Nitrate<br>Tanks - Removal<br>Action #25                  | R            | OU3                        | Debris                       | Pending                              | TBD                 | FY 93                                 |
| Fire Training<br>Facility - Removal<br>Action #29                   | R            | OU3                        | Soil & Debris                | Pending                              | TBD                 | FY 93                                 |

4057

| PROJECT TITLE   | PROJECT TYPE | LOCATION                  | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|---|--------------|---------------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| Sewage Treatment Plant Incinerator - Removal Action #14     | R            | OU3                       | Debris                       | Pending                              | TBD                 | FY 93                                 |
| Pilot Plant West Area - Removal Action #24                  | R            | OU3                       | Soil & Debris                | Pending                              | TBD                 | FY 93                                 |
| Fire Detection System - Plants 4, 5, Pilot Plant            | M            | Plant 4, 5<br>Pilot Plant | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Heating & Ventilation                                       | M            | Plant 1                   | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Auto Sprinklers in Existing Buildings                       | M            | Site-wide                 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Honeywell Alarm System Upgrade                              | M            | Site-wide                 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Replace Facility Wiring (including underground substations) | M            | Site-wide                 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Vehicle Monitoring Upgrade                                  | M            | TBD                       | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |

| PROJECT TITLE  | PROJECT TYPE | LOCATION           | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRM, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|--|--------------|--------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| Roadway Lighting                                     | M            | Site-wide          | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Sewage Treatment<br>Facility Upgrade                 | C            | OU3                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| ULE Electrical<br>Upgrade                            | M            | TBD                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Respirator Wash<br>Facility                          | M            | TBD                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| HF Tank Car  | M            | OU3                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Waste Oil Storage<br>in Garage                       | M            | Garage             | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Drum Storage<br>Area - near<br>Loading Dock (Lab)    | M            | Loading Dock (Lab) | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Drum Storage Area<br>South of W-26<br>(Lab)          | M            | South of Lab       | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Drummed HF Residue<br>Storage - Plant 4              | M            | Plant 4            | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Nitric Acid Rail<br>Car Area (Removal<br>Action #25) | R            | OU3                | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |

| PROJECT TITLE                             | PROJECT TYPE | LOCATION    | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|---|--------------|-------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| UNH Tanks - NFS Storage Area (RA #20)     | R            | OU3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| UNH Tanks - North of Plant 2 (RA #20)     | R            | OU3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| UNH Tanks - Southeast of Plant 2 (RA #20) | R            | OU3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| UNH Tanks - Digestion Area (RA #20)       | R            | OU3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| UNH Tanks - Raffinate Building (RA #20)   | R            | OU3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| NAR System Components (RA #25)            | R            | OU3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| North & South Solvent Tanks - Pilot Plant | C            | Pilot Plant | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Detrex Still                              | M            | Plant 1     | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Box Furnace                               | M            | TBD         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Primary Calciner                          | M            | Plant 8     | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Oxidation Furnace #1                      | M            | Plant 8     | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Heating & Ventilation (H&V) Project       | M            | Building 12 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |

| PROJECT TITLE   | PROJECT TYPE | LOCATION          | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|---|--------------|-------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| Guard Post for<br>Monitoring Wells                              | R            | Site-wide         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Site Services -<br>Maintenance                                  | M            | Site-wide         | Debris                       | Pending                              | 325                 | FY 93 - FY 94                         |
| Clearwell & Pit 3<br>Source Material<br>Control (RA #22)        | R            | Clearwell & Pit 3 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Lighting System -<br>K-65                                       | M            | K-65              | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| New Maintenance<br>Storage Warehouse<br>North of Building<br>12 | C            | North Building 12 | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Barium Chloride<br>Drum Processing                              | M            | TBD               | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Rotary Kiln<br>Operation  | M            | Plant 8           | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Parking Lot<br>Resealing and<br>Restripping                     | M            | Parking Lot       | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Analytical Lab<br>Upgrade - Phases<br>III and IV                | C            | Lab Building      | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Building 30<br>Upgrade  | C            | Building 30       | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |

| PROJECT TITLE                                      | PROJECT TYPE | LOCATION          | MATERIAL<br>(SOIL, CONCRETE) | CLASSIFICATION<br>(HAZ. LLRW, MIXED) | VOLUME<br>(Cu. Yd.) | EXPECTED DATE FOR<br>WASTE GENERATION |
|--|--------------|-------------------|------------------------------|--------------------------------------|---------------------|---------------------------------------|
| Plant 2/3 Asbestos Abatement                       | C            | Plant 2/3         | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Laboratory Roof Replacement                        | C            | Lab Building      | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Services Building and Water Plant Roof Replacement | C            | Services Building | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Plant 1 Ore Silos (RA #13)                         | R            | Plant 1           | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Waste Pit 5 Liner Repair (RA #18)                  | R            | Pit 5             | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| Sampling Waste Pit 5 and Clearwell RA #18          | R            | Pit 5             | Debris                       | Pending                              | TBD                 | FY 93 - FY 94                         |
| RCRA Characterization Sampling                     | R            | Site-wide         | Soil & Debris                | Pending                              | TBD                 | FY 93 - FY 94                         |
| Safe Shutdown Activities (RA #12)                  | R            | Site-wide         | Soil & Debris                | Pending                              | TBD                 | FY 93 - FY 94                         |

4057

**ATTACHMENT C**

**CLASSIFICATION INFORMATION**



# INTEROFFICE MEMORANDUM

To: Dennis Wade

Date: December 16, 1992

Location: Fernald

Reference: DE-AC05-92OR21972

From: Jerry Erfman 

Location: Fernald

Client: DOE

Extension: 6085

Subject: RCRA Determination and Radiological Characterization of the Rubble From the Waste Pit Area Stormwater Runoff Control Project

- cc:
- J. E. Clements
  - M. L. Frost
  - C. L. Griffin
  - F. R. Hertweck
  - S. C. Hoskins
  - L. A. Hurst
  - D. L. Howe
  - H. J. Knue
  - L. M. March
  - R. D. Meyer
  - B. S. Perkins
  - C. G. Rieman
  - R. A. Thiel
  - J. L. Trujillo
  - C. S. Waugh
  - K. N. Wintz
  - D. L. Zdelar-Bush

WC Files  
RCRA Operating Record

- Ref:
1. WEMCO Site Standard Operating Procedure, SSOP-0044, "Management of Soil, Debris and Waste From a Project," issued June 19, 1992
  2. WEMCO Safety Procedure SP-P-35-010, "Unrestricted Release of Materials from FEMP," issued March 13, 1990



4057

## INTEROFFICE MEMORANDUM

Dennis Wade  
December 16, 1992  
Page 2

3. Environmental Compliance Spill/Release Incident Tracking Report, dated September 1, 1992
4. Upset Condition Documentation, issued September 18, 1990
5. Site-Wide Characterization Report, dated August, 1992
6. WEMCO:PM&A(PM2):91-377, D.L. Wade to S.C. Hoskins, "RCRA Determination of Rubble From Waste Pit Area Stormwater Runoff Control Project," dated October 29, 1991
7. WEMCO:PM&A(PM2):92-123, D.L. Wade to I.W. Diggs, "Waste Pit Area Stormwater Runoff Control Project - Stockpile Analytical Results," dated March 17, 1992
8. WMCO:EC(SW):90-596, C.S. Waugh to J.M. Lacefield, "RCRA Determination and Radiological Characterization of The Rubble From Waste Pit Area Runoff Control," dated October 18, 1990

This memorandum transmits the RCRA determination and radiological characterization for the Waste Pit Area Stormwater Runoff Control Project. This project was expected to generate about 68,850 ft<sup>3</sup> of soil, however, during the course of the project approximately 270 ft<sup>3</sup> of concrete block, 81 ft<sup>3</sup> of metal pipe, 135 ft<sup>3</sup> of plastic, 135 ft<sup>3</sup> of wood, paper and cardboard, and 135 ft<sup>3</sup> of asphalt was also generated.

### PROCESS KNOWLEDGE

This project is a combination of three separate projects to be completed consecutively and is located within the radiologically controlled area of the FEMP directly south of the Clearwell and Waste Pit #1 in the K-65 Area. The three projects are: 1) Waste Pit Collection Sump Area at K-65, 2) K-65 South Tank, and 3) K-65 Control Outlet Trench.

The scope of work for this project is to construct a series of dikes, trenches, and culverts in order to redirect contaminated stormwater runoff from the waste pit area perimeter to a collection sump. The sump contents are then pumped to the Bionitrification Surge Lagoon. The intent of this project is to prevent the runoff of contaminated stormwater to Paddy's Run, while still allowing the runoff of uncontaminated stormwater.



4057

## INTEROFFICE MEMORANDUM

Dennis Wade  
December 16, 1992  
Page 3

A RCRA determination (Reference Number 7) was performed in 1990 for the soil anticipated from the excavations. From the data collected at the time, it was concluded that the soil would be non-hazardous and would fall under Category 1 per Reference Number 1.

The soil excavated from the sump for this project was placed in 2 piles in the Waste Pit project area with the intent that it could be used as backfill on this project, if needed.

### SAMPLING AND ANALYSIS

#### 1989-1990

Fourteen soil samples (7 surface and 7 at 1 foot depth) were taken in July 1989 and analyzed for radiological constituents, as well as for EP Tox metals.

When the work scope of the project was expanded in April of 1990, an additional 20 soil samples were collected (10 surface, 10 at 1 foot depth) and analyzed for RCRA Total Metals as well as for total uranium and total thorium.

#### 1991-1992

In November of 1991 eight samples were collected at the sump base and were analyzed for the full range of radiological contaminants.

Seventeen samples (3 water, 14 soil) were collected and analyzed on January 22, 1992 from soil pile #2. Each sample was analyzed for TCLP metals, volatiles, non-volatiles, semi-volatiles, pesticides, herbicides and radiological contaminants.

An additional 20 samples were collected on January 24, 1992 from soil pile #1 and analyzed for full TCLP components, total U and total Th. TCLP metal analyses for piles 1 and 2 are shown in Attachment 1.



4057

## INTEROFFICE MEMORANDUM

Dennis Wade  
December 16, 1992  
Page 4

### RADIOLOGICAL CHARACTERIZATION

#### 1989-1990

The results of the analysis indicate that the degree of contamination in the surface soil varies considerably, with the majority of samples showing contamination levels in Category 1 per Reference 1. However, since there were several samples showing contamination levels consistent with Category II of Reference 1, the entire amount of soil waste will be classified as Category II.

#### 1991-1992

The 1991 analytical results of the sump base show low levels of contamination for both total uranium and total thorium.

The results of the radiological analysis in 1992 for the two soil piles from the sump excavation indicates minimal contamination of both total uranium and total thorium.

### RCRA DETERMINATION

The analytical results from the 1990 & 1992 sampling campaigns indicate no TCLP (or EP Tox) constituents present in concentrations above the regulatory levels. Based on these findings and the current available process knowledge, the soil resulting from this project is considered to be RCRA non-hazardous (a.k.a. non-RCRA).

The concrete blocks (if new) and the miscellaneous field cut metal piping (if new), if generated, are RCRA non-hazardous (a.k.a. non-RCRA) based on process knowledge.

The plastic waste (sheeting and bags), if generated, is RCRA non-hazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 1539, dated February 11, 1992.

The paper and cardboard waste (packing materials and packing boxes), if generated, is RCRA non-hazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 1673, dated April 10, 1992.

The wood waste (scrap wood pallets), if generated, is RCRA non-hazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 905, dated May 8, 1991.



4057

## INTEROFFICE MEMORANDUM

Dennis Wade  
December 16, 1992  
Page 5

**The asphalt waste will have to be sampled before a RCRA determination can be performed on it.**

No materials, except the asphalt, have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24, (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

### SUMMARY

The non-asphalt waste (soil, concrete block, metal, paper, plastic, etc) generated as a result of this project is RCRA non-hazardous (a.k.a. non-RCRA) per the attached analytical data and process knowledge.

The soil exhumed for this project shows contamination levels consistent with the Category II level per Reference Number 1, and should be treated as radiologically contaminated.

It is FME's intention to provide radiological characterizations and RCRA determinations of construction waste prior to its generation. FME believes that these determinations properly represent the waste or waste streams discussed herein. The determinations apply only to the waste listed on the Construction Waste Identification/Disposition (CWID) Form dated March 18, 1992.

**The asphalt waste will have to be sampled before a RCRA determination can be performed on it.**

Any additional waste must be evaluated independently and requires the issuance of a separate determination letter.

The non-soil waste will have to be monitored by the Radiological Safety Group for proper radiological disposition per Reference Numbers 1 and 2.

If there are any questions, please call me at extension 6085 or C. S. Waugh at extension 6777.

JPE:bbs

**ATTACHMENT 1**

**1992 ANALYTICAL RESULTS**

SOIL PILE #1 TCLP METALS RESULTS

4057

| TOTAL METALS | Ag (ppm) | As (ppm) | Ba (ppm) | Cd (ppm) | Cr (ppm) | Hg (ppm) | Pb (ppm) | Se (ppm) |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sample No.   |          |          |          |          |          |          |          |          |
| 920122-068*  | ND       |
| 920122-069*  | ND       |
| 920122-070*  | ND       | 0.675    |
| 920122-071   | ND       | ND       | 0.588    | ND       | ND       | ND       | ND       | ND       |
| 920122-072   | ND       | ND       | 0.537    | ND       | ND       | ND       | ND       | ND       |
| 920122-073   | ND       |
| 920122-074   | ND       | ND       | 0.435    | ND       | ND       | ND       | ND       | 0.624    |
| 920122-075   | ND       | ND       | 0.413    | ND       | ND       | ND       | ND       | 0.877    |
| 920122-076   | ND       | ND       | 0.352    | ND       | ND       | ND       | ND       | 0.849    |
| 920122-077   | ND       |
| 920122-078   | ND       | ND       | 0.851    | ND       | ND       | ND       | ND       | ND       |
| 920122-079   | ND       | ND       | 0.738    | ND       | ND       | ND       | ND       | ND       |
| 920122-080   | ND       | ND       | 0.517    | ND       | ND       | ND       | ND       | ND       |
| 920122-081   | ND       | ND       | 0.539    | ND       | ND       | ND       | ND       | ND       |
| 920122-082   | ND       | ND       | 0.443    | ND       | ND       | ND       | ND       | ND       |
| 920122-083   | ND       | ND       | 0.476    | ND       | ND       | ND       | ND       | ND       |
| 920122-084   | ND       | ND       | 0.515    | ND       | ND       | ND       | ND       | ND       |
| 920122-085   | ND       | ND       | 0.384    | ND       | ND       | ND       | ND       | ND       |
| 920122-086   | ND       | ND       | 0.745    | ND       | ND       | ND       | ND       | ND       |
| 920122-087   | ND       | ND       | 0.561    | ND       | ND       | ND       | ND       | ND       |

• Water samples. Remaining samples are soil.

SOIL PILE #2 TCLP METALS RESULTS

37

| TOTAL METALS | Ag<br>(ppm) | As<br>(ppm) | Ba<br>(ppm) | Cd<br>(ppm) | Cr<br>(ppm) | Hg<br>(ppm) | Pb<br>(ppm) | Se<br>(ppm) |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Sample No.   |             |             |             |             |             |             |             |             |
| 920120-170*  | <0.05       | <0.02       | <0.20       | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-171*  | <0.05       | <0.02       | <0.20       | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-172*  | <0.05       | <0.02       | <0.20       | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-173   | <0.05       | <0.02       | 0.52        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-174   | <0.05       | <0.02       | 0.63        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-175   | <0.05       | <0.02       | 0.48        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-176   | 0.28        | <0.02       | 0.28        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-177   | <0.05       | <0.02       | 0.29        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-178   | <0.05       | <0.02       | 0.27        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-179   | <0.05       | <0.02       | 0.29        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-180   | <0.05       | <0.02       | 0.35        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-181   | <0.05       | <0.02       | 0.31        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-182   | <0.05       | <0.02       | 0.54        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-183   | <0.05       | <0.02       | 0.44        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-184   | <0.05       | <0.02       | 0.32        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-185   | <0.05       | <0.02       | 0.46        | <0.02       | <0.24       | <0.003      | <0.08       | <0.01       |
| 920120-186   | <0.05       | <0.02       | 0.38        | <0.02       | <0.24       | <0.003      | <0.08       | <0.02       |

• Water samples. Remaining samples are soil.



From: C. G. Rieman\6828

WEMCO:EM(FME):92-258

Date: July 1, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION OF CONSTRUCTION WASTE GENERATED DURING THE LABORATORY UPGRADE PROJECT - PHASE I

To : J. A. Apple

- Ref: 1. WEMCO Site Standard Operating Procedure, SSOP-0044, "Managing of Soil, Debris and Waste from a Project", issued June 10, 1992
2. WEMCO Safety Procedure SP-P-35-010, "Unrestricted Release of Materials from FEMP", issued March 13, 1990
3. WEMCO Document No. WEMCO:EC:90-0150, "Disposal of Laboratory Equipment", dated August 30, 1990
4. Conversation Report, Ohio EPA, Testing of Laboratory Debris/Rubble, dated March 6, 1990
5. Conversation Report, Ohio EPA, Mixture Rule, dated November 8, 1991
6. Conversation Report, Process Information of Laboratory, dated November 8, 1991
7. Letter of Sampling and Analysis Plan Approval, P. D. Pardi, OEPA to G. W. Westerbeck DOE, dated November 14, 1990
8. WEMCO:E(EF):92-191, S. J. Lund to C. S. Waugh, "Inspection for the Waste Characterization of the Lab Expansion Phase I", dated June 17, 1992
9. WEMCO:EC&QA(OU3/FME):91-390, "Metal Coated With Lead-Based Paint", dated October 23, 1991
10. WEMCO Document No. WEMCO:IRS&T(IH):91-781, "Mercury Survey in Building-15 Industrial Hygiene", October 29, 1991

#### BACKGROUND INFORMATION

This memo transmits the RCRA determination and radiological characterization for the construction waste generated during the demolition of the Laboratory Building Upgrade Project, Phase I. Phase I of the upgrade project was located in the basement, the penthouse, rooms N-19, N-23, W-10, W-34 and W-50. These areas are located in the controlled area of the Laboratory Building. The project scope of work included stripping the areas of the existing utilities, equipment, and furnishings to allow for the renovation of the existing areas and construction of the new laboratory complex. The waste generated included metal (duct work, piping, fume hoods, blowers, wire cage partitions, chain link fencing, shelving, support steel, catch basin grating, roof flashing, electrical conduit, electrical wiring, electrical panel boxes and other miscellaneous materials), wood (wooden and composite bench tops, cabinets,

J. A. Apple

-2-

WEMCO:EM(FME):92-258

sink basins, book cases, doors, desks and shelving), concrete block, ceiling tile, rubber, wallboard, slate (bench tops), PVC pipe, plastic (plastic bags and sheeting), cardboard, and paper (protective clothing, anti C's, gloves, etc). The waste was generated from numerous individual and discrete work areas listed above, such as analytical rooms, sample/standard preparation rooms, offices, utility and the basement storage area. The waste generated from this project is located in the containers listed in Attachment I.

On March 6, 1990, the FEMP contacted Ohio EPA (OEPA) seeking guidance for characterization of the construction waste to be associated with the Laboratory Upgrade Project - Phase II Reference 4. The Waste Characterization Plan (References 3, 4, 5, 6, and 7) for Phase II was based upon the controls employed during the Phase I construction as stated in Reference 8.

The plan was formally submitted to the OEPA for concurrence in a document entitled "Disposal of Laboratory Equipment" (Reference 3) on August 31, 1990 and concurrence was received from OEPA on November 14, 1990 (Reference 7). Several telephone contacts were made with OEPA to clarify specific items not included in the waste plan.

The waste characterization procedure for this project specified that potentially hazardous waste would be evaluated by applying the toxicity characteristic leaching procedure (TCLP) under 40 CFR 261.24 (in lieu of OAC 3745-51-24 and testing for hazardous characteristics as specified under OAC 3745-21 to 23). Residues resulting from the loss of materials that would otherwise be considered hazardous waste listed in OAC 3745-31 to 33 (in lieu of 40 CFR 261.31 to 33) are considered to be of "de minimis" quantity and not of regulatory concern. For this project, the "mixture rule" under OAC 3745-51-03(A)(2)(f) (In lieu of 40 CFR 261.3(a)(2)(iv)) is not applicable to the characterization of construction waste per Reference 5. Additional information pertaining to the implementation of this approach may be found in the discussions of each waste stream evaluated.

The approved sampling plan (Reference 7) states that construction waste will not be sent to a sanitary landfill. The construction waste in the containers shown in Attachment I will be considered low level radioactive based upon radiological surveys. Waste determined to be RCRA nonhazardous (a.k.a. non RCRA) will be disposed of per Reference 1. Waste that is found to be RCRA hazardous (a.k.a. RCRA) will be classified as mixed waste and stored on site until a means of disposal has been established.

**NOTE:** The Drum Storage Area Near Loading Dock (Laboratory Building), and the Drum Storage Area South of room W-26 (Laboratory Building) have been determined to be Hazardous Waste Management Units (HWMU). If any waste was generated from these areas it will have to be controlled per the OEPA approved RCRA Closure Plans, pending final characterization of the waste.

#### **PROCESS KNOWLEDGE - METAL WASTE**

The metals generated during the Phase I activities included duct work, fume hoods, blowers, wire cage partitions, chain link fencing (cages), shelving, support steel, roof flashing, electrical conduit, electrical wiring, electrical panel boxes, catch basin grating and top ring, and other miscellaneous materials. The metal piping will be evaluated under the section PVC piping. Process knowledge indicates that lead (Pb) based paints were routinely used to maintain the aesthetic nature of the walls, framing and piping. The wire cage partitions, chain link fencing (cages), shelving, electrical wiring, catch basin and top ring would not have been painted with lead base paint. The wire cage partitions, chain link fencing (cages), and shelving were removed from the basement area where uranium samples and miscellaneous equipment were stored. The remainder of the metal waste, except the electrical wiring was probably painted with lead based paint.

#### **SAMPLING AND ANALYSIS**

Six paint samples were obtained for the window frames, and concrete block walls from Room Numbers E-47 and N-43. Analysis by TCLP indicated that leachable lead concentrations for five samples were less than the detectable limit of 1.0 ppm. The sixth sample exhibited a leachable lead concentration of 19.5 ppm. This concentration exceeds the TC regulatory level of 5.0 ppm.

#### **RCRA DETERMINATION**

The wire cage partitions, chain link fencing (cages), shelving and electrical wire are RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon process knowledge of the waste and that it was not painted with lead based paint.

From the TCLP analytical results discussed previously, (sampling performed for Phase II), a value of 19.5 ppm can be assigned as the maximum TC value for lead based paint in the Laboratory area. Since OAC 3745-51-20(C) (40 CFR 261.20(c)), states that the entire waste must be evaluated, the following calculation is employed to mathematically determine the thickness ratio of paint to substrate (e.g. duct work, electrical panel boxes, piping, fume hoods, blowers, roof flashing, and support steel). The calculation indicates the required substrate thickness for the waste not to exceed the TC regulatory level (Reference 9).

J. A. Apple

-4-

WEMCO:EM(FME):92-258

$$TC > V \text{ TCLP} * (Qp * h) / ((H * Qs) + Qp) * S\%$$
 Where;  
 TC = Regulatory level for lead, 5.0 ppm  
 V TCLP = Analytical value for lead, 19.5 ppm  
 h = Paint thickness, inches, 0.00763 inch  
 H = Substrate thickness, inches  
 Qp = Paint density, lb./cu.ft., 482  
 Qs = Substrate density, lb./cu.ft., 500  
 S% = Percent of substrate's surface covered with paint, 100%

Since the density of steel (500 lb./cu.ft.) is approximately the same as the density of paint (482 lb./cu.ft.), the above equation simplifies to the following:

$$TC = (h * TCLP) / H = h \text{ for } 100\% \text{ painted surface}$$

Measurements obtained on January 6, 1992, (Phase II), indicate the paint to have an average thickness of 0.00763 inch. Using this paint thickness to solve for H, the calculation shows that the metal waste above must be at least 0.022 inch thick. Engineering data shows that the thinnest metal (duct work) has a thickness of 0.0625 inch.

This methodology is a valid approach for characterizing waste coated with lead based paint. This methodology has been submitted to the Ohio EPA for review and a verbal concurrence has been received.

With substrate thicknesses greater than 0.0625 inch, the metal waste listed above will not exceed the TC regulatory level for lead. Based upon the data above and process knowledge of the waste; duct work, electrical panel boxes, piping, fume hoods, blowers, roof flashing, and support steel are RCRA nonhazardous (a.k.a. non-RCRA). No materials have been identified that would cause the waste to be a listed hazardous waste under OAC 3745-51-31 through 33 (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristic of a hazardous waste as defined under OAC 3745-51-21 to 24 (in lieu of 40 CFR 261.21 to 24).

#### PROCESS KNOWLEDGE - CONCRETE BLOCKS AND WALLBOARD

The concrete block and wallboard waste from this project were generated from interior partition walls and exterior lead-bearing walls. Both materials were painted with lead based paint.

#### ANALYTICAL DATA

Six paint samples were obtained from the window frames and walls of room numbers E-47 and N-43 (Phase II). Analysis by TCLP indicate that leachable lead concentrations for five samples were less than the detectable limit of 1.0 ppm. The sixth sample exhibited a leachable lead concentration of 19.5 ppm which exceeds the TC regulatory level of 5.0 ppm.

**RCRA DETERMINATION**

From the TCLP analytical results shown above, a value of 19.5 ppm can be assigned as the maximum TC value for lead based paint in the Laboratory area. Since OAC 3745-51-20(C) (40 CFR 261.20(c) states that the entire waste must be evaluated, the calculation used to determine the substrate thickness for metal can be used to determine the substrate thickness for the lead base painted concrete blocks and wallboard. Utilizing the first equation above for metal, and the appropriate density ( $Q_s$ ) for concrete, 150 lb./cu.ft., the calculation indicated that the concrete blocks and wallboard must have a minimum thickness of 0.074 inch. Engineering data shows that the concrete block has an actual thickness of three inches if painted on both sides and the wallboard has an actual thickness of 0.50 inch painted one side.

This methodology is a valid approach for characterizing waste coated with lead based paint. The methodology has been submitted to Ohio EPA for review and a verbal concurrence has been received.

The concrete block and wallboard waste is RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon process knowledge of the waste and the methodology used for wastes coated with lead based paint. No materials were identified that would cause the waste to be a listed hazardous waste under OAC 3745-51-31 through 33 (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristic of a hazardous waste as defined under OAC 3745-51-21 to 24 (in lieu of 40 CFR 261.21 to 24).

**PROCESS KNOWLEDGE - WOOD, COMPOSITE AND SLATE**

The wood waste generated during Phase I included wood, composite, and slate materials such as bench tops, cabinets, sink basins, book cases, doors with glass, desks, shelving and a small quantity of metal (e.g., metal screws and nails). Visual inspections and a review of process knowledge produced no evidence to suggest that the waste would exhibit any hazardous characteristic. This waste was not painted with lead based paint.

**ANALYTICAL DATA**

An industrial hygiene air monitoring survey for mercury (Hg) vapors was conducted throughout the laboratory rooms (Reference 10). The survey included vapor measurements from drawers (e.g. cabinets) as well as measurements from general areas. Drawer measurements from all the rooms, except N-15, were found to be below the detection limit of 0.003 mg/m<sup>3</sup> of Hg. Drawer measurements from room N-15 ranged from 0.011 to 0.136 mg/m<sup>3</sup> of Hg; however, at no time was mercury ever visibly evident. While this air monitoring data can not be used directly for waste characterization, it does lend support for the absence of mercury (which has a high vapor pressure) on these materials.

J. A. Apple

-6-

WEMCO:EM(FME):92-258

Since mercury was never present in visible amounts, the quantities detected during this survey are considered "de minimis quantities" and are not of regulatory concern. As a result, the mercury will not be a factor in the RCRA determination of the waste. This action is consistent with the sampling plan and discussions with Ohio EPA.

The identification of suspect asbestos materials and asbestos free materials was based on inspections and analyses conducted by the Industrial Hygiene Group. Five samples were obtained from various bench-tops and sink basins constructed of composite materials which were suspected of containing asbestos. The analyses found no evidence of asbestos. However, visual inspections by Industrial Hygiene have determined that the center shelving mounted on several of the bench tops are constructed of asbestos materials. As a waste, the center shelving is subject to regulation under OAC 3745-20 or 40 CFR 61, Subpart M.

#### RCRA DETERMINATION

The wood, composite, and slate waste identified above is RCRA nonhazardous (a.k.a. non-RCRA).

This determination is based on process knowledge Reference 8, 9, and 10, and the information presented above, that the waste is not a listed hazardous waste under OAC 3745-51-31 through 33 (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristic of a hazardous waste as defined under OAC 3745-51-21 to 24 (in lieu of 40 CFR.21 to 24). The asbestos waste was controlled per WEMCO procedures OS&H-P-41-006 and IH&S-IH-03.

#### PROCESS KNOWLEDGE - CEILING TILE

Visual inspection of the ceiling tile prior to demolition and a review of process knowledge produced no evidence to indicate that the waste would exhibit hazardous characteristics, Reference 8.

#### ANALYTICAL DATA

Numerous ceiling tile samples were taken from room number N-42, N-46 and N-31. These samples are believed to be representative of the ceiling tile throughout the entire Laboratory building. When tested, the samples were found not to contain asbestos; therefore, ceiling tile waste is not subject to regulation under OAC 3745-20 or 40 CFR 261, Subpart M.

#### RCRA DETERMINATION

The ceiling tile waste is RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon process knowledge discussed above, the waste is not a listed hazardous waste under OAC 3645-51-31 to 33 (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristics of hazardous waste as defined under OAC 3745-51-21 to 24 (in lieu of 40 CFR 261.21 to 24).

**PROCESS KNOWLEDGE - RUBBER**

This rubber waste was the bumper at the Laboratory truck loading dock and rubber gloves. Visual inspection per Reference 7 and a review of process knowledge produced no evidence to suggest that the waste would exhibit any hazardous characteristic.

**ANALYTICAL DATA**

Based on process knowledge of the rubber waste, no sampling was required.

**RCRA DETERMINATION**

The rubber waste (bumper and gloves) is RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon process knowledge of the waste, and that it is not a listed hazardous waste under OAC 3745-51-31 through 33 (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristic of a hazardous waste as defined under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24).

**PROCESS KNOWLEDGE - PVC PIPE AND METAL PIPE**

The PVC and metal piping consisted of sink drains, water lines (sanitary, process and cooling), steam lines and condensate return lines, gas lines, vacuum lines and other miscellaneous piping, the majority of the piping was removed from the basement area of the Laboratory building.

**ANALYTICAL DATA**

No analytical data was available on the piping prior to its removal. Sampling will be discussed under the RCRA determination.

**RCRA DETERMINATION**

No analytical data was available on the piping prior to its demolition and removal from the building; therefore, to determine if the piping was hazardous, a visual inspection was first conducted per Reference 8. All liquid residues were collected and analyzed for toxicity characteristics (TC), ignitability, corrosivity, and reactivity (cyanide and sulfide). The liquid residues exhibiting hazardous characteristics will be identified and managed accordingly. When solid residue, such as scaling was present in sufficient quantity, it was sampled and analyzed for TC, and reactivity (cyanide and sulfide). The results of these analyses will be used to evaluate and properly manage the waste. If the residue is found to be nonhazardous, the piping will be classified as solid waste. If the residue is found to be hazardous, it will either be removed from the piping or left in place.

If removed, rinseates from the piping will be collected and analyzed for ignitability, corrosivity, reactivity (cyanide and sulfide), and TC to demonstrate that the piping no longer contains hazardous residues. For residues left in place, the entire piping will be classified and controlled as hazardous mixed waste.

When the amount of residue is limited, thereby, preventing sampling and analysis, it was considered a "de minimis" quantity and not of regulatory concern. Residue will also be considered "de minimis" quantity if the analysis process would have consumed all the residue. Residues of this nature will be left in place and discarded as solid waste.

If the metal piping was painted with lead based paint, the thickness of the piping would be greater than 0.022 inch and would not be hazardous based upon the methodology discussed under the Metal section. PVC piping was not painted with lead based paint.

The PVC and metal pipe waste in the containers listed in Attachment I, are nonhazardous (a.k.a. non-RCRA). This determination is based upon process knowledge and the data above. No materials were identified that would cause the waste to be a listed hazardous waste under OAC 3745-51-31 through 33 (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristic of a hazardous waste as defined under OAC 3745-51-21 to 24 (in lieu of 40 CFR 261.21 to 24).

The piping that contained residue was sampled and segregated. This pipe was not placed in the containers listed in Attachment I. These wastes will be evaluated at a later date, based on the analytical data.

#### PROCESS KNOWLEDGE - PLASTIC

The plastic waste generated from this project consisted of plastic sheets and plastic bags used as dust barriers and to wrap radiologically contaminated waste.

#### ANALYTICAL DATA

Based upon process knowledge of the plastic waste no analytical data was required.

#### RCRA DETERMINATION

The plastic waste (sheeting and bags) are RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon process knowledge of the plastic and the visual inspection per Reference 8 that certified the plastic waste was acceptable per MEF-1539, Attachment Number II.

#### PROCESS KNOWLEDGE - CARDBOARD AND PAPER

The cardboard, and paper waste consisted of tyvek anti'C protective clothing, empty shipping boxes and paper used during the Phase I activities. Inspections conducted per Reference 8 and a review of process knowledge indicated that the waste does not exhibit any RCRA hazardous characteristics.

**ANALYTICAL DATA**

Based upon process knowledge of the waste no analytical data was required.

**RCRA DETERMINATION**

The cardboard and paper waste (packing boxes, tyvek anti'C clothing and other miscellaneous paper), are RCRA nonhazardous (a.k.a. non-RCRA). This determination is based upon the process knowledge and the visual inspection (Reference 8). The waste is not a listed hazardous waste under OAC 3745-51-31 to 33) (in lieu of 40 CFR 261.31 to 33) and does not exhibit any characteristic of hazardous waste as defined under OAC 3745-51-21 to 24 (in lieu of 40 CFR 261.21 to 24).

**RADIOLOGICAL CHARACTERIZATION**

An extensive radiological survey of the Laboratory construction area was performed by the Radiological Safety Group prior to start of demolition.

The waste generated from this project was determined to be low level waste, this was also stated in the Disposal of Laboratory Equipment agreed to by OEPA. The waste from this project can be disposed of per Reference 1.

**SUMMARY**

The waste generated from the Laboratory Upgrade Phase I construction project; packaged in the white metal boxes and sealand containers shown in Attachment I, are RCRA nonhazardous (a.k.a. non-RCRA) and can be disposed of per Reference 1.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.



C. G. Rieman  
Facilities and Materials Evaluation  
Environmental Management

CGR/tmk

Attachments

c: J. E. Clements  
C. L. Griffin  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
T. J. Stone  
R. A. Thiel  
J. L. Trujillo  
T. J. Walsh  
C. S. Waugh  
K. N. Wintz  
Central Files  
FME Files

## ATTACHMENT I

| SEALAND CONTAINERS AND CONTENTS INCLUDED IN THIS RCRA DETERMINATION |  |
|---|--|
| CONTAINER NUMBER  | CONTENTS                                 |
| 139926  | WOOD/WALLBOARD/METAL                     |
| 271217  | WOOD/METAL                               |
| 201149  | METAL                                    |
| 201695  | METAL/WOOD                               |
| 236506  | METAL/WOOD/PLASTIC                       |
| 249439  | WOOD/METAL                               |
| 261996  | WOOD/PLASTIC/METAL/CARDBOARD/P 2/3 PAPER |
| 264438  | METAL/WOOD/PLASTIC/CARDBOARD             |
| 266057  | WOOD/METAL                               |
| 268394  | METAL/WOOD/PLASTIC/CARDBOARD             |
| 272985  | METAL                                    |
| 282223  | WOOD/METAL/RUBBER                        |
| 299999  | METAL                                    |
| 314172  | METAL/WOOD/CONCRETE/SLATE                |
| 331643  | METAL                                    |
| 341836  | METAL/PVC PIPE/PLASTIC                   |
| 906184  | METAL/WOOD/PLASTIC/CARDBOARD             |

| WHITE METAL CONTAINERS AND CONTENTS INCLUDED IN THIS RCRA DETERMINATION |          |
|---|----------|
| CONTAINER NUMBER  | CONTENTS |
| 1360  | METAL    |
| 1376  | METAL    |
| 1504  | METAL    |
| 1535  | METAL    |
| 1556  | WOOD     |
| 1733  | METAL    |
| 1740  | METAL    |
| 1743  | METAL    |
| 1750  | METAL    |
| 1753  | METAL    |
| 1754  | METAL    |
| 1755  | METAL    |
| 1756  | METAL    |
| 1757  | METAL    |
| 1763  | METAL    |
| 1766  | METAL    |
| 1767  | METAL    |
| 1768  | METAL    |
| 1780  | METAL    |
| 1786  | METAL    |
| 1788  | METAL    |
| 1790  | METAL    |
| 1792  | WOOD     |
| 1801  | METAL    |
| 1802  | METAL    |
| 1804  | METAL    |
| 1807  | METAL    |
| 1808  | METAL    |

ATTACHMENT II

MEF 1539

SITEWIDE PLASTIC

MATERIAL EVALUATION FORM

MEF NO.: 1001

MEF REV. NO.: 14057

SECTION I - MATERIAL GENERATOR

|   |                                  |   |  |  |  |   |
|---|----------------------------------|---|--|--|--|---|
| 1. FMPC SRC: MTC: <u>CO-3</u>   |                                  | 2. PLANT AND/OR BUILDING NO.: <u>5th-1000</u>   |  | 3. PROCESS AREA: <u>site wide</u>  |  |   |
| EQUIPMENT NAME(S): <u>Plastic (tarps, liners, etc...)</u>   |                                  |   | 5. MEF NO. DATE: <u>2/1/92</u>   |  | MEF REV. DATE:   |   |
| APPROXIMATE NET WEIGHT OF FULL CONTAINER? <u>4</u><br><input type="checkbox"/> <100 lbs. <input type="checkbox"/> 100 to 1000 lbs. <input type="checkbox"/> >1000 lbs. <u>5</u>   |                                  |   | 8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |  | 6. MATERIAL PHYSICAL STATE:<br><input type="checkbox"/> Liquid <input type="checkbox"/> Gas<br><input type="checkbox"/> Wet Solid (Sludge) <input checked="" type="checkbox"/> Dry Solid                     |   |
| 9. IS MATERIAL A WASTE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO   | 10. COMMON NAMES: <u>plastic</u> |   | 11. CHEMICAL NAMES: <u>N/A</u>   |  | 12. COMMON/CHEMICAL NAME SOURCE:<br><input checked="" type="checkbox"/> Process Information <input type="checkbox"/> MSDS<br><input type="checkbox"/> Container Label <input type="checkbox"/> FMPC Lot Code |   |
| 12. COMMON/CHEMICAL NAME SOURCE: OTHER: <u>provided the plastic meets the criteria listed in Attachment 1.</u>  |                                  |   | 13. SIMILAR MATERIAL NAME: <u>N/A</u> <u>45-29-92</u>  |  | 14. SIMILAR MATERIAL LOT CODE(S): <u>N/A</u>   |   |
| 15. SUBSTANCES SUSPECTED:   |                                  |   |  |  |  |   |
| <input type="checkbox"/> Aerosols <input type="checkbox"/> Cresol<br><input type="checkbox"/> Arsenic <input type="checkbox"/> m-Cresol<br><input type="checkbox"/> Barium <input type="checkbox"/> o-Cresol<br><input type="checkbox"/> Benzene <input type="checkbox"/> p-Cresol<br><input type="checkbox"/> Cadmium <input type="checkbox"/> 2,4-D<br><input type="checkbox"/> Carbon Tetrachloride <input type="checkbox"/> Degreaser<br><input type="checkbox"/> Chlordane <input type="checkbox"/> 1,4-Dichlorobenzene<br><input type="checkbox"/> Chlorobenzene <input type="checkbox"/> 1,2-Dichloroethane<br><input type="checkbox"/> Chloroform <input type="checkbox"/> 1,1-Dichloroethylene<br><input type="checkbox"/> Chromium <input type="checkbox"/> 2,4-Dinitrotoluene<br><input type="checkbox"/> Coolants <input type="checkbox"/> Enamel |                                  | <input type="checkbox"/> Endrine<br><input type="checkbox"/> Heptachlor<br><input type="checkbox"/> Hexachlorobenzene<br><input type="checkbox"/> Hexachloroethane<br><input type="checkbox"/> Hexachloro-1,3-butadiene<br><input type="checkbox"/> Hydraulic Oil<br><input type="checkbox"/> Ink<br><input type="checkbox"/> Lead<br><input type="checkbox"/> Lindane<br><input type="checkbox"/> Mercury<br><input type="checkbox"/> Methoxychlor<br><input type="checkbox"/> Methyl ethyl ketone |  | <input type="checkbox"/> Methylene Chloride<br><input type="checkbox"/> Motor/Engine Oil<br><input type="checkbox"/> Nitrobenzene<br><input type="checkbox"/> Other Organics<br><input type="checkbox"/> Paint Stripper<br><input type="checkbox"/> Paint Thinner/Mineral Spirits<br><input type="checkbox"/> Pentachlorophenol<br><input type="checkbox"/> Perchloroethylene<br><input type="checkbox"/> Pyridine<br><input type="checkbox"/> Selenium<br><input type="checkbox"/> Silver<br><input type="checkbox"/> Synthetic oil |  | <input type="checkbox"/> TBP/Kerosene<br><input type="checkbox"/> Tetrachloroethylene<br><input type="checkbox"/> 1,1,1-Trichloroethane<br><input type="checkbox"/> 2,4,5-TP (Silvex)<br><input type="checkbox"/> 2,4,5-Trichlorophenol<br><input type="checkbox"/> 2,4,6-Trichlorophenol<br><input type="checkbox"/> Toxaphene<br><input type="checkbox"/> Trichloroethylene<br><input type="checkbox"/> Unknown<br><input type="checkbox"/> Vinyl Chloride<br><input type="checkbox"/> Xylene<br><input type="checkbox"/> Oil |
| 16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY: <u>None suspected</u>   |                                  |   |  |  |  |   |
| 16. b. SOURCE FOR REASON AND QUANTITY: (Attach MSDS if Available)   |                                  |   |  |  |  |   |
| <input type="checkbox"/> Personnel Interviews <input type="checkbox"/> AEDO Log<br><input type="checkbox"/> Historical Records <input checked="" type="checkbox"/> Physical Evidence<br><input type="checkbox"/> FMPC Lot Code <input checked="" type="checkbox"/> Process Information  |                                  | <input type="checkbox"/> MSDS <input type="checkbox"/> Container Label<br><input type="checkbox"/> Sump Report <input type="checkbox"/> Spill Database  |  | <input type="checkbox"/> Prior Evaluation of Similar Material<br>What Material: _____<br>SRC: _____ MTC: _____   |  |   |
| 16. c. HEALTH AND SAFETY CONCERNS/ REQUIREMENTS:  |                                  |   | 16. d. SIGNATURE AND DATE:<br><u>Paul J. Hunt</u> <u>2-12-92</u>   |  |  |   |
| 17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |                                  | 18. NUMBER OF PHASES:   | 19. pH (IF KNOWN): (Attach Lab Results)  | 20. FLASH POINT (IF KNOWN): (Attach Lab Results)   |  |   |
| 21. HAS A PAINT FILTER TEST BEEN COMPLETED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |                                  |   |  |  |  |   |
| 22. IS IT REACTIVE? EXPLAIN:<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |                                  |   |  |  |  |   |
| 23. IS IT IGNITABLE? EXPLAIN:<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |                                  |   |  |  |  |   |
| 24. OTHER INFORMATION: (Example: Is the Material a Product or Waste?)   |                                  |   |  |  |  |   |
| 25. ADDITIONAL SOURCES OF INFORMATION:  |                                  |   |  |  |  |   |
| 26. PRIMARY CONTACT INDIVIDUAL: <u>Renee Threl</u>  |                                  | EXTENSION: <u>8685</u>  |  | DATE COMPLETED: <u>2/1/92</u>  |  |   |

NOTE: Form shall be completed using ink or a typewriter.  
 NOTE: Only WMCO employees shall sign this form.

(Continued on Reverse)

**MATERIAL EVALUATION FORM**  
(Continued)

MEF REV. NO.: 1 4057

| SECTION II - FACILITY AND MATERIALS EVALUATION  |   |  |  |
|---|---|--|--|
| 1. IS MATERIAL A WASTE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO   | 2. IS IT EXCLUDED UNDER 261.4(a)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | 3. IS IT EXCLUDED UNDER 261.4 (b)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   | 4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D? <input type="checkbox"/> k <input type="checkbox"/> l <input type="checkbox"/> m <input type="checkbox"/> n <input type="checkbox"/> o <input type="checkbox"/> p <input type="checkbox"/> q <input type="checkbox"/> r <input type="checkbox"/> s <input type="checkbox"/> t <input checked="" type="checkbox"/> not listed |
| 5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART C? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |   | EXPLAIN: Plastic must not have any entrapped liquids or residues. Any spills which may occur on the plastic prior to disposal, must be cleaned-up according to proper procedures before the plastic can be disposed. |  |
| 7. CLASSIFICATION AS A WASTE:<br><input type="checkbox"/> RCRA Hazardous Waste<br><input type="checkbox"/> Source Exempt<br><input checked="" type="checkbox"/> Non-RCRA Waste<br><input checked="" type="checkbox"/> Radioactive |   | 8. PRIMARY BASIS FOR CLASSIFICATION: <input checked="" type="checkbox"/> Generator Information <input type="checkbox"/> Prior material evaluation  |  |
| EXPLAIN: Plastic is not a listed waste and does not contain or display any RCRA characteristic.   |   | WHAT MATERIAL? _____<br>LOT NUMBER: _____  |  |
| 10. DISTRIBUTE PER SECTION IV, ITEM 9.  |   | 9. IS IT SUBJECT TO LAND BAN RESTRICTIONS? <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES Effective Date: _____   |  |
| 11. OTHER INFORMATION SOURCES USED: * Assume radioactive if generated in a radiologically controlled area, unless a radiological survey shows otherwise.  |   |  |  |
| 12. PRIMARY CONTACT INDIVIDUAL: <u>Larry Howigford</u>  |   | EXTENSION: <u>8910</u>   | DATE COMPLETED: <u>2-12-92</u>   |
| 13. IS SAMPLING REQUIRED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO   |   | 14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO   | 15. INFORMATION ACTION COMPLETION DATE: _____  |
| 16. HEALTH AND SAFETY CONCERNS REQUIREMENTS: <u>NA</u>  |   | 16. b. SIGNATURE AND DATE: <u>NA</u>   |  |

| SECTION III - ENVIRONMENTAL ENGINEERING  |  |   |                                |
|--|--|---|--------------------------------|
| 1. RECOMMENDED STORAGE CONTAINER MATERIAL <input type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Polyethylene <input type="checkbox"/> Other: _____ |  | 2. APPLICABLE REACTIVITY GROUP CODES: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H |                                |
| 3. OTHER INFORMATION SOURCES USED:   |  | <u>NA</u>   |                                |
| 4. PRIMARY CONTACT INDIVIDUAL: <u>[Signature]</u>  |  | EXTENSION: <u>6148</u>  | DATE COMPLETED: <u>2-12-92</u> |

| SECTION IV - TOXIC AND SOLID WASTE PROGRAMS  |  |   |                                |
|--|--|---|--------------------------------|
| 1. PROPER D.O.T. SHIPPING NAME: <u>Radioactive material LSA 205 (solid)</u>  |  |   |                                |
| 2. D.O.T. HAZARD CLASS: <u>Radioactive material</u>  |  | 3. REQUIRED LABELS: <u>Radioactive LSA</u>                              |                                |
| 4. D.O.T. IDENTIFICATION NO.: <input checked="" type="checkbox"/> UN <input type="checkbox"/> NA SUFFIX: <u>2912</u> |  | 5. EPA WASTE NO.: <u>None</u>   |                                |
| 6. APPLICABLE REACTIVITY GROUP CODES: (COPY FROM SECTION III, ITEM 2)  |  | 7. FMPC SRC AND MTC (COPY FROM SECTION I, ITEM 1) SRC: _____ MTC: _____ |                                |
| 8. IS A REVISION TO MEF REQUIRED? <input type="checkbox"/> YES <input type="checkbox"/> NO                           |  |   |                                |
| 9. DISTRIBUTION:   |  |   |                                |
| MATERIAL GENERATOR: <u>RENAE Thiel</u>   |  | DATE: <u>2/12/92</u>  |                                |
| ENVIRONMENTAL ENGINEERING: <u>Jim Stoffer</u>  |  | DATE: <u>2/12/92</u>  |                                |
| ENVIRONMENTAL MONITORING: _____  |  | DATE: _____   |                                |
| MC&A: <u>Harold Kwe</u>  |  | DATE: <u>2/12/92</u>  |                                |
| IRS&T: <u>Ron Kouchan</u>  |  | DATE: <u>2/12/92</u>  |                                |
| FACILITIES AND WAREHOUSING: <u>Brenda Perkins</u>  |  | DATE: <u>2/12/92</u>  |                                |
| F&M: <u>Larry Howigford</u>  |  | DATE: <u>2/12/92</u>  |                                |
| CONTROLLED HOLDING AREA: _____   |  | DATE: _____   |                                |
| 10. PRIMARY CONTACT INDIVIDUAL: <u>Betty Bruckner</u>  |  | EXTENSION: <u>9074</u>  | DATE COMPLETED: <u>2/12/92</u> |

## Attachment 1

MEF # 1539

REV # 1

Plastic materials are considered to be RCRA nonhazardous if the following criteria are met:

- Does not contain any entrapped liquids,
- Spills which may occur on plastic (i.e., tarps) must be cleaned-up according to SOP-20-C-606 and FMPC-503 Procedure before disposal,
- Plastic insulation on electrical wire is not regulated (the wire must be addressed through the metals checklist).
- Plastic containers (i.e., sample jars) must be "empty" as defined by ORC 3745-51-07 in lieu of CFR 40 261.7,

(B)(1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste in rule 3745-51-31, 3745-51-32, or paragraph (E) of rule 3745-51-33 of the Administrative Code, is empty if:

(a) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating; and

(b) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner; or

(c)(i) No more than three percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to one hundred ten gallons in size; or

(ii) No more than 0.3 per cent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than one hundred ten gallons in size.

(2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.

(3) A container or inner liner removed from a container that has held an acute hazardous waste listed in rule 3745-51-31, 3745-51-32, or paragraph (E) of rule 3745-51-33 of the Administrative Code is empty if:

(a) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(b) The container or inner liner has been cleansed by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(c) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

\* See attached list for acutely toxic wastes.

|      |            |   |
|------|------------|---|
| P023 | 107-20-0   | Acetaldehyde, chloro-   |
| P002 | 591-08-2   | Acetamide, N-(aminothiosomethyl)-   |
| P057 | 640-19-7   | Acetamide, 2-fluoro-  |
| P058 | 62-74-8    | Acetic acid, fluoro-, sodium salt   |
| P002 | 591-08-2   | 1-Acetyl-2-thiourea   |
| P003 | 107-02-8   | Acrolein  |
| P070 | 116-06-3   | Aldicarb  |
| P004 | 309-00-2   | Aldrin  |
| P005 | 107-18-6   | Allyl alcohol   |
| P006 | 20859-73-8 | Aluminum phosphide (R,T)  |
| P007 | 2763-96-4  | 5-(Aminomethyl)-3-isoxazolol  |
| P008 | 504-24-5   | 4-Aminopyridine   |
| P009 | 131-74-8   | Ammonium picrate (R)  |
| P119 | 7803-55-6  | Ammonium vanadate   |
| P099 | 506-61-6   | Argentate (1-), bis(cyano-C)-, potassium  |
| P010 | 7778-39-4  | Arsenic acid $H_3AsO_4$   |
| P012 | 1327-53-3  | Arsenic oxide $As_2O_3$   |
| P011 | 1303-28-2  | Arsenic oxide $As_2O_5$   |
| P011 | 1303-28-2  | Arsenic pentoxide   |
| P012 | 1327-53-3  | Arsenic trioxide  |
| P038 | 692-42-2   | Arsine, diethyl-  |
| P036 | 696-28-6   | Arsinous dichloride, phenyl-  |
| P054 | 151-56-4   | Azardine  |
| P067 | 75-55-8    | Azardine, 2-methyl-   |
| P013 | 542-62-1   | Barium cyanide  |
| P024 | 106-47-8   | Benzenamine, 4-chloro-  |
| P077 | 100-01-6   | Benzenamine, 4-nitro-   |
| P028 | 100-44-7   | Benzene, (chloromethyl)-  |
| P042 | 51-43-4    | 1,2-Benzeneiol, 4-[1-hydroxy-2-(methylaminoethyl)-, (R)-  |
| P046 | 122-09-8   | Benzeneethanamine, alpha,alpha-dimethyl-  |
| P014 | 108-98-5   | Benzenethiol  |
| P001 | 81-81-2*   | 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%  |
| P028 | 100-44-7   | Benzyl chloride   |
| P015 | 7440-41-7  | Beryllium   |
| P017 | 598-31-2   | Bromoacetone  |
| P018 | 357-57-3   | Brucine   |
| P045 | 39196-18-4 | 2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime   |
| P011 | 592-01-8   | Calcium cyanide   |
| P011 | 592-01-8   | Calcium cyanide $Ca(CN)_2$  |
| P022 | 75-15-0    | Carbon disulfide  |
| P095 | 75-44-5    | Carbonic dichloride   |
| P023 | 107-20-0   | Chloroacetaldehyde  |
| P024 | 106-47-8   | p-Chloroaniline   |
| P026 | 5344-82-1  | 1-(o-Chlorophenyl)thiourea  |
| P027 | 542-76-7   | 3-Chloropropionitrile   |
| P029 | 544-92-3   | Copper cyanide  |
| P029 | 544-92-3   | Copper cyanide $Cu(CN)$   |
| P030 | —          | Cyanides (soluble cyanide salts), not otherwise specified   |
| P031 | 460-19-5   | Cyanogen  |
| P033 | 506-77-4   | Cyanogen chloride   |
| P033 | 506-77-4   | Cyanogen chloride (CN)Cl  |
| P034 | 131-89-5   | 2-Cyclohexyl-4,6-dinitrophenol  |
| P016 | 542-88-1   | Dichloromethyl ether  |
| P036 | 696-28-6   | Dichlorophenylarsine  |
| P037 | 60-57-1    | Dieldrin  |
| P038 | 692-42-2   | Diethylarsine   |
| P041 | 311-45-5   | Diethyl-p-nitrophenyl phosphate   |
| P040 | 297-97-2   | O,O-Diethyl O-pyrazinyl phosphorothioate  |
| P043 | 55-91-4    | Diisopropylfluorophosphate (DFP)  |
| P004 | 309-00-2   | 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4beta,5alpha,8alpha,8beta)-   |
| P060 | 465-73-6   | 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4beta,5beta,8beta,8beta)-   |
| P037 | 60-57-1    | 2,7,3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1alpha,2beta,2alpha,3beta,6beta,6alpha,7beta,7alpha)-                |
| P051 | 72-20-8*   | 2,7,3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1alpha,2beta,2beta,3alpha,6alpha,6beta,7beta,7alpha)-, & metabolites |
| P044 | 60-51-5    | Dimethoate  |
| P044 | 122-09-8   | alpha,alpha-Dimethylphenethylamine  |
| P044 | 534-52-1*  | 4,6-Dinitro-o-cresol, & salts   |
| P048 | 51-28-5    | 2,4-Dinitrophenol   |
| P020 | 88-85-7    | Dioseb  |
| P085 | 152-16-9   | Diphosphoramide, octamethyl-  |
| P111 | 107-49-3   | Diphosphoric acid, tetraethyl ester   |

| Index Number | Abstract Number | Substance   |
|--------------|-----------------|---|
| P039         | 298-04-4        | Disulfoton  |
| P049         | 541-53-7        | Dithioburet   |
| P050         | 115-29-7        | Endosulfan  |
| P088         | 145-73-3        | Endothall   |
| P091         | 72-20-8         | Endrin  |
| P091         | 72-20-8         | Endrin. & metabolites   |
| P092         | 51-43-4         | Epinephrine   |
| P031         | 460-19-5        | Ethanedinitric  |
| P066         | 16752-77-5      | Ethanimidothioic acid, N-(((methylamino)carbonyloxy)-, methyl ester                             |
| P101         | 107-12-0        | Ethyl cyanide   |
| P054         | 151-56-4        | Ethyleneimine   |
| P097         | 52-85-7         | Famphur   |
| P056         | 7782-41-4       | Fluorine  |
| P057         | 640-19-7        | Fluoroacetamide   |
| P058         | 62-74-8         | Fluoroacetic acid, sodium salt  |
| P065         | 628-86-4        | Fulminic acid, mercury(2+) salt (R.T)   |
| P059         | 76-44-8         | Heptachlor  |
| P062         | 757-58-4        | Hexaethyl tetraphosphate  |
| P116         | 79-19-6         | Hydrazinecarbothioamide   |
| P068         | 60-34-4         | Hydrazine, methyl-  |
| P063         | 74-90-8         | Hydrocyanic acid  |
| P063         | 74-90-8         | Hydrogen cyanide  |
| P096         | 7803-51-2       | Hydrogen phosphide  |
| P060         | 465-73-6        | Isodrin   |
| P007         | 2763-96-4       | 3(2H)-Isoxazolone, 5-(aminomethyl)-   |
| P092         | 62-38-4         | Mercury, (acetato-O)phenyl-   |
| P065         | 628-86-4        | Mercury fulminate (R.T)   |
| P082         | 62-75-9         | Methanamine, N-methyl-N-nitroso-  |
| P064         | 624-83-9        | Methane, isocyanato-  |
| P016         | 542-88-1        | Methane, oxybis(chloro-   |
| P112         | 509-14-8        | Methane, tetranitro- (R)  |
| P118         | 75-70-7         | Methanethiol, trichloro-  |
| P050         | 115-29-7        | 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide |
| P059         | 76-44-8         | 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-                          |
| P066         | 16752-77-5      | Methomyl  |
| P068         | 60-34-4         | Methyl hydrazine  |
| P068         | 624-83-9        | Methyl isocyanate   |
| P068         | 75-86-5         | 2-Methylactonitrile   |
| P071         | 298-00-0        | Methyl parathion  |
| P072         | 86-88-4         | alpha-Naphthylthiourea  |
| P073         | 13463-39-3      | Nickel carbonyl Ni(CO) <sub>4</sub> , (T-4)   |
| P074         | 557-19-7        | Nickel cyanide  |
| P074         | 557-19-7        | Nickel cyanide Ni(CN) <sub>2</sub>  |
| P075         | 54-11-5*        | Nicotine, & salts   |
| P076         | 10102-43-9      | Nitric oxide  |
| P077         | 100-01-6        | p-Nitroaniline  |
| P078         | 10102-44-0      | Nitrogen dioxide  |
| P076         | 10102-43-9      | Nitrogen oxide NO   |
| P078         | 10102-44-0      | Nitrogen oxide NO <sub>2</sub>  |
| P081         | 55-63-0         | Nitroglycerne (R)   |
| P082         | 62-75-9         | N-Nitrosodimethylamine  |
| P084         | 4549-40-0       | N-Nitrosomethylvinylamine   |
| P085         | 152-16-9        | Octamethylpyrophosphoramide   |
| P087         | 20816-12-0      | Osmium oxide OsO <sub>4</sub> , (T-4)   |
| P087         | 20816-12-0      | Osmium tetroxide  |
| P088         | 145-73-3        | 7-Oxabicyclo[2.2.1] heptane- 2,3-dicarboxylic acid  |
| P089         | 56-38-2         | Parathion   |
| P034         | 131-89-5        | Phenol, 2-cyclohexyl-4,6-dinitro-   |
| P048         | 51-28-5         | Phenol, 2,4-dinitro-  |
| P047         | 534-52-1*       | Phenol, 2-methyl-4,6-dinitro-, & salts  |
| P020         | 88-85-7         | Phenol, 2-(1-methylpropyl)-4,6-dinitro-   |
| P009         | 131-74-8        | Phenol, 2,4,6-trinitro-, ammonium salt (R)  |
| P092         | 62-38-4         | Phenylmercury acetate   |
| P093         | 103-85-5        | Phenylthiourea  |
| P094         | 298-02-2        | Phorate   |
| P094         | 75-44-5         | Phosgene  |
| P094         | 7803-51-2       | Phosphine   |
| P094         | 311-45-5        | Phosphonic acid, diethyl 4-nitrophenyl ester  |

| Waste Number | Chemical Abstracts Number | Substance  |
|--------------|---------------------------|--|
| P039         | 298-04-4                  | Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthiomethyl) ester                 |
| P094         | 298-02-2                  | Phosphorodithioic acid, O,O-diethyl S-[(ethylthiomethyl) ester                   |
| P044         | 60-51-5                   | Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester        |
| P043         | 55-91-4                   | Phosphorodithioic acid, bis(1-methylethyl) ester                                 |
| P089         | 56-38-2                   | Phosphorodithioic acid, O,O-diethyl O-(4-nitrophenyl) ester                      |
| P040         | 297-97-2                  | Phosphorodithioic acid, O,O-diethyl O-pyrazinyl ester                            |
| P097         | 52-85-7                   | Phosphorodithioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester |
| P071         | 298-00-0                  | Phosphorodithioic acid, O,O-dimethyl O-(4-nitrophenyl) ester                     |
| P110         | 78-00-2                   | Plumbane, tetraethyl-  |
| P098         | 151-50-8                  | Potassium cyanide  |
| P098         | 151-50-8                  | Potassium cyanide K(CN)  |
| P099         | 506-61-6                  | Potassium silver cyanide   |
| P070         | 116-06-3                  | Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino) carbonyl]oxime              |
| P101         | 107-12-0                  | Propanenitrile   |
| P027         | 542-76-7                  | Propanenitrile, 3-chloro-  |
| P069         | 75-86-5                   | Propanenitrile, 2-hydroxy-2-methyl-  |
| P081         | 55-63-0                   | 1,2,3-Propanetriol, trinitrate (R)   |
| P017         | 598-31-2                  | 2-Propanone, 1-bromo-  |
| P102         | 107-19-7                  | Propargyl alcohol  |
| P003         | 107-02-8                  | 2-Propenal   |
| P005         | 107-18-6                  | 2-Propen-1-ol  |
| P067         | 75-55-8                   | 1,2-Propylenimine  |
| P102         | 107-19-7                  | 2-Propyn-1-ol  |
| P008         | 504-24-5                  | 4-Pyridinamine   |
| P075         | 54-11-5*                  | Pyridine, 3-(1-methyl-2-pyrroldinyl)-, (S), & salts                              |
| P114         | 12039-52-0                | Selenious acid, dithallium(1+) salt  |
| P103         | 603-10-4                  | Selenourea   |
| P104         | 506-64-9                  | Silver cyanide   |
| P104         | 506-64-9                  | Silver cyanide Ag(CN)  |
| P105         | 26628-22-8                | Sodium azide   |
| P106         | 143-33-9                  | Sodium cyanide Na(CN)  |
| P107         | 1314-96-1                 | Strontium sulfide  |
| P107         | 1314-96-1                 | Strontium sulfide SrS  |
| P108         | 57-24-9*                  | Strychnidin-10-one, & salts  |
| P018         | 357-57-3                  | Strychnidin-10-one, 2,3-dimethoxy-   |
| P018         | 57-24-9*                  | Strychnine, & salts  |
| P015         | 7446-18-6                 | Sulfuric acid, dithallium(1+) salt   |
| P109         | 3689-24-5                 | Tetraethylthiopyrophosphate  |
| P110         | 78-00-2                   | Tetraethyl lead  |
| P111         | 107-49-3                  | Tetraethyl pyrophosphate   |
| P112         | 509-14-8                  | Tetranitromethane (R)  |
| P062         | 757-58-4                  | Tetraphosphonic acid, hexaethyl ester  |
| P113         | 1314-32-5                 | Thallic oxide  |
| P113         | 1314-32-5                 | Thallium oxide $Tl_2O_3$   |
| P114         | 12039-52-0                | Thallium(I) selenite   |
| P115         | 7446-18-6                 | Thallium(I) sulfate  |
| P109         | 3689-24-5                 | Thiodiphosphonic acid, tetraethyl ester  |
| P045         | 39196-18-4                | Thiofanoz  |
| P049         | 541-53-7                  | Thioimidodicarbonic diamide $[(H_2N(C(S))_2)NH$                                  |
| P014         | 108-98-5                  | Thiophenol   |
| P116         | 79-19-6                   | Thiosemicarbazide  |
| P026         | 5344-82-1                 | Thiourea, (2-chlorophenyl)-  |
| P072         | 86-88-4                   | Thiourea, 1-naphthalenyl-  |
| P093         | 103-85-5                  | Thiourea, phenyl-  |
| P123         | 8001-35-2                 | Toxaphene  |
| P118         | 75-70-7                   | Trichloromethanethiol  |
| P119         | 7803-55-6                 | Vanadic acid, ammonium salt  |
| P120         | 1314-62-1                 | Vanadium oxide $V_2O_5$  |
| P120         | 1314-62-1                 | Vanadium pentoxide   |
| P084         | 4549-40-0                 | Vinylamine, N-methyl-N-nitroso-  |
| P001         | 81-81-2*                  | Warfarin, & salts, when present at concentrations greater than 0.3%              |
| P121         | 557-21-1                  | Zinc cyanide   |
| P121         | 557-21-1                  | Zinc cyanide $Zn(CN)_2$  |
| P122         | 1314-84-7                 | Zinc phosphide $Zn_3P_2$ (R,T), when present at concentrations greater than 10%  |

\* Number given for parent compound only

† Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (toxicity) and R (reactivity). Absence of a letter indicates that the compound only is listed for acute toxicity.]

| Industry and EPA hazardous waste no. | Hazardous waste  | Hazard code |
|--------------------------------------|--|-------------|
| FO20                                 | Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol.)                              | (H)         |
| FO21                                 | Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of [sic] manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives [sic].  | (H)         |
| FO22                                 | Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.   | (H)         |
| FO23                                 | Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of Hexachlorophene from highly purified 2,4,5-trichlorophenol.) | (H)         |
| FO26                                 | Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.   | (H)         |
| FO27                                 | Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing Hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.)  | (H)         |



4057

WEMCO:EM(FME):92-071

From: C. S. Waugh\6777

Date: February 21, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION OF CONSTRUCTION WASTE GENERATED FROM THE LABORATORY (BUILDING 15) EXPANSION PROJECT - PHASE II

To :  
Jeff Apple

- REF: 1. WEMCO Project No. 1.1.4.1.03, Construction Waste Identification/Disposition Form
2. Conversation Report, Ohio EPA, Testing of Lab Debris/Rubble, March 6, 1990
3. WEMCO Document No. WEMCO:EC:90-0150, "DISPOSAL OF LABORATORY EQUIPMENT," August 30, 1990
4. WEMCO:EC:90-0150, Conversation Report, Ohio EPA, Amendment to November 21, 1991
5. Conversation Report, Ohio EPA, Mixture Rule, November 8, 1991
6. WEMCO Document No. WEMCO:IRS&T(IH):91-781, "Mercury Survey in Building-15 Industrial Hygiene," October 29, 1991
7. WEMCO Site Standard Operating Procedure, SSOP-0044I "Controlling the Generation of Construction/Maintenance Waste," issued February 19, 1992
8. Conversation Report, Process Information of Laboratory, November 8, 1991.
9. WEMCO Document, "Hazardous Analysis Report, New Lab Expansion Phase II," January 8, 1990.
10. WEMCO Document No. WEMCO:EC&QA(OU3/FME): 91-390, "Metal Coated With Lead-Based Paint," October 23, 1991.
11. WEMCO Document No. WEMCO:EC&QA(OU3/TSP): 90-030, "Task 21/PCBs," April 18, 1991.
12. WEMCO Regulatory Compliance Guide No. N-6, "Management of PCB Fluorescent Light Ballasts



Every Day, Every Way!

BACKGROUND INFORMATION

This memo transmits the RCRA and radiological characterization for construction waste to be generated during demolition of the Laboratory Building (Building 15). Phase II of the expansion project is located in the north, west, and central wings of the building which are controlled areas at the FEMP. The project will remove the existing laboratory structure to allow for the construction of the new laboratory complex. The project is expected to generate approximately 110,370 cu. feet or 5,501,320 lbs. of waste<sup>(1)</sup>. The waste will include wood, concrete, concrete blocks, floor and ceiling tile, fume ventilation hoods and duct work, transformers, light fixtures, plumbing insulation, piping, sink traps, lab benches, etc. The waste will originate from numerous individual or discrete work areas throughout the building such as analytical rooms, sample/standard preparation rooms, offices, restrooms, and utility rooms.

On March 6, 1990, FEMP contacted Ohio EPA (OEPA) seeking guidance for characterization of construction waste associated with the project<sup>(2)</sup>. Based on the guidance provided, a sampling plan titled "Disposal of Laboratory Equipment"<sup>(3)</sup> was drafted and submitted to OEPA for concurrence. On November 14, 1990, concurrence was given by OEPA. The plan was later amended, again with OEPA's approval<sup>(4)</sup>.

In summary, any waste that is potentially hazardous will be evaluated by applying the toxicity characteristic leachate procedure (TCLP) under 40 CFR 261.24 [in lieu of OAC 3745-51-24] and testing for hazardous characteristics as specified under OAC 3745-21 to 23 [in lieu of 40 CFR 261.21 to 23]. Residues resulting from the loss of materials that would otherwise be considered hazardous waste listed in OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] are considered to be of "de minimis" quantity and not of regulatory concern. For this project, the "mixture rule" under OAC 3745-51-03(A)(2)(f) [in lieu of 40 CFR 261.3(a)(2)(iv)] is not applicable to the characterization of construction waste<sup>(5)</sup>. Additional information pertaining to the implementation of this approach may be found in the discussions of each waste stream evaluated.

The approved sampling plan, "Disposal of Laboratory Equipment", also states that construction waste will not be sent to a sanitary landfill. All construction waste generated from this project will be considered low level radioactive. Waste determined to be non-hazardous will be shipped to the Nevada Test Site for disposal. Waste that is found to be hazardous will be classified as mixed waste and stored on-site until a means of disposal has been established.

**NOTE:** For clarity, each waste [or waste stream] is presented in a stand-alone section. Process knowledge and sampling information for each waste is discussed prior to the radiological and RCRA determinations. The reader may find similar or even identical information presented several times throughout the document.

## WOOD AND COMPOSITE WASTE

### PROCESS KNOWLEDGE

The project is expected to generate approximately 2,710 cu. feet or 54,060 lbs. of waste<sup>(1)</sup> which includes wooden and composite bench-tops, cabinets, sink basins, book cases, doors, desks, and shelving. The waste consists of wood, composite material, glass, and a small quantity of metal (e.g., metal screws and nails). Visual inspections produced no evidence to suggest that the waste would exhibit any hazardous characteristic.

### ANALYTICAL DATA

An industrial hygiene air monitoring survey for mercury (Hg) vapors was conducted throughout the laboratory rooms<sup>(6)</sup>. The survey included vapor measurements from drawers (e.g., cabinets) as well as measurements from general areas. Drawer measurements from all the rooms, except N-15, were found to be below the detection limit of 0.003 mg/m<sup>3</sup> of Hg. Drawer measurements from room N-15 ranged from 0.011 to 0.136 mg/m<sup>3</sup> of Hg; however, at no time was mercury ever visibly evident. While this air monitoring data can not be used directly for waste characterization, it does lend support for the absence of mercury (which has a high vapor pressure) on these materials.

Since mercury was never present in visible amounts, the quantities detected during this survey are considered "de minimis quantities" and are not of regulatory concern. As a result, the mercury will not be a factor in the RCRA determination of the waste. This action is consistent with the sampling plan and discussions with Ohio EPA.

Five samples were obtained from various bench-tops and sink basins constructed of composite materials which were suspected of containing asbestos.

The analyses found no evidence of asbestos [WEMCO:IRS&T(IH):(91-861)]; however, visual inspections by Industrial Hygiene have determined that the center shelving mounted on several of the bench-tops are constructed of asbestos material.

As a waste, the center shelving is subject to regulation under OAC 3745-20 or 40 CFR 61, Subpart M. For additional information concerning the management and disposal of asbestos waste contact the Clean Air Program, Environmental Monitoring.

Several contemporary bench-tops and basins are made of asbestos free material and, therefore, were not tested. The identification of asbestos free material was based on visual inspections by Industrial Hygiene.

#### **RADIOLOGICAL CHARACTERIZATION**

Prior to demolition, an extensive radiological survey of the area was conducted in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I,<sup>(7)</sup>. Radiological surface readings were taken from cabinets, book cases, doors, bench-tops, and shelving. These readings were well above the removable contamination levels of 20 dpm/100cm<sup>2</sup> alpha and 100 dpm/100cm<sup>2</sup> beta/gamma. Multiple probe readings also exceeded the fixed plus removable contamination level of 3,000 dpm/100cm<sup>2</sup>. Based on these radiological readings and FEMP standard practices<sup>(7)</sup> governing wood generated from controlled areas, the waste is considered low level radioactive waste and must be managed in accordance with WEMCO Site Standard Operating Procedure SSOP-0044I<sup>(7)</sup>.

#### **RCRA DETERMINATION**

Based on process knowledge<sup>(8,9)</sup> and the information presented above, the waste is not a listed hazardous waste under OAC 3745-51-31 through 33 [in lieu of 40 CFR 261.31 to 33] and does not exhibit any characteristic of a hazardous waste as defined under OAC 3745-51-21 to 24 [in lieu of 40 CFR 261.21 to 24]. Hence, wood and composite waste generated from this project may be discarded as non-hazardous (a.k.a. non-RCRA) waste; however, the waste is regulated as solid waste pursuant to OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)] and as low level radioactive waste (LLRW) pursuant to DOE Order 5820.2A.

#### **CEILING TILE**

##### **PROCESS KNOWLEDGE**

The amount of waste expected to be generated from ceiling tile has not been estimated; however, it is included in the project's total waste estimate<sup>(1)</sup>. Visual inspections produced no evidence to indicate that the waste would exhibit hazardous characteristics.

### ANALYTICAL DATA

Numerous ceiling tile samples were taken from Room No. N-42, S-46, and S-31. These samples are believed to be representative of ceiling tile throughout the entire building. When tested, the samples were found not to contain asbestos; therefore, ceiling tile waste is not subject to regulation under OAC 3745-20 or 40 CFR 61, Subpart M.

### RADIOLOGICAL CHARACTERIZATION

A radiological survey was not conducted on the ceiling tile. Pursuant to WEMCO Site Standard Operating Procedure, SSOP-0044I. Radiological surfaces which are likely to be contaminated but are inaccessible for surveying are assumed to exceed contamination limits. The tile is, therefore, classified as low level radioactive waste although no radiological survey was conducted.

The waste must be managed in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I <sup>(7)</sup>. This characterization is consistent with the terms of the approved sampling plan <sup>(3)</sup>.

### RCRA DETERMINATION

Based on process knowledge <sup>(8,9)</sup> and the information discussed above, the waste is not a listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] and does not exhibit any characteristic of hazardous waste as defined under OAC 3745-51-21 to 24 [in lieu of 40 CFR 261.21 to 24]. Hence, ceiling tile waste generated from this project may be discarded as non-hazardous (a.k.a. non-RCRA) waste; however, the waste is regulated as solid waste pursuant to OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)] and as low level radioactive waste (LLRW) pursuant to DOE Order 5820.2A.

### FLOOR TILE AND INSULATION

#### PROCESS KNOWLEDGE

Although the volume of floor tile and insulation waste expected to be generated has not been estimated; they has been included in the project's total waste estimate <sup>(1)</sup>.

#### ANALYTICAL DATA

An air monitoring survey for mercury (Hg) vapors was performed throughout the north, west, and central wings <sup>(6)</sup>.

The survey included vapor measurements from approximately 1/2 to 4 inches above the floor. These measurements were taken in conjunction with "general area" measurements. No measurements were found to be above the detection limit of 0.003 mg/m<sup>3</sup> of Hg except in Room No. N-15. Floor measurements from Room No. N-15 exhibited a maximum vapor concentration of 0.012 mg/m<sup>3</sup> of Hg; however, at no time was mercury ever visibly evident. While this air monitoring data can not be used directly for waste characterization, it does lend support for the absence of mercury (which has a high vapor pressure) on these materials.

From October 3, 1986, to November 6, 1989, numerous samples were obtained from floor tile and insulation surrounding wiring, piping, and plumbing conduits throughout the north, central, and west wings. These samples are representative of the tile and insulation throughout the demolition area. When tested, the samples were found to either contain or be constructed of asbestos material, such as chrysolite. Floor tile and insulation are, therefore, considered asbestos waste and subject to regulation under OAC 3745-20 and 40 CFR 61, Subpart M. For additional information concerning the management and disposal of asbestos waste contact the Clean Air Program, Environmental Monitoring.

#### RADIOLOGICAL CHARACTERIZATION

An extensive radiological survey of the demolition areas were conducted in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I<sup>(7)</sup>. Radiological surface readings were taken from floor areas throughout the demolition area. The results of this survey show alpha and beta/gamma surface contamination readings well above 20 dpm/100cm<sup>2</sup> and 100 dpm/100cm<sup>2</sup>, respectively. Surface readings also documented levels well above 3,000 dpm/cm<sup>2</sup> for fixed plus removable contamination. Based on the results of the radiological survey and FEMP standard practices<sup>(7)</sup>, the waste is considered low level radioactive waste and must be managed in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I<sup>(7)</sup>.

#### RCRA DETERMINATION

Based on process knowledge<sup>(8,9)</sup> and the information presented above, the waste is not a listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] and does not exhibit any characteristic of hazardous waste as defined under OAC 3745-51-21 to 24 [in lieu of 40 CFR 261.21 to 24].

Hence, floor tile and insulation waste generated from this project may be discarded as non-hazardous (a.k.a. non-RCRA) waste in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I; however, the waste is regulated as solid waste pursuant to OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)] and as Low Level Radioactive Waste (LLRW) under DOE Order 5820.2A.

#### CONCRETE, CONCRETE BLOCKS, DOOR FRAMINGS, AND WINDOW MULLIONS

##### PROCESS KNOWLEDGE

The project is expected to generate approximately 32,320 cu. feet or 2,402,000 lbs. of concrete waste<sup>(1)</sup> (e.g., concrete and concrete blocks).

The amount of waste expected from door framings and window mullions (framings) has not been estimated; however, the framings and mullions (which are constructed of metal) are included in the estimated 47,545 cu. feet or 671,080 lbs. of metal waste that will be generated<sup>(1)</sup> from the project. Process knowledge indicates that lead (Pb) based paints were routinely used to maintain the aesthetic nature of walls, framings, and mullions.

##### ANALYTICAL DATA

Six paint samples were obtained from the window mullions and walls of Rooms No. E-47 and N-43. Analyses by TCLP [40 CFR 261.24] indicate that leachable lead concentrations for five samples were less than the detectable limit of 1.0 ppm. The sixth sample exhibited a leachable lead concentration of 19.5 ppm. This concentration exceeds the TC regulatory level of 5.0 ppm.

##### RADIOLOGICAL CHARACTERIZATION

An extensive radiological survey of the demolition area was performed in accordance WEMCO Site Standard Operating Procedure, SSOP-0044I<sup>(7)</sup>. Radiological surface readings were taken from window mullions, door framings, and walls.

These readings indicated that removable alpha and beta/gamma contamination is well above 20 dpm/100cm<sup>2</sup> and 100 dpm/100cm<sup>2</sup>, respectively. Surface readings also documented fixed plus removable contamination levels greater than 3,000 dpm/100cm<sup>2</sup>. Based on these readings and FEMP standard practices<sup>(7)</sup>, the waste is classified as low level radioactive waste and must be managed in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I<sup>(7)</sup>.

**RCRA DETERMINATION**

From the TCLP results discussed above, a value of 19.5 ppm can be assigned as the maximum TC value for lead based paint in the lab area. Since OAC 3745-51-20(C) [40 CFR 261.20(c)] states that the entire waste must be evaluated, the following calculation is employed to mathematically determine the thickness ratio of paint to substrate (e.g., concrete-block, window mullions, and door framings). The calculation indicates the required substrate thickness for the waste not to exceed the TC regulatory level<sup>(10)</sup>.

$$TC > V_{TCLP} * (Q_p * h) / ((H * Q_s) + (h * Q_p)) * S\%$$

Where;

- TC = Regulatory level for lead, 5.0 ppm
- V<sub>TCLP</sub> = Analytical value for lead, 19.5 ppm
- h = Paint thickness, inches
- H = Substrate thickness, inches
- Q<sub>p</sub> = Paint density, lb./cu.ft.
- Q<sub>s</sub> = Substrate density, lb./cu.ft.
- S% = Percent of substrate's surface covered with paint, 100%

Since the density of steel (500 lb./cu.ft.) is approximately the same as the density of paint (482 lb./cu.ft.), the above equation simplifies to the following:

$$TC = (h * TCLP) / (H + h) \quad \text{for 100\% painted surface}$$

Measurements obtained on January 6, 1992, indicate the paint to have an average thickness of 0.00763 inch. Using this paint thickness to solve for H, the calculation shows that the door framings and window mullions must be at least 0.022 inch thick. Utilizing the first equation and the appropriate Q<sub>s</sub> for concrete, 150 lb./cu.ft., the calculation indicates that concrete and concrete blocks must have a minimum thickness of 0.074 inch.

Engineering data shows that the concrete blocks, door framings, and window mullions have actual thicknesses of 1.0, 0.0625, and 0.055 inches, respectively.

With these substrate thicknesses, it is believed to be self evident that the entire waste does not exceed the TC regulatory level for lead. Therefore, the waste is classified as non-hazardous (a.k.a non-RCRA). It is regulated as solid waste pursuant to OAC 3745-51 02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)] and Low Level Radioactive Waste (LLRW) under DOE Order 5820.2A.

This methodology is a valid approach for characterizing waste coated with lead based paint. The methodology has been submitted to Ohio EPA for review. A verbal concurrence has been received.

For concrete and concrete blocks that are not coated or painted, the above determination does not apply. The waste is not a listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] and does not exhibit any characteristics of hazardous waste. The waste can be discarded as non hazardous (i.e. non-RCRA) waste.

They are, however, regulated as solid waste under OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)] and as low level radioactive waste (LLRW) pursuant to DOE Order 5820.2A.

#### LIGHTING FIXTURES, TRANSFORMERS, AND ELECTRICAL PANELS

##### PROCESS KNOWLEDGE

The amount of waste expected to be generated by PCB material has not been estimated on an individual basis. The metal fixtures are included in the estimated 47,545 cu. feet or 671,080 lbs. of metal waste that will be generated from this project<sup>(1)</sup>.

Some of the fluorescent lighting fixtures throughout the building are believed to be the original lighting fixtures installed during the initial construction of the building. Due to the age of the fixtures and the absence of "non-PCB" labeling, it is assumed that many of the ballasts contain PCB material. Similarly, electrical panel boards and transformers are believed to contain PCB material. Electrical equipment can be grouped as PCB or non-PCB items. For additional information refer to the Regulatory Discussion section below or contact the Toxic and Solid Waste Programs.

##### RADIOLOGICAL CHARACTERIZATION

A radiological survey was conducted of the demolition areas; however, lighting fixtures, transformers, and electrical panel boards were not included in the survey. Pursuant to WEMCO Site Standard Operating Procedure, SSOP-00441,<sup>(7)</sup> surfaces which are likely to be contaminated but are inaccessible for surveying are assumed to exceed contamination limits.

The waste is, therefore, low level radioactive waste (LLRW) even though no radiological survey was conducted of the waste.

The waste must be managed in accordance with WEMCO Site Standard Operating Procedures, SSOP-0044I,<sup>(7)</sup>.

#### RCRA DETERMINATION

Light fixtures, transformers, and electrical panel boards that may contain PCB material can be divided into several regulatory categories. The appropriate category for the waste can not be established without additional information. Manufacturer's specifications, service records, and analytical data may provide the information necessary to categorize the waste. The following paragraph describes the regulatory criteria for each category.

PCB material in the form of fluids and/or capacitors should be regulated as non-hazardous (a.k.a. non-RCRA) waste if the PCB material does not exhibit hazardous characteristics. A second regulatory possibility exists under 40 CFR 261.8; whereby, dielectric fluids and electrical equipment containing PCB material regulated under 40 CFR 761 that are hazardous only because they fail TCLP for waste codes D018 through D043 are exempt from regulation under 40 CFR 261 through 265, 268, and 270; hence, the equipment should be considered non-hazardous (a.k.a. non-RCRA) waste. In both these circumstances, the equipment should be managed in accordance with TSCA regulations. If the PCB material is found to exhibit hazardous characteristics other than waste codes D018 through D043, the equipment should be regulated as hazardous waste. The waste should be managed in accordance with all applicable provisions of both RCRA and TSCA.

Fluorescent light ballasts which are not leaking are excluded from regulation under 40 CFR 761; however, the FEMP takes a more stringent regulatory approach. Under Westinghouse Corporate policy, all PCB fluorescent light ballasts (whether leaking or not) are regulated as PCB items as specified in 40 CFR 761.3<sup>(11)</sup>. Hence, all regulations for the accumulation, labeling, storage, and disposal of PCB waste are applicable to PCB fluorescent light ballasts<sup>(12)</sup>.

Once the ballast is removed and segregated, the remaining metal portion of the fixture should be regulated as solid waste under OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)].

The waste is not a listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] and does not exhibit any characteristic of hazardous waste as defined under OAC 3745-51-21 to 24 [in lieu of 40 CFR 261.21 to 24]; hence, the fixture may be discarded as non-hazardous (a.k.a. non-RCRA) waste and low level radioactive waste (LLRW) pursuant to DOE Order 5820.2A

The non-PCB fluorescent light fixtures are not listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] and do not exhibit any characteristic of hazardous waste as defined under OAC 3745-51-21 to 24 [in lieu of 40 CFR 261.21 to 24]; hence, the entire light fixture, including ballast, may be discarded as non-hazardous (a.k.a. non-RCRA) waste and low level radioactive waste (LLRW) under DOE Order 5820.2A.

For additional information concerning PCB waste and TSCA regulations contact the Toxic and Solid Waste Programs.

### FUME VENTILATION HOODS

#### PROCESS KNOWLEDGE

Fume hoods are constructed of sheet metal, blowers, duct work, gate valves, glass, and in some cases asbestos. The amount of waste expected to be generated has not been determined on an individual basis. It is, however, included in the project's total waste estimate<sup>(1)</sup>.

Hoods can be divided into two categories, old and new. It is assumed that all the old hoods were used for the storage of perchloric acid. The exterior walls are constructed of an asbestos material (transite), to prevent deterioration and/or the build-up of acid residues. New hoods either were not used for the storage of perchloric acid or were equipped with demisters and fiber glass lining to facilitate the disposal of acid fumes.

The transite also functioned as a fire and chemical resistance barrier. If the transite is removed, it must be managed as specified under OAC 3745-20 and 40 CFR 61, Subpart M. If it is not separated from the hood, the entire hood must be regulated as asbestos waste and managed accordingly. For additional information concerning the management and disposal of asbestos waste contact the Clean Air Program, Environmental Monitoring.

#### RADIOLOGICAL CHARACTERIZATION

A radiological survey of the area was conducted in accordance WEMCO Site Standard Operating Procedure, SSOP-00441, <sup>(7)</sup>. Radiological surface readings were taken of hoods throughout the area. These readings were well above the removable contamination levels of 20 dpm/100cm<sup>2</sup> alpha and 100 dpm/100cm<sup>2</sup> beta/gamma. Multiple probe readings also exceeded the fixed plus removable contamination level of 3,000 dpm/100cm<sup>2</sup>.

Based on these radiological readings and FEMP standard practices governing construction waste from controlled areas, the waste is considered low level radioactive waste (LLRW) and managed in accordance with WEMCO Site Standard Operating Procedure, SSOP-0044I,<sup>(7)</sup>.

#### RCRA DETERMINATION

Based on process knowledge<sup>(8,9)</sup> and the information presented above, the waste is not a listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33] and does not exhibit any characteristic of hazardous waste as defined under OAC 3745-51-21 to 24 [in lieu of 40 CFR 261.21 to 24]. Hence, waste generated from the fume ventilation hoods may be discarded as non-hazardous (a.k.a. non-RCRA) waste. The waste is regulated as solid waste pursuant to OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)] and low level radioactive waste (LLRW) under DOE Order 5820.2A.

#### SINK TRAPS, DRAINS, AND ASSOCIATED PIPING.

##### PROCESS KNOWLEDGE

Although the amount of waste expected to be generated by sink traps, drains, and associated piping has not been determined on an individual basis, the waste is included as part of the 47,545 cu. feet or 671,080 lbs. of metal waste for the entire project<sup>(1)</sup>. Although the regulatory status of piping insulation may influence the management and disposal of the waste, the insulation is not discussed in this section. The reader should refer to section titled FLOOR TILE AND INSULATION for more information.

**NOTE:** Hereafter, all sink traps, drains, and associated piping will be referred to as piping.

##### ANALYTICAL DATA

An air monitoring survey for mercury (Hg) vapors was performed throughout the north, west, and central wings<sup>(6)</sup>. The survey included vapor measurements from approximately 1/2 inch inside the sink drain-pipe openings.

Vapor measurements were found to range from below the detectable limit of 0.003 mg/m<sup>3</sup> to 0.795 mg/m<sup>3</sup> of Hg. The vapor reading of 0.795 mg/m<sup>3</sup> of Hg was recorded in Room No. W-22A. At no time was mercury ever visibly evident.

While this air monitoring data can not be used directly for waste characterization, it does lend support for the absence of mercury (which has a high vapor pressure) on these materials.

#### **RADIOLOGICAL CHARACTERIZATION**

A radiological survey of the area was conducted in accordance with WEMCO Site Standard Operating Procedure, SSOP-00441,<sup>(7)</sup>. Radiological surface readings taken of the piping were well above the removable contamination levels of 20 dpm/100cm<sup>2</sup> alpha and 100 dpm/100cm<sup>2</sup> beta/gamma. Multiple probe readings also exceeded the fixed plus removable contamination level of 3,000 dpm/100cm<sup>2</sup>.

Based on these radiological readings and FEMP standard practices governing metal from controlled areas, the waste is considered low level radioactive waste (LLRW) and must be managed in accordance with WEMCO Site Standard Operating Procedure, SSOP-00441,<sup>(7)</sup>.

#### **RCRA DETERMINATION**

No analytical data was available on the piping prior to its demolition and removal from the building; therefore, to determine if the piping is hazardous, a visual inspection will first be conducted. The inspection will identify the location of residues and/or lead solder/sealants within the piping. All lead solder/sealant must be removed and segregated from the piping.

Once segregated, the solder/sealant should be considered hazardous waste (a.k.a. RCRA waste) under Waste Code D008 of 40 CFR 261.24 [in lieu of OAC 3745-51-24]. The remaining portion of the piping should be evaluated and managed as outlined in the following paragraphs.

All liquid residues will be drained and separated into three pH categories. These categories will be as follows: (1) pH 5 and below, (2) pH 5 to 9, and (3) pH 9 and above. Each pH category will be analyzed for toxicity characteristics (TC), ignitability, corrosivity, and reactivity (cyanide and sulfide). Any category exhibiting hazardous characteristics will be identified and managed accordingly. The "empty" piping is determined not to exhibit any characteristics of hazardous waste under OAC 3745-51-21 to 24.

In addition under the regulatory interpretation provided by Ohio EPA, the "empty" piping is determined not to be identified as a listed hazardous waste under OAC 3745-51-31 to 33 [in lieu of 40 CFR 261.31 to 33].

When residue, such as scaling, exists in sufficient quantity, it will be sampled and analyzed for TC, ignitability, corrosivity, and reactivity (cyanide and sulfide). The results of these analyses will be used to evaluate and properly manage the waste. If the residue is found to be non-hazardous, the piping will be classified as solid waste. If the residue is found to be hazardous, it will either be removed from the piping or left in-place. If removed, rinseates from the piping will be collected and analyzed for ignitability, corrosivity, reactivity (cyanide and sulfide), and TC to demonstrate that the piping is no longer hazardous. For residues left in-place, the entire piping will be classified as hazardous waste<sup>(3,4)</sup> and low level radioactive waste (LLRW) (i.e., mixed waste).

When the amount of residue is limited, thereby, preventing sampling and analysis, it will be considered a "de minimis" quantity and not of regulatory concern. Residue will also be considered "de minimis" quantity if the analysis process would consume all the residue.

Residues of this nature will be left in-place and discarded as solid waste<sup>(4)</sup> and low level radioactive waste (LLRW).

#### SUMMARY

It is F&ME's intention to provide radiological and RCRA determinations of construction waste prior to its generation. F&ME believes that these determinations properly represent the waste or waste streams discussed herein. The determinations apply only to waste listed on the Construction Waste Identification/Disposition (CWID) Form dated June 21, 1989. Any additional waste must be evaluated independently and requires the issuance of a separate determination letter.

If you have any questions, please contact Glenn Rieman at extension 6828 or myself at extension 6777.



C. S. Waugh, Manager  
Facilities and Material Evaluation  
Environmental Management

DAL:tmk

J. Apple

-15-

WEMCO:EM(FME):92-071

c: J. E. Clements  
R. W. Hairston  
S. W. Heisler Jr.  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
T. M. Patterson  
B. S. Perkins  
C. G. Rieman  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
F. B. Thompson  
J. L. Trujillo  
T. J. Walsh

Central Files  
FME Files



**INTEROFFICE MEMORANDUM**

Grant Hale  
December 7, 1992  
Page 2

3. Environmental Compliance Spill/Release Incident Tracking Report, September 1, 1992
4. Plant 1 Pad Continuing Release Removal Action Work Plan, May 1991
5. Site-Wide Characterization Report, issued August, 1992
6. Upset Condition Documentation, issued September 18, 1990
7. WMCO:CC:90-087, K.R. Benjamin to F.G. Hale, "Soil Samples for Plant 1 Pad," dated April 11, 1990
8. WEMCO:EM(FME):92-061, C.S. Waugh to F.G. Hale, "RCRA Determination of Construction Waste (Excavated Soil) From The Plant-1 Pad Removal Action," dated January 23, 1992
9. WEMCO:E(PM3):92-069, F.G. Hale to C.S. Waugh, "RCRA Determination of Construction Waste (Excavated Soil) From The Plant 1 Pad Removal Action," dated March 30, 1992

This memorandum transmits the RCRA determination and radiological characterization for the construction wastes generated by the Plant 1 Pad Removal Action. The contaminated waste generated during Phases A and B of the construction project consists of approximately 18,000 cubic feet of soil, 500 cubic feet of concrete rubble, 1,200 cubic feet of wood formwork, and 1,200 cubic feet of other construction rubble (plywood, polyethylene plastic sheets, etc). Also generated during this project was approximately 900 cubic feet of uncontaminated, unpainted metal piping and conduit (new).

**PROCESS KNOWLEDGE**

The project work scope included in this determination involves two phases. Phase A of the Removal Action includes site evaluation, construction of a new 86,000 ft<sup>2</sup> concrete pad extension with foundations, curbs and a storm drainage system. The new pad addition includes storm sewers and drainage systems that will direct the runoff to the general plant sump. Phase B of the removal action consisted of the erection of the 80,000 ft<sup>2</sup> fabric covered frame-supported structures on the new pad extension.

**INTEROFFICE MEMORANDUM**

Grant Hale  
December 7, 1992  
Page 3

This construction project is located in the controlled area of the FEMP, north of Plant 1, on the northwest corner of the Plant 1 Pad. Plant 1 has historically been the "sampling plant" for the Fernald Site and is, therefore, the location for sampling of large amounts of uranium metal process residues and waste materials. The Plant 1 Pad, which has been designated as a Hazardous Waste Management Unit (HWMU), has been used as a drum storage location in support of these operations since 1952.

Materials containing varying amounts of uranium (U metal,  $UF_4$ ,  $UO_2$ ,  $UO_3$  and  $U_3O_8$ ), thorium, and RCRA hazardous substances, including barium salts and waste oils containing 1,1,1-trichloroethane, tetrachloroethylene, methylene chloride, xylene, and lead have been stored on the Plant 1 Pad.

Approximately 50,000 drums of waste materials containing radioactive and potentially hazardous constituents are stored in drums on the Plant 1 Pad. Many of these drums have corroded to the point where stormwater comes into direct contact with the material. Some uncontrolled stormwater runoff, containing waste materials from the Plant 1 Pad has been observed. The runoff has occurred along the northern and western sides of the storage pad where the contaminated stormwater has flowed to the adjacent unpaved areas.

Herbicides, predominantly Princep 80, have been applied along the southwest corner of the Plant 1 Pad Removal Action area. The area has been extensively sampled for these contaminants.

There have been numerous spills, leaks, and accidents on the Plant 1 Pad over the years involving drums of radioactive and/or hazardous materials. The majority of these releases have been remediated and the area restored to its pre-release condition. There are, however, several accidents that are still awaiting characterization and are considered to be "open" on the AEDO spill/release log. These spills are not expected to have an impact on the pad, as it the pad is known to have extensive areas of contamination, both hazardous and radioactive. The "open" items for the Plant 1 Pad are the following:

- On July 28, 1990, a release of clear liquid was noticed coming from several drums with minor leaks. The item is awaiting a characterization. The AEDO Log Number for this release is 90-07-280.

## INTEROFFICE MEMORANDUM

Grant Hale  
December 7, 1992  
Page 4

- On January 18, 1991, approximately 4 oz. of water was noticed on the Area A of the Plant 1 Pad. This release is awaiting characterization. This item corresponds with AEDO Log Number 91-01-038.
- On January 19, 1991, metal from spills for double melting occurred on the Area J of the Plant 1 Pad. This item corresponds with AEDO Log Number 91-01-043.
- On January 23, 1991, approximately 4 oz. of water from a drum of burnable trash was noticed to have spilled on Area G of the Plant 1 Pad. This item corresponds to AEDO Log Number 91-01-048.
- On March 4, 1991, approximately 4 quarts of liquid was released from a Type 1 drum. AEDO Log Number 91-03-166.
- On February 19, 1992, a drum weight discrepancy was discovered. Approximately 24 pounds of contaminated solvents is thought to have escaped a drum and have been released to the environment. AEDO Log Number ORO-FMPC 1992-0013.
- On February 19, 1992, another drum weight discrepancy was found concerning contaminated solvents. This item corresponds to AEDO Log Number ORO-FMPC 1992-0014.
- On April 20, 1992, approximately 1/2 pint of power steering fluid was released on the Plant 1 Pad. AEDO Log Number 92-04-167.

These spills and/or accidents occurred on the original Plant 1 Pad, and did not impact the area of the new pad extension, to the west of Plant 1. The pad is known to have areas of considerable contamination, so it is expected that these spills will have no further impact on the contamination condition of the pad.

## INTEROFFICE MEMORANDUM

Grant Hale  
December 7, 1992  
Page 5

### SAMPLING AND ANALYSIS

Extensive sampling has been completed on and around the Plant 1 Pad in support of the proposed Plant 1 Pad continuing Release Removal Action, the FMPC Environmental Monitoring Program, and the on-going RI/FS. These samples were collected to characterize the existing environmental conditions and to assess the nature and extent of any chemical or radiological contaminants present in the area. This sampling focused on the surface and subsurface soils adjacent to and under the Plant 1 Pad and the groundwater present in the glacial till and the regional aquifer below the pad.

Soil sampling was completed on the west side of the pad prior to construction of the new pad addition. This sampling campaign included:

- Collection of surface soil samples at 21 locations at discrete depth intervals adjacent to the western edge of the pad in support of the proposed removal action. Radiochemical, inorganic and EP toxicity analysis were performed at the FMPC lab on-site. Volatile organics analyses were performed at off-site labs.
- Collection of surface soil samples from 47 locations in the grassy (unpaved) area west of the pad in accordance with FMPC Environmental Monitoring procedures. Radiochemical analyses were performed on-site.
- Collection of 17 subsurface soil boring samples adjacent to the original pad as part of the on-going Fernald Site RI/FS Work Plan (with three of the borings being in the area of interest).
- Collection of surface soil samples from the hand augured sampling - Task 04.04 (3.27) The project was completed following the FMPC Environmental Monitoring Procedure.

A statistical evaluation was performed on these data sets in an effort to obtain an overall feel for the contamination levels, both hazardous and radioactive, for the entire project area.

## INTEROFFICE MEMORANDUM

Grant Hale  
December 7, 1992  
Page 6

### RADIOLOGICAL CHARACTERIZATION

The radiochemical analysis of the samples collected on the grassy area next to the pad indicate the existence of above background concentrations of uranium in surface soils. As expected, these concentrations show significant reductions with depth, being generally limited to the upper two feet of soil.

Several locations, primarily on the southwest corner of the Plant 1 Pad, showed elevated concentrations of calculated total thorium and uranium, ranging from 9 to 959 pCi/g. These concentrations are above the Category II criteria of 100 pCi/g for U and 50 pCi/g for Th, as established in Reference 1.

Above background concentrations of other naturally occurring radionuclides were also detected in discrete surface soil samples. No general area of contamination or trend could be established from this data. In general, no individual soil sample exhibited the presence of a naturally occurring radionuclide in concentrations significantly above background without the presence of elevated total uranium concentrations in the same sample.

### RCRA DETERMINATION

A statistical evaluation was performed on the Plant 1 Pad soil sample data for the following analyses: RCRA total metals, total organics, total volatiles and HSL constituents. The values shown in the statistical evaluation report are RCRA total's values and should be divided by 20 to arrive at the approximate TCLP values (and hence be comparable to the regulatory values). The TCLP results are diluted from the totals results. Once the Plant 1 Pad data is converted to TCLP values it becomes apparent that the data set is well below the regulatory levels, and can be considered RCRA non-hazardous. This data is only for the soil however, as the concrete and other items listed on the CWID were not sampled.

The soil generated by this removal action has been determined to be RCRA non-hazardous (a.k.a. non-RCRA) by the analysis performed and the statistical evaluation performed.

**INTEROFFICE MEMORANDUM**

Grant Hale  
December 7, 1992  
Page 7

The concrete rubble generated by the project construction has been determined to be RCRA non-hazardous (a.k.a. non-RCRA) by process knowledge of the contamination characteristics of the cement surfaces on the FEMP site. Since this concrete rubble was removed from the Plant 1 Pad Hazardous Waste Management Unit (HWMU), the boxes containing the concrete can not be shipped off-site until the Plant 1 Pad HWMU closure is complete.

The plastic waste (sheeting and bags) generated is RCRA non-hazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 1539, dated February 11, 1992.

The wood waste (formwork, plywood) generated is RCRA non-hazardous (a.k.a. non-RCRA), if it meets the conditions specified in MEF Number 905 dated June 25, 1992.

The miscellaneous metal consisting of small sections of metal piping and conduit (new material), to be generated are RCRA non-hazardous (a.k.a. non-RCRA).

**SUMMARY**

The soil, concrete rubble, plastic waste, wood, and miscellaneous metal material generated by this removal action has been determined to be RCRA non-hazardous (a.k.a. non-RCRA) by the analysis performed, the statistical evaluation performed, and process knowledge.

**NOTE:** The boxes containing the concrete rubble, however, will have to remain on-site until the Plant 1 Pad HWMU closure is complete.

It is FME's intention to provide radiological and RCRA determinations of construction waste prior to its generation. FME believes that these determinations properly represent the waste or waste streams discussed herein. The determinations apply only to waste listed on the Construction Waste Identification/Disposition (CWID) Form dated December 19, 1991. Any additional waste must be evaluated independently and requires the issuance of a separate determination letter.

The waste, excluding the soil, will have to be monitored by the Radiological Safety Group for proper radiologically disposition per Reference Numbers 1 and 2.

**INTEROFFICE MEMORANDUM**

Grant Hale  
December 7, 1992  
Page 8

If there are any questions, please call me at extension 6085 or C. S. Waugh at extension 6777.

JPE:bbs

Attachments

**ATTACHMENT 1**  
**ANALYTICAL RESULTS**

## TCLP BY IT/ASI 12/03/91

| PARAMETER (TCLP EXTRACT)  | MATRIX | SAMPLE NUMBER<br>100250 (ug/L) | SAMPLE NUMBER<br>100252 (ug/L) | SAMPLE NUMBER<br>100254 (ug/L) | SAMPLE NUMBER →<br>100256 (ug/L) |
|---------------------------|--------|--------------------------------|--------------------------------|--------------------------------|----------------------------------|
| Chloromethane             | SOIL   | 10                             | 10                             | 10                             | 10                               |
| Bromomethane              | SOIL   | 10                             | 10                             | 10                             | 10                               |
| Vinyl Chloride            | SOIL   | 10                             | 10                             | 10                             | 10                               |
| Chloroethane              | SOIL   | 10                             | 10                             | 10                             | 10                               |
| Methylene Chloride        | SOIL   | 74                             | 90                             | 91                             | 130                              |
| Acetone                   | SOIL   | 65                             | 850                            | 770                            | 5300                             |
| Carbon Disulfide          | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 1,1-Dichloroethene        | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 1,1-Dichloroethane        | SOIL   | 3                              | 5                              | 5                              | 5                                |
| 1,2-Dichloroethylene      | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Chloroform                | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 1,2-Dichloroethane        | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 2-Butanone                | SOIL   | 5                              | 3                              | 3                              | 5                                |
| 1,1,1-Trichloroethane     | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Carbon Tetrachloride      | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Vinyl Acetate             | SOIL   | 5                              | 10                             | 10                             | 10                               |
| Bromodichloromethane      | SOIL   | 10                             | 5                              | 5                              | 5                                |
| 1,2-Dichloropropane       | SOIL   | 5                              | 5                              | 5                              | 5                                |
| cis-1,3-Dichloropropene   | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Trichloroethene           | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Dibromochloromethane      | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 1,1,2-Trichloroethane     | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Benzene                   | SOIL   | 5                              | 5                              | 5                              | 5                                |
| trans-1,3-Dichloropropene | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Bromoform                 | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 4-Methyl-2-Pentanone      | SOIL   | 1                              | 10                             | 10                             | 2                                |
| 2-Hexanone                | SOIL   | 10                             | 10                             | 10                             | 10                               |
| Tetrachloroethene         | SOIL   | 5                              | 5                              | 5                              | 5                                |
| 1,1,2,2-Tetrachloroethane | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Toluene                   | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Chlorobenzene             | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Ethylbenzene              | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Styrene                   | SOIL   | 5                              | 5                              | 5                              | 5                                |
| Total Xylenes             | SOIL   | 5                              | 5                              | 5                              | 5                                |

CONTROLLED STORAGE PAD PLANT 1  
ANALYTICAL RESULTS - RADIOLOGICAL

| SAMPLE NUMBER | TOTAL U ppm | TOTAL Th ppm | U pCi/g | Th pCi/g | Th-228 pCi/g | WT % U U-234 | WT % U U-235 | WT % U U-236 | WT % U U-238 |
|---------------|-------------|--------------|---------|----------|--------------|--------------|--------------|--------------|--------------|
| RC-0205       | 46          | <23          | 28      | <3.5     | 0.97         | 0.004        | 0.52         | 0.005        | 99.47        |
| RC-0206       | 30          | <23          |         |          |              |              |              |              |              |
| RC-0207       | 51          | <23          | 31      | <4.5     | 2.0          | 0.002        | 0.55         | 0.001        | 99.45        |
| RC-0208       | 115         | <23          | 69      | <6.4     | 3.9          | <0.001       | 0.52         | 0.005        | 99.48        |
| RC-0209       | 278         | 29           | 160     | 4.9      | 1.8          | 0.002        | 0.45         | 0.005        | 99.55        |
| RC-0210       | 751         | 32           | 530     | 5.7      | 2.3          | 0.005        | 0.80         | 0.014        | 99.18        |
| RC-0211       | 751         | 26           | 380     | 6.3      | 3.5          | 0.005        | 0.29         | 0.005        | 99.69        |
| RC-0212       | 305         | <23          |         |          |              |              |              |              |              |
| RC-0213       | 2460*       | <45*         | 1400    | <7.9     | 3.1          | 0.007        | 0.45         | 0.005        | 99.54        |
| RC-0214       | 238         | 25           | 140     | 6.5      | 3.8          | 0.004        | 0.48         | 0.008        | 99.50        |
| RC-0215       | 245         | 28           | 160     | 7.2      | 4.2          | 0.001        | 0.60         | 0.001        | 99.39        |
| RC-0216       | 216         | 28           | 140     | 5.7      | 2.7          | 0.007        | 0.68         | 0.006        | 99.30        |
| RC-0217       | 649         | 45           | 440     | 8.2      | 3.4          | 0.002        | 0.72         | 0.004        | 99.28        |
| RC-0218       | 83          | <23          |         |          |              |              |              |              |              |
| RC-0219       | 326         | 29           | 220     | 6.1      | 3.0          | 0.005        | 0.70         | 0.004        | 99.30        |
| RC-0220       | 471         | 32           | 300     | 5.9      | 2.5          | 0.004        | 0.62         | 0.004        | 99.37        |
| RC-0221       | 596         | 40           | 430     | 7.2      | 2.9          | 0.005        | 0.82         | 0.005        | 99.17        |
| RC-0222       | 39          | <23          |         |          |              |              |              |              |              |
| RC-0223       | 49          | <23          | 33      | <3.8     | 1.3          | 0.008        | 0.70         | 0.013        | 99.28        |
| RC-0224       | 45          | <23          |         |          |              |              |              |              |              |
| RC-0225       | 57          | <23          | 35      | <4.1     | 1.6          | 0.004        | 0.55         | 0.007        | 99.43        |
| RC-0226       | 20          | <23          |         |          |              |              |              |              |              |
| RC-0227       | 60          | <23          | 41      | <4.3     | 1.8          | 0.008        | 0.59         | 0.010        | 99.39        |
| RC-0228       | 31          | <23          |         |          |              |              |              |              |              |
| RC-0229       | 86          | <23          | 50      | <3.9     | 1.4          | 0.002        | 0.47         | 0.005        | 99.52        |
| RC-0230       | 19          | <23          |         |          |              |              |              |              |              |
| RC-0231       | 40          | <23          | 26      | <3.4     | 0.91         | 0.008        | 0.65         | 0.009        | 99.33        |
| RC-0232       | 15          | <23          |         |          |              |              |              |              |              |

| SAMPLE NUMBER | TOTAL U ppm | TOTAL Th ppm | U pCi/g | Th pCi/g | Th-228 pCi/g | WT % U U-234 | WT % U U-235 | WT % U U-236 | WT % U U-238 |
|---------------|-------------|--------------|---------|----------|--------------|--------------|--------------|--------------|--------------|
| RC-0233       | 71          | <23          | 44      | <3.7     | 1.2          | 0.001        | 0.59         | 0.005        | 99.40        |
| RC-0234       | 133         | 23           | 87      | 4.4      | 1.9          | 0.004        | 0.66         | 0.005        | 99.33        |
| RC-0235       | 101         | <23          | 66      | <4.1     | 1.6          | 0.004        | 0.65         | 0.008        | 99.33        |
| RC-0236       | 150         | 39           | 98      | 8.6      | 4.4          | 0.008        | 0.66         | 0.011        | 99.32        |
| RC-0237       | 35          | <23          |         |          |              |              |              |              |              |
| RC-0238       | NO          | SAMPLE       | TAKEN   |          |              |              |              |              |              |
| RC-0239       | 3840*       | <45*         | 2500    | <7.9     | 3.1          | 0.005        | 0.65         | 0.007        | 99.33        |
| RC-0240       | 72          | <23          | 48      | 3.9      | 0.9          | 0.010        | 0.71         | 0.010        | 99.27        |
| RC-0241       | 39          | <23          | 25      | 4.4      | 0.9          | 0.002        | 0.63         | 0.005        | 99.36        |
| RC-0242       | 204         | 24           | 150     | 7.0      | 2.1          | 0.005        | 0.87         | 0.007        | 99.11        |
| RC-0243       | 130         | 24           | 86      | 10.2     | 1.4          | 0.003        | 0.69         | 0.003        | 99.30        |
| RC-0244       | 106         | <23          |         |          |              |              |              |              |              |
| RC-0245       | 83          | <23          | 58      | 7.3      | 1.5          | 0.001        | 0.68         | 0.003        | 99.31        |
| RC-0246       | 250         | 35           | 150     | 11.7     | 3.4          | 0.002        | 0.49         | 0.007        | 99.50        |
| RC-0247       | 404         | 325          | 240     | 90.3     | 30.3         | 0.002        | 0.52         | 0.006        | 99.47        |
| RC-0248       | 278         | 184          | 170     | 36.3     | 14.2         | 0.007        | 0.60         | 0.011        | 99.38        |
| RC-0249       | 316         | 42           | 230     | 14.6     | 2.8          | 0.006        | 0.86         | 0.007        | 99.13        |
| RC-0250       | 63          | 24           |         |          |              |              |              |              |              |
| RC-0251       | 88          | 24           | 53      | 9.8      | 1.1          | 0.005        | 0.54         | 0.005        | 99.45        |
| RC-0252       | 16          | <23          |         |          |              |              |              |              |              |
| RC-0253       | 87          | <23          | 55      | 8.0      | 1.1          | 0.005        | 0.61         | 0.005        | 99.38        |
| RC-0254       | 41          | <23          |         |          |              |              |              |              |              |
| RC-0255       | 43          | <23          | 28      | 5.1      | 1.1          | 0.005        | 0.68         | 0.007        | 99.30        |
| RC-0256       | 16          | <23          |         |          |              |              |              |              |              |
| RC-0257       | 65          | <23          | 43      | <2.1     | <0.7         | 0.002        | 0.70         | 0.007        | 99.29        |
| RC-0258       | 29          | <23          |         |          |              |              |              |              |              |
| RC-0259       | 182         | 26           | 130     | 16.1     | 1.4          | 0.007        | 0.85         | 0.008        | 99.13        |
| RC-0260       | 48          | <23          |         |          |              |              |              |              |              |
| RC-0261       | 133         | <23          | 100     | 15.5     | 1.7          | 0.005        | 0.92         | 0.007        | 99.07        |
| RC-0262       | 24          | <23          |         |          |              |              |              |              |              |

| SAMPLE NUMBER | TOTAL U ppm | TOTAL Th ppm | U pCi/g | Th pCi/g | Th-228 pCi/g | WT % U U-234 | WT % U U-235 | WT % U U-236 | WT % U U-238 |
|---------------|-------------|--------------|---------|----------|--------------|--------------|--------------|--------------|--------------|
| RC-0263       | 358         | 41           | 260     | 33.05    | 3.2          | 0.005        | 0.82         | 0.006        | 99.17        |
| RC-0264       | 107         | 24           |         |          |              |              |              |              |              |
| RC-0265       | 347         | 35           | 260     | 30.3     | 2.8          | 0.008        | 0.91         | 0.004        | 99.08        |
| RC-0266       | 467         | 39           | 350     | 49.1     | 2.9          | 0.007        | 0.91         | 0.007        | 99.08        |
| RC-0267       | NO          | SAMPLE       | TAKEN   |          |              |              |              |              |              |
| RC-0268       | 365         | 30           | 270     | 26.5     | 1.9          | 0.005        | 0.92         | 0.005        | 99.07        |
| RC-0269       | 102         | <23          |         |          |              |              |              |              |              |
| RC-0270       | 266         | <23          | 210     | 29.9     | 1.4          | 0.009        | 0.99         | 0.006        | 99.99        |
| RC-0271       | 89          | <23          | 67      | <4.0     | 1.5          | 0.002        | 0.93         | 0.003        | 99.06        |
| RC-0272       | 219         | 25           | 170     | 5.1      | 2.4          | 0.008        | 0.93         | 0.006        | 99.05        |
| RC-0273       | 53          | <23          |         |          |              |              |              |              |              |

\* Units are ug/g

## PLANT 1 PAD PHASE A/B CONSTRUCTION AREA SAMPLING RESULTS

## SOIL

| TOTAL RCRA METALS |            | Ag (ug/g) | As (ug/g) | Ba (ug/g) | Cd (ug/g) | Cr (ug/g) | Hg (ug/g) | Pb (ug/g) | Se (ug/g) |
|-------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Reg Level         |            | 5.0       | 5.0       | 100.0     | 1.0       | 5.0       | 0.2       | 5.0       | 1.0       |
| Sample Number     | Depth (ft) |           |           |           |           |           |           |           |           |
| 1                 | 0          | I         | I         | I         | I         | I         | I         | 22.80     | I         |
|                   | 1          | I         | I         | I         | I         | I         | I         | 22.10     | I         |
|                   | 2          | I         | I         | I         | I         | I         | I         | 57.00     | I         |
| 2                 | 0          | <1        | 5.00      | 55.00     | <0.2      | 7.20      | <0.1      | 61.30     | <0.1      |
|                   | 1          | <1        | 4.50      | 55.50     | <0.2      | 7.30      | <0.1      | 39.30     | <0.1      |
|                   | 2          | <1        | 4.50      | 75.50     | <0.2      | 7.70      | <0.1      | 120.00    | <0.1      |
| 3                 | 0          | <1        | 6.20      | 69.50     | <0.2      | 12.30     | <0.1      | 55.40     | <0.1      |
|                   | 1          | <1        | 6.50      | 79.50     | <0.2      | 9.30      | <0.1      | 49.60     | <0.1      |
|                   | 2          | <1        | 4.40      | 59.00     | <0.2      | 7.20      | <0.1      | 8.85      | <0.1      |
| 4                 | 0          | <1        | 4.84      | 88.10     | 0.75      | 11.90     | <0.1      | 41.80     | R         |
|                   | 1          | <1        | 1.94      | 84.80     | 0.30      | 8.73      | <0.1      | 15.30     | R         |
|                   | 2          | <1        | 5.72      | 58.40     | <0.2      | 8.74      | <0.1      | 11.50     | R         |
| 5                 | 0          | <1        | 5.11      | 80.00     | 0.20      | 8.70      | <0.1      | 21.40     | R         |
|                   | 1          | <1        | 4.66      | 55.70     | 0.20      | 7.17      | <0.1      | 10.50     | R         |
|                   | 2          | <1        | 4.36      | 59.40     | <0.2      | 7.83      | <0.1      | 9.90      | R         |
| 6                 | 0          | <1        | 6.15      | 102.00    | 0.25      | 11.20     | <0.1      | 109.70    | <0.1      |
|                   | 1          | <1        | 7.02      | 70.40     | 1.15      | 7.94      | <0.1      | 16.10     | R         |
|                   | 2          | <1        | 4.51      | 117.90    | 0.80      | 11.70     | <0.1      | 12.00     | R         |
| 7                 | 0          | <1        | 7.19      | 104.50    | 0.55      | 10.00     | <0.1      | 22.60     | R         |
|                   | 1          | <1        | 8.09      | 84.90     | 0.45      | 9.39      | <0.1      | 12.30     | R         |
|                   | 2          | <1        | 6.23      | 78.20     | 0.30      | 6.38      | <0.1      | 11.50     | R         |
| 8                 | 0          | <1        | 8.46      | 127.60    | 0.35      | 6.83      | <0.1      | 32.50     | R         |
|                   | 1          | <1        | 6.88      | 115.60    | <0.2      | 5.53      | <0.1      | 16.60     | R         |
|                   | 2          | <1        | 4.65      | 94.20     | 0.25      | 6.18      | <0.1      | 13.80     | R         |
| 9                 | 0          | <1        | 6.78      | 42.90     | 0.20      | 2.75      | <0.1      | 20.90     | R         |
|                   | 1          | <1        | 5.81      | 93.60     | 0.30      | 5.68      | <0.1      | 14.60     | R         |
|                   | 2          | <1        | 5.58      | 67.40     | <0.20     | 4.54      | <0.1      | 126.70    | <0.1      |
| 10                | 0          | <1        | 4.41      | 51.30     | 0.25      | 3.29      | <0.1      | 7.97      | R         |
|                   | 1          | <1        | 6.79      | 82.90     | 0.20      | 6.40      | <0.1      | 12.70     | R         |
|                   | 2          | <1        | 0.76      | 39.00     | <0.20     | 1.45      | <0.1      | 6.69      | R         |
| 11                | 0          | <1        | 4.04      | 87.40     | 1.10      | 9.64      | <0.1      | 22.20     | <0.10     |
|                   | 1          | <1        | 5.55      | 124.30    | 0.25      | 12.00     | <0.1      | 26.00     | <0.10     |
|                   | 2          | <1        | 4.14      | 82.80     | 0.30      | 10.70     | <0.1      | 18.00     | <0.10     |
| 12                | 0          | <1        | 3.38      | 46.10     | 0.40      | 7.49      | <0.1      | 21.00     | <0.10     |
|                   | 1          | <1        | 5.39      | 85.00     | 0.20      | 10.40     | 0.10      | 21.90     | <0.10     |
|                   | 2          | <1        | 4.78      | 174.60    | 0.60      | 12.20     | <0.1      | 16.90     | <0.10     |
| 13                | 0          | <1        | 4.35      | 68.90     | 0.45      | 9.59      | <0.1      | 31.90     | <0.10     |
|                   | 1          | <1        | 4.14      | 98.10     | 0.25      | 10.90     | <0.1      | 15.50     | <0.10     |
|                   | 2          | <1        | 4.84      | 85.40     | <0.20     | 10.30     | <0.1      | 17.30     | <0.10     |

## PLANT 1 PAD PHASE A/B CONSTRUCTION AREA SAMPLING RESULTS

## SOIL

| TOTAL RCRA METALS | Ag (ug/g)  | As (ug/g) | Ba (ug/g) | Cd (ug/g) | Cr (ug/g) | Hg (ug/g) | Pb (ug/g) | Se (ug/g) |       |
|-------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| Reg Level         | 5.0        | 5.0       | 100       | 1.0       | 5.0       | 0.2       | 5.0       | 1.0       |       |
| Sample Number     | Depth (ft) |           |           |           |           |           |           |           |       |
| 14                | 0          | <1        | 3.04      | 73.90     | <0.20     | 6.05      | <0.1      | 33.30     | <0.10 |
|                   | 1          | <1        | 5.96      | 170.30    | 0.50      | 11.20     | <0.1      | 18.40     | <0.10 |
|                   | 2          | <1        | 5.44      | 102.20    | 0.75      | 12.60     | <0.1      | 21.20     | <0.10 |
| 15                | 0          | <1        | 6.75      | 136.00    | 0.45      | 8.55      | <0.1      | 24.80     | <0.10 |
|                   | 1          | <1        | 8.12      | 120.00    | 0.20      | 10.00     | <0.1      | 15.80     | <0.10 |
|                   | 2          | <1        | 4.84      | 98.00     | 0.20      | 8.25      | <0.1      | 13.70     | <0.10 |
| 16                | 0          | <1        | 5.82      | 67.50     | <0.20     | 6.95      | <0.1      | 18.80     | <0.10 |
|                   | 1          | <1        | 7.00      | 73.50     | 2.40      | 9.30      | <0.1      | 15.40     | 0.16  |
|                   | 2          | <1        | 7.20      | 84.00     | 2.20      | 11.20     | <0.1      | 14.40     | 0.10  |
| 17                | 0          | <1        | 6.20      | 81.00     | 1.55      | 14.30     | <0.1      | 72.00     | 0.25  |
|                   | 1          | <1        | 7.02      | 73.00     | 1.10      | 9.95      | <0.1      | 16.20     | <0.10 |
|                   | 2          | 5.80      | 6.96      | 100.50    | 0.95      | 10.30     | <0.1      | 13.40     | 0.10  |
| 18                | 0          | <1        | 6.49      | 87.50     | 1.25      | 10.60     | <0.1      | 71.50     | 0.19  |
|                   | 1          | I         | I         | I         | I         | I         | I         | I         | I     |
|                   | 2          | I         | I         | I         | I         | I         | I         | I         | I     |
| 19                | 0          | <1        | 4.72      | 71.50     | 0.60      | 7.00      | <0.1      | 43.60     | <0.10 |
|                   | 1          | <1        | 5.46      | 75.50     | 0.45      | 7.35      | <0.1      | 42.60     | <0.10 |
|                   | 2          | <1        | 3.42      | 130.00    | 0.20      | 9.40      | <0.1      | 14.40     | <0.10 |
| 20                | 0          | <1        | 3.20      | 52.00     | 0.30      | 8.05      | <0.1      | 42.00     | <0.10 |
|                   | 1          | <1        | 3.89      | 57.50     | 0.40      | 9.00      | <0.1      | 41.60     | <0.10 |
|                   | 2          | <1        | 8.93      | 43.60     | 0.30      | 6.35      | <0.1      | 25.60     | <0.10 |
| 21                | 0          | <1        | 6.46      | 74.50     | 0.35      | 5.75      | <0.1      | 53.50     | 0.29  |
|                   | 1          | <1        | 6.37      | 101.00    | 0.25      | 8.40      | <0.1      | 53.50     | 0.10  |
|                   | 2          | <1        | 4.34      | 71.00     | 0.20      | 7.30      | <0.1      | 9.45      | <0.10 |
| 22                | 0          | <1        | 6.26      | 236.00    | 0.20      | 6.65      | <0.1      | 14.40     | <0.10 |
|                   | 1          | <1        | 4.99      | 108.00    | 0.20      | 7.50      | <0.1      | 11.60     | 0.13  |
|                   | 2          | <1        | 3.25      | 75.00     | 0.25      | 7.95      | <0.1      | 13.80     | 0.16  |
| 23                | 0          | <1        | 4.32      | 1080.00   | 0.30      | 6.70      | <0.1      | 9.30      | <0.10 |
|                   | 1          | <1        | 4.95      | 186.00    | 0.20      | 7.40      | <0.1      | 17.80     | 0.14  |
|                   | 2          | <1        | 4.49      | 74.00     | <0.20     | 7.20      | <0.1      | 14.40     | <0.10 |
| 24                | 0          | <1        | 3.65      | 114.50    | <0.20     | 8.60      | <0.1      | 11.20     | <0.10 |
|                   | 1          | <1        | 4.34      | 61.50     | 0.35      | 9.55      | <0.1      | 9.90      | <0.10 |
|                   | 2          | <1        | 3.76      | 45.80     | <0.20     | 8.10      | <0.1      | 9.15      | <0.10 |
| 25                | 0          | <1        | 4.19      | 83.00     | 0.20      | 11.30     | <0.1      | 9.25      | <0.10 |
|                   | 1          | <1        | 7.64      | 92.50     | <0.20     | 12.10     | <0.1      | 15.00     | <0.10 |
|                   | 2          | <1        | 4.80      | 32.40     | <0.20     | 7.70      | <0.1      | 12.20     | <0.10 |
| 26                | 0          | <1        | 4.92      | 103.50    | <0.20     | 8.45      | <0.1      | 11.50     | <0.10 |
|                   | 1          | <1        | 5.40      | 67.50     | <0.20     | 9.70      | <0.1      | 11.10     | <0.10 |
|                   | 2          | <1        | 4.82      | 74.00     | <0.20     | 11.40     | <0.1      | 11.10     | <0.10 |

PLANT 1 PAD PHASE A/B CONSTRUCTION AREA SAMPLING RESULTS

SOIL

| E.P. TOX      | Ag (mg/L)  | As (mg/L) | Ba (mg/L) | Cd (mg/L) | Cr (mg/L) | Hg (mg/L) | Pb (mg/L) | Se (mg/L) |      |
|---------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|
| Reg Level     | 5.0        | 5.0       | 100.0     | 1.0       | 5.0       | 0.2       | 5.0       | 1.0       |      |
| Sample Number | Depth (ft) |           |           |           |           |           |           |           |      |
| 1             | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 2             | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 3             | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 6             | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 11            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 12            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 13            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 14            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 15            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 16            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 17            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 18            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 19            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
| 20            | 0          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 1          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |
|               | 2          | <1        | <1        | <25       | <0.2      | <1        | <0.1      | <1        | <0.1 |

## PLANT 1 PAD PHASE A/B CONSTRUCTION AREA SAMPLING RESULTS

## SOIL

| TOTAL RCRA METALS |            | Ag (ug/g) | As (ug/g) | Ba (ug/g) | Cd (ug/g) | Cr (ug/g) | Hg (ug/g) | Pb (ug/g) | Se (ug/g) |
|-------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Reg Level         |            | 5.0       | 5.0       | 100.0     | 1.0       | 5.0       | 0.2       | 5.0       | 1.0       |
| Sample Number     | Depth (ft) |           |           |           |           |           |           |           |           |
| 27                | 0          | <1        | 3.62      | 124.50    | <0.20     | 20.00     | <0.1      | 32.00     | <0.10     |
|                   | 1          | <1        | 5.68      | 101.00    | <0.20     | 14.10     | <0.1      | 15.10     | <0.10     |
|                   | 2          | <1        | 5.20      | 97.00     | <0.20     | 12.10     | <0.1      | 13.40     | <0.10     |
| 28                | 0          | <1        | <1        | 91.50     | 0.90      | 14.70     | <0.1      | 83.00     | <0.10     |
|                   | 1          | <1        | <1        | 103.00    | 0.40      | 12.00     | <0.1      | 69.80     | 0.14      |
|                   | 2          | <1        | 5.86      | 76.50     | 0.20      | 8.60      | 0.10      | 10.13     | 0.10      |

I = Analysis Incomplete

R = Instrumentation Problem (have to be resampled and reanalyzed)

TCLP METAL LEACHATE SAMPLES (EBASCO/ASD) 3/5/92

| TCLP METALS   | Ag (ug/L) | As (ug/L) | Ba (ug/L) | Cd (ug/L) | Cr (ug/L) | Hg (mg/kg) | Pb (ug/L) | Se (ug/L) |
|---------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|
| Reg Level     | 5,000     | 5,000     | 100,000   | 1,000     | 5,000     | 0.2        | 5,000     | 1,000     |
| Sample Number |           |           |           |           |           |            |           |           |
| 61525         | 50.9      | 12.0      | 1,110     | 1.1       | 2.0       | 0.03       | 12.0      | 30.0      |
| 61526         | 5.0       | 12.0      | 9,050     | 1.0       | 3.1       | 0.02       | 12.0      | 30.0      |
| 61527         | 5.0       | 12.0      | 9,440     | 1.0       | 2.0       | 0.02       | 12.0      | 30.0      |
| 61528         | 5.0       | 12.0      | 13,800    | 3.3       | 2.0       | 0.02       | 22.4      | 30.0      |
| 61529         | 5.0       | 12.0      | 9,170     | 1.0       | 2.0       | 0.02       | 12.0      | 35.7      |
| 61530         | 22.8      | 12.0      | 9,290     | 1.0       | 2.0       | 0.02       | 12.0      | 30.0      |
| 61531         | 8.4       | 12.0      | 9,460     | 1.0       | 10.0      | 0.02       | 30.1      | 150.0     |
| 61532         | 5.0       | 12.0      | 10,400    | 1.0       | 2.0       | 0.02       | 12.0      | 30.0      |
| 61533         | 5.0       | 12.0      | 9,640     | 1.0       | 2.0       | 0.03       | 12.0      | 30.0      |
| 61534         | 5.0       | 12.0      | 10,600    | 1.0       | 2.0       | 0.03       | 12.0      | 30.0      |
| 61535         | 5.0       | 12.0      | 9,930     | 1.0       | 2.1       | 0.02       | 12.0      | 30.0      |
| 61536         | 5.0       | 12.0      | 9,520     | 1.0       | 2.0       | 0.02       | 12.0      | 30.0      |
| 61537         | 5.0       | 13.6      | 9,610     | 1.0       | 2.0       | 0.02       | 12.0      | 30.0      |
| 61538         | 5.0       | 37.2      | 9,530     | 1.0       | 2.0       | 0.02       | 12.0      | 32.7      |
| 61539         | 5.0       | 12.0      | 9,830     | 1.0       | 2.0       | 0.02       | 12.0      | 30.0      |
| 61540         | 44.2      | 12.0      | 9,520     | 1.0       | 2.0       | 0.05       | 12.0      | 30.0      |
| 61541         | 11.6      | 12.0      | 9,660     | 1.0       | 2.0       | 0.11       | 12.0      | 30.0      |
| 61542         | 5.0       | 12.0      | 9,090     | 1.0       | 2.0       | 0.05       | 12.0      | 30.0      |

| SECTION I - MATERIAL GENERATOR  |   |  |  |
|---|---|--|--|
| 1. FMPC SRC: MTC: _____   |   | 2. PLANT AND/OR BUILDING NO.: K-65 SILO NO. 3  |  |
| 4. EQUIPMENT NAME(S): K-65 SILO 3 HOOPET, Dust Collector, Airline Valves, Steel   |   | 3. PROCESS AREA: K-65 SILO NO. 3   |  |
| 7. APPROXIMATE NET WEIGHT OF FULL CONTAINER? <input type="checkbox"/> <100 lbs. <input type="checkbox"/> 100 to 1000 lbs. <input checked="" type="checkbox"/> >1000 lbs.                    |   | 5. MEF NO. DATE: _____ MEF REV. DATE: _____  |  |
| 6. MATERIAL PHYSICAL STATE: <input type="checkbox"/> Liquid <input type="checkbox"/> Gas <input type="checkbox"/> Wet Solid <input type="checkbox"/> Dry Solid (Sludge)                     |   | 8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |  |
| 9. IS MATERIAL A WASTE? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO   |   | 11. CHEMICAL NAMES: See Attached Information   |  |
| 10. COMMON NAMES: Thorium Uranium   |   | 11. CHEMICAL NAMES: See Attached Information   |  |
| 12. COMMON/CHEMICAL NAME SOURCE: <input type="checkbox"/> Process Information <input type="checkbox"/> MSDS <input type="checkbox"/> Container Label <input type="checkbox"/> FMPC Lot Code |   | 13. SIMILAR MATERIAL NAME: Laboratory Analyses   |  |
| 14. SIMILAR MATERIAL LOT CODE(S):   |   | 13. SIMILAR MATERIAL NAME: Laboratory Analyses   |  |
| 15. SUBSTANCES SUSPECTED:   |   |  |  |
| <input type="checkbox"/> Aerosols   | <input type="checkbox"/> Cresol                       | <input type="checkbox"/> Endrine   | <input type="checkbox"/> Methylene Chloride                              |
| <input checked="" type="checkbox"/> Arsenic   | <input type="checkbox"/> m-Cresol                     | <input type="checkbox"/> Kepachlor   | <input type="checkbox"/> Motor/Engine Oil                                |
| <input checked="" type="checkbox"/> Barium  | <input type="checkbox"/> o-Cresol                     | <input type="checkbox"/> Hexachlorobenzene   | <input type="checkbox"/> Nitrobenzene                                    |
| <input type="checkbox"/> Benzene  | <input type="checkbox"/> p-Cresol                     | <input type="checkbox"/> Hexachloroethane  | <input type="checkbox"/> Other Organics                                  |
| <input checked="" type="checkbox"/> Cadmium   | <input type="checkbox"/> 2,4-D                        | <input type="checkbox"/> Hexachloro-1,3-butadiene  | <input type="checkbox"/> Paint Stripper                                  |
| <input type="checkbox"/> Carbon Tetrachloride   | <input type="checkbox"/> Degreaser                    | <input type="checkbox"/> Hydraulic Oil   | <input type="checkbox"/> Paint Thinner/Mineral Spirits                   |
| <input type="checkbox"/> Chloroform   | <input type="checkbox"/> 1,4-Dichlorobenzene          | <input type="checkbox"/> Ink   | <input type="checkbox"/> Permachlorophenol                               |
| <input type="checkbox"/> Chlorobenzene  | <input type="checkbox"/> 1,2-Dichloroethane           | <input checked="" type="checkbox"/> Lead   | <input type="checkbox"/> Perchloroethylene                               |
| <input type="checkbox"/> Chlorotorm   | <input type="checkbox"/> 1,1-Dichloroethylene         | <input type="checkbox"/> Lindane   | <input type="checkbox"/> Pyridine  |
| <input checked="" type="checkbox"/> Chromium  | <input type="checkbox"/> 2,4-Dinitrotoluene           | <input checked="" type="checkbox"/> Mercury  | <input checked="" type="checkbox"/> Selenium                             |
| <input type="checkbox"/> Coolants   | <input type="checkbox"/> Enamel                       | <input type="checkbox"/> Methoxychlor  | <input checked="" type="checkbox"/> Silver                               |
|   |   | <input type="checkbox"/> Methyl ethyl ketone   | <input type="checkbox"/> Synthetic oil                                   |
|   |   |  | <input type="checkbox"/> TBP/Kerosene                                    |
|   |   |  | <input type="checkbox"/> Tetrachloroethylene                             |
|   |   |  | <input type="checkbox"/> 1,1,1-Trichloroethane                           |
|   |   |  | <input type="checkbox"/> 2,4,6-TP (Silver)                               |
|   |   |  | <input type="checkbox"/> 2,4,5-Trichlorophenol                           |
|   |   |  | <input type="checkbox"/> 2,4,6-Trichlorophenol                           |
|   |   |  | <input type="checkbox"/> Toxaphene                                       |
|   |   |  | <input type="checkbox"/> Trichloroethylene                               |
|   |   |  | <input type="checkbox"/> Unknown   |
|   |   |  | <input type="checkbox"/> Vinyl Chloride                                  |
|   |   |  | <input type="checkbox"/> Xylene  |
|   |   |  | <input type="checkbox"/> Oil   |
| 16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY: Reference Attached Laboratory Analyses  |   |  |  |
| 16. b. SOURCE FOR REASON AND QUANTITY: (Attach MSDS if Available)   |   |  |  |
| <input type="checkbox"/> Personnel Interviews   | <input type="checkbox"/> AEDO Log                     | <input type="checkbox"/> MSDS  | <input checked="" type="checkbox"/> Prior Evaluation of Similar Material |
| <input type="checkbox"/> Historical Records   | <input checked="" type="checkbox"/> Physical Evidence | <input type="checkbox"/> Container Label   |  |
| <input type="checkbox"/> FMPC Lot Code  | <input type="checkbox"/> Process Information          | <input type="checkbox"/> Spill Report  | What Material: Silo 3 Material Sampling & Lab Analyses of 1989           |
|   |   | <input type="checkbox"/> Soil Database   | SRC: _____ MTC: _____  |
| 16. c. HEALTH AND SAFETY CONCERNS/REQUIREMENTS: MICHIGAN CERCLA Pollution Liability   |   | 18. SIGNATURE AND DATE: Thad Guile 5-17-92   |  |
| 17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED? <input type="checkbox"/> YES <input type="checkbox"/> NO  |   | 18. pH (IF KNOWN): (After Lab Results) See Analyses  |  |
| 17. NUMBER OF PHASES: _____   |   | 20. FLASH POINT (IF KNOWN): (After Lab Results) See Analyses   |  |
| 21. HAS A PAINT FILTER TEST BEEN COMPLETED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |   | Reference Laboratory Analyses. 1989/1992   |  |
| 22. IS IT REACTIVE? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |   | EXPLAIN: Please Reference Laboratory Analyses. 1989/1992   |  |
| 23. IS IT IGNITABLE? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |   | EXPLAIN: Please Reference Laboratory Analyses. 1989/1992   |  |
| 24. OTHER INFORMATION: (Example: Is the Material a Product or Waste?) Please reference attached documentation.  |   |  |  |
| 25. ADDITIONAL SOURCES OF INFORMATION: RCRA Determinations & Documentation  |   |  |  |
| 26. PRIMARY CONTACT INDIVIDUAL: S.A. RADABAUGH or H.H. Glassy   |   | EXTENSION: 9016 6971 DATE COMPLETED: 5-15-92   |  |

NOTE: Form shall be completed using ink or a typewriter. NOTE: Only WACO employees shall sign this form.

FMPC MATERIAL EVALUATION FORM (Continued)

MEF NO: 1747

MEF REV. NO:

SECTION II - FACILITY AND MATERIALS EVALUATION

1. IS MATERIAL A WASTE? 2. IS IT EXCLUDED UNDER 261.2(b)(1)? 3. IS IT EXCLUDED UNDER 261.2(b)(2)? 4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART (T)? 5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART (C)? 6. IS IT A RCRA HAZARDOUS SUBSTANCE? 7. CLASSIFICATION AS A WASTE: 8. PRIMARY BASIS FOR CLASSIFICATION: 9. IS IT SUBJECT TO LAND BAN RESTRICTIONS?

10. DISTRIBUTE PER SECTION IV, ITEM 2.

11. OTHER INFORMATION SOURCES USED: 12. PRIMARY CONTACT INDIVIDUAL: 13. IS SAMPLING REQUIRED? 14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED? 15. INFORMATION ACTION COMPLETION DATE: 16. HEALTH AND SAFETY CONCERNS REQUIREMENTS: 17. SIGNATURE AND DATE:

SECTION III - ENVIRONMENTAL ENGINEERING

1. RECOMMENDED STORAGE CONTAINER MATERIAL: 2. APPLICABLE REACTIVITY GROUP CODES: 3. OTHER INFORMATION SOURCES USED: 4. PRIMARY CONTACT INDIVIDUAL: 5. EXTENSION: 6. DATE COMPLETED:

SECTION IV - TOXIC AND SOLID WASTE PROGRAMS

1. PROPER D.O.T. SHIPPING NAME: 2. D.O.T. HAZARD CLASS: 3. REQUIRED LABELS: 4. D.O.T. IDENTIFICATION NO.: 5. EPA WASTE NO.: 6. APPLICABLE REACTIVITY GROUP CODES: 7. FMPC SRC AND MTC: 8. IS A REVISION TO MEF REQUIRED?

9. DISTRIBUTION: MATERIAL GENERATOR, ENVIRONMENTAL ENGINEERING, ENVIRONMENTAL MONITORING, MCRA, RS&T, FACILITIES AND WAREHOUSING, FILME, CONTROLLED HOLDING AREA. 18. PRIMARY CONTACT INDIVIDUAL: 19. EXTENSION: 20. DATE COMPLETED:

MEF FORM ITEM #16: RADIOLOGICAL SAFETY CONCERNS:

GENERATED WASTE ITEM MUST BE HANDLED AS A RADIOACTIVE MATERIAL, OR AS BEING POTENTIALLY CONTAMINATED WITH RADIOACTIVE MATERIAL. CONTACT RADIOLOGICAL SAFETY FOR AN RWP IF DIRECT HANDLING IS REQUIRED. DETERMINATIONS OF REMOVABLE CONTAMINATION (OR OTHER HAZARD) MAY BE REQUIRED BY RADIOLOGICAL SAFETY.

WASTE ITEMS TARGETED FOR OFFSITE DISPOSITION MUST MEET THE ACCEPTANCE CRITERIA OF THE RECEIVING FACILITY, WITH THE FACILITY LICENSED TO HANDLE SAID QUANTITIES OF WASTE RADIOACTIVITY CONTENT. THESE ITEMS MUST ALSO MEET THE TRANSPORTATION REQUIREMENTS OF 49 CFR FOR OVER THE ROAD SHIPMENT.

IF WASTE IS IN BULK FORM (ie. a liquid, powder, concrete, soils, etc.), ANALYTICAL DATA MUST ACCOMPANY EXTERIOR SURFACE CONTAMINATION MEASUREMENTS WHEN TARGETING THIS WASTE FOR UNRESTRICTED RELEASE TO COMMERCIAL TSDs OR THE PUBLIC. SHIPMENT OF THESE WASTE ITEMS MAY REQUIRE APPROVAL BY DOE.

SEALED AEROSOL CANS (completely exhausted of any interior contents), OR OTHER SOLID NON-PROCESS OR NON-RADIOACTIVE ITEMS (not in "bulk" form) CAN BE RELEASED WITHOUT RESTRICTIONS BY DIRECT EXTERNAL SURFACE CONTAMINATION SURVEYS PERFORMED BY RADIOLOGICAL SAFETY. HOWEVER, UNRESTRICTED RELEASE OF THESE WASTE ITEMS MAY REQUIRE FURTHER EVALUATION BY RADIOLOGICAL SAFETY AND NEED APPROVAL BY OTHER SITE AUTHORIZING ORGANIZATIONS.

*[Handwritten Signature]* / 8493 /  
Radiological Safety Representative / Ext. / date

Table 1  
Silo #3 Radiological Data

Volume of residues  
Estimated Mass

NLO, 1963<sup>1</sup>  
135,000 cu. ft.  
4,000,000 to 4,800,000 lbs.

NLO, 1985<sup>2</sup>  
139,000 cu. ft.  
7,700,000 lbs.

RADIOLOGICAL DATA

|                      | <u>IT RESULTS<sup>3,4</sup></u> |                    | <u>DOE 1987<sup>4</sup></u> |  |
|----------------------|---------------------------------|--------------------|-----------------------------|--|
|                      | AVERAGE<br>pCi/g                | STD. DEV.<br>pCi/g | grams                       |  |
| Ac <sup>227</sup>    | 581                             | 285                |                             |  |
| Pg <sup>231</sup>    | 557                             | 207                |                             |  |
| Th <sup>228</sup>    | 526                             | 386                |                             |  |
| Th <sup>230</sup>    | 51,678                          | 15,039             |                             |  |
| Th <sup>232</sup>    | 784                             | 289                |                             |  |
| Ra <sup>224</sup>    | 290                             | 135                | 15                          |  |
| Ra <sup>226</sup>    | 2,892                           | 1,526              |                             |  |
| Ra <sup>228</sup>    | 357                             | 155                |                             |  |
| Pb <sup>210</sup>    | 2,617                           | 1,498              |                             |  |
| U <sup>234</sup>     | 1,478                           | 435                |                             |  |
| U <sup>235/238</sup> | 100                             | 38                 |                             |  |
| U <sup>238</sup>     | 1,500                           | 480                |                             |  |

|               | ppm   | ppm   | <u>DOE, 1987<sup>2</sup></u><br>pounds | <u>NLO, 1963<sup>1</sup></u><br>pounds |
|---------------|-------|-------|--|--|
| Total Uranium | 2,999 | 1,242 | 39,600                                 | 21,497                                 |

Sources:

1. Nelson, M. S., to C. L. Karl, AEC, "Cold Metal Oxides," November 8, 1963.
2. Poff, T. A. to W. J. Grannen, "FMPC Waste Inventory Data," NLO Internal Correspondence, March 12, 1985.
3. U.S. Department of Energy (DOE), August 1990, Draft "Remedial Investigation Report for Operable Unit 4," Volume 1 of 2, Page No. 4-10.
4. U.S. Department of Energy (DOE), 1987, "Remedial Investigation and Feasibility Study, Task 1 Report."

Notes:

2. The averages and standard deviations listed were calculated from the analytical data from samples collected in 1989 and reported by IT in the source document. The IT analytical data is currently undergoing validation as of 9/10/90.

|                  | IT Analytical Results <sup>1,a</sup> |             |             |              | WMCO, 1988 <sup>2</sup> |        | NLO, 1985 <sup>2,b</sup> |  |
|------------------|--------------------------------------|-------------|-------------|--------------|-------------------------|--------|--------------------------|--|
|                  | Average %                            | Std. Dev. % | Low Value % | High Value % | %                       | %      | metric tons              |  |
| Ag               |                                      |             |             |              | 0.0300                  | <0.002 | <0.07                    |  |
| Al               | 1.7227                               | 0.3559      | 1.0800      | 2.3700       | <2                      | 2.80   | 98.67                    |  |
| As               | 0.1953                               | 0.1495      | 0.0532      | 0.6380       |                         |        |                          |  |
| Au               | 0.0016                               | 0.0004      | 0.0009      | 0.0024       |                         | <0.004 | <0.14                    |  |
| B                |                                      |             |             |              |                         | 0.02   | 0.70                     |  |
| Ba               | 0.0217                               | 0.0073      | 0.0118      | 0.0332       | 0.2000                  | 0.02   | 0.70                     |  |
| Be               | 0.0024                               | 0.0009      | 0.0010      | 0.0040       |                         |        | N/D                      |  |
| Bi               |                                      |             |             |              |                         |        | N/D                      |  |
| Ca               | 2.9373                               | 0.5948      | 2.1300      | 3.9900       | 3.0000                  | 4.10   | 144.48                   |  |
| Cd               | 0.0060                               | 0.0048      | 0.0022      | 0.0204       |                         |        |                          |  |
| Cl               |                                      |             |             |              |                         | 0.19   | 6.70                     |  |
| Co               | 0.1913                               | 0.0966      | 0.0000      | 0.3520       | <0.5                    | 0.25   | 8.81                     |  |
| Cr               | 0.0288                               | 0.0128      | 0.0139      | 0.0560       | 0.06                    | 0.05   | 1.76                     |  |
| Cu               | 0.2546                               | 0.1471      | 0.1610      | 0.7060       | 0.40                    | 0.25   | 8.81                     |  |
| F                |                                      |             |             |              |                         | 0.33   | 11.63                    |  |
| Fe               | 3.7800                               | 1.5100      | 1.3900      | 6.7600       | >4                      | 6.40   | 225.52                   |  |
| Hg               | 0.0000                               | 0.0000      | 0.0000      | 0.0001       |                         |        |                          |  |
| K                | 0.7258                               | 0.5787      | 0.1300      | 2.2800       |                         |        |                          |  |
| La               |                                      |             |             |              |                         |        | N/D                      |  |
| Mg               | 5.8582                               | 1.3994      | 3.8200      | 8.0900       | 5.00                    | 8.50   | 229.52                   |  |
| Mn               | 0.4380                               | 0.1367      | 0.2420      | 0.6500       | 0.40                    | 0.49   | 17.27                    |  |
| Mo               |                                      |             |             |              | 0.15                    | 0.06   | 2.11                     |  |
| Na               | 3.6100                               | 0.8146      | 2.2900      | 5.1700       | 0.60                    | 3.80   | 133.90                   |  |
| Ni               | 0.2975                               | 0.1352      | 0.1200      | 0.6170       | <0.5                    | 0.65   | 22.90                    |  |
| NO <sub>3</sub>  |                                      |             |             |              | 2.50                    |        |                          |  |
| Pb               | 0.1728                               | 0.0922      | 0.0646      | 0.4430       | 0.30                    | 0.25   | 8.81                     |  |
| PO <sub>4</sub>  |                                      |             |             |              | 9.00                    | 19.40  | 683.62                   |  |
| Sb               |                                      |             |             |              | 0.04                    | <0.015 | <0.53                    |  |
| Se               | 0.0174                               | 0.0072      | 0.0101      | 0.0349       |                         |        | N/D                      |  |
| SiO <sub>2</sub> |                                      |             |             |              | >12                     | 13.10  | 461.62                   |  |
| Sr               |                                      |             |             |              | 0.12                    | 0.04   | 1.41                     |  |
| SO <sub>4</sub>  |                                      |             |             |              | 9.40                    | 19.64  | 692.08                   |  |
| Ti               |                                      |             |             |              | 0.15                    | 0.06   | 2.11                     |  |
| V                | 0.1820                               | 0.1158      | 0.0418      | 0.4550       | 0.30                    | 0.10   | 3.52                     |  |
| Zn               | 0.0450                               | 0.0121      | 0.0301      | 0.0672       |                         |        |                          |  |
| Zr               |                                      |             |             |              |                         | 0.03   | 1.06                     |  |
| H <sub>2</sub> O | 6.3000                               | 2.0000      | 3.7000      | 10.200       | 6.00                    | 5.62   |                          |  |

## Sources:

1. U.S. Department of Energy (DOE), August 1990, Draft "Remedial Investigation Report for Operable Unit 4," Volume 1 of 2, Appendix B.
2. K-65 Sampling and Analysis Plan; Revision 5; 1988
3. Poff, T. A., to W. J. Grannen, "FMPC Waste Inventory Data," NLO Internal Correspondence, March 12, 1985.

## Notes:

- a. Data was originally reported by IT Analytical Services as ppm, but was converted to % for comparison purposes. Data validation is currently in progress (as of 9/26/90).
- b. Data is listed as reported in source document.

WASTE SHIPMENTS

| SURVEILLANCE NUMBER | CONTAINER NUMBER | DATE LOADING COMPLETE | PROJECT NAME          | CONTAINER CONTENTS           | DCAR NUMBER | DCAR STATUS |
|---------------------|------------------|-----------------------|-----------------------|------------------------------|-------------|-------------|
| 92306               | 15530            | 1/29/92               | Silo 3 Removal Action | Metal                        | 91-385      | Open        |
| 92307               | 157878           | 1/29/92               | Silo 3 Removal Action | Metal                        | 91-385      | Open        |
| 92187               | 268519           | 2/24/92               | Silo 3 Removal Action | Pipe/Wood/Plastic            | 91-385      | Open        |
| 92188               | 165131           | 1/29/92               | Silo 3 Removal Action | Metal (Dust Collector Parts) | 91-385      | Open        |

ENGINEERING EVALUATION COST ANALYSIS (EECA)

# K-65 SILOS REMOVAL ACTION

Feed Materials Production Branch  
Fernald, Ohio

United States Department of Energy

July 1989



BY: BECHTEL NATIONAL, INC.

| <u>ANALYTE</u> | <u>SILO #3</u> | <u>MAXIMUM ALLOWABLE CONCENTRATION<sup>2</sup></u> |
|----------------|----------------|--|
| Arsenic (ppm)  | ND - 41.5      | 5.0  |
| Barium (ppm)   | 0.020 - 0.156  | 100  |
| Cadmium (ppm)  | 0.108 - 6.32   | 1.0  |
| Chromium (ppm) | 0.336 - 11.9   | 5.0  |
| Lead (ppm)     | ND - 1.01      | 5.0  |
| Selenium (ppm) | 0.92 - 11.7    | 1.0  |
| Silver (ppm)   | ND - 0.032     | 5.0  |
| Mercury (ppm)  | ND - 0.003     | 0.2  |

ND = Not Detected

Note: Data validation is currently in progress.

Sources:

1. U.S. Department of Energy (DOE), August 1990, Draft "Remedial Investigation Report for Operable Unit 4," Volume 1 of 2, Pages 4-17.
2. 40CFR261.24

EHSI



4057

From: J. T. Witzeman (8410)

WMCO:PM&amp;A(EHSI):90-049

Date: September 28, 1990

OCT 25 2 50 PM '90

Subject: DECONTAMINATION AND DECOMMISSIONING (D&D) FACILITY  
RCRA DETERMINATION AND TCLP ANALYSIS

To : S. G. Schneider

- References:
- 1) Memorandum, WMCO:OSH(EC):88-0250, M. J. Galper to A. J. Macaulay, dated May 26, 1988.
  - 2) Memorandum, WMCO:EPE:90-112, J. T. Witzeman to S. G. Schneider, dated April 23, 1990.
  - 3) Memorandum, WMCO:EC(SW):90-242, S. G. Schneider to J. T. Witzeman, dated June 26, 1990.

Reference 2 requested your concurrence that the RCRA determination documented in Reference 1 remained valid. In Reference 3 you indicated that making a RCRA determination based on the data developed in 1988 could be done. However, you noted two areas of concern; 1) TCLP analysis will be required for any construction waste which will be disposed of after September 25, 1990. 2) Radiological contamination data was presented in parts per million as opposed to pCi/g.

Analysis for EP toxic metals performed as part of the RI/FS study did not reveal the presence of any of the eight primary metals above detectable limits. Furthermore, no hazardous organic vapors were detected at any sample location or depth. (Reference 1)

As part of the RI/FS, soil samples for radiological analysis were taken across the D&D site on a 50 ft. x 50 ft. grid at 12", 24" and 36" depths (see Attachment 1). The radiological data developed as part of the RI/FS was presented in parts per million. In order to determine radiological activity levels for the various uranium concentrations, it was assumed the uranium contaminants contained 0.5% U-235. This assumption was supported by a FMPC study of contaminated trash and soil. As can be seen from Attachment 1, no contamination in excess of the FMPC Site Procedure-720, Category 1 limit of 30 pCi/g was found. All soil excavated on this subproject will be utilized as site fill or backfill. No waste will be generated by this subproject.

Historical data has revealed that the site for the D&D Facility has never been used for any process or storage purposes. As indicated above, uranium contamination at the subproject site was below Category 1 limits, no waste will be generated by the subject subproject, analyses for EP Toxic metals were below detection and no hazardous organic vapors were detected. There is no indication that the character of the subject site

has changed since the aforementioned data was collected. Based on the aforementioned facts, TCLP analysis of the D&D site soils is not necessary and the RCRA determination documented in Reference 1 remains valid.

Please sign in the space provided below to indicate your concurrence with the aforementioned conclusions. Your return of this correspondence with your concurrence by October 12, 1990 would be appreciated.

  
J. T. Witzeman, Project Engineer  
EHSI Subproject Engineering

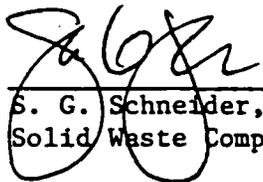
JTW/saa

Attachment

- c: F. G. Hale
- S. J. Lund
- C. G. Rieman
- K. A. Solomon
- T. J. Stone
- EHSI Project Files (3103)

\_\_\_\_\_  
Concurrence  
S. G. Schneider

If no solid waste is generated, no RCRA determination is necessary.

  
\_\_\_\_\_  
S. G. Schneider, Manager  
Solid Waste Compliance

DECONTAMINATION AND DECOMMISSIONING FACILITY

URANIUM CONTAMINATION DATA

SEPTEMBER 28, 1990

| SAMPLE<br>LOCATION | 12" DEPTH |         | 24" DEPTH |         | 36" DEPTH |         |
|--------------------|-----------|---------|-----------|---------|-----------|---------|
|                    | (ppm)     | (pCi/g) | (ppm)     | (pCi/g) | (ppm)     | (pCi/g) |
| 1                  | 22        | 15      | **        | **      | **        | **      |
| 2                  | 26        | 18      | **        | **      | **        | **      |
| 3                  | 10        | 7       | **        | **      | **        | **      |
| 4                  | 38        | 26      | **        | **      | **        | **      |
| 5                  | 21        | 14      | **        | **      | **        | **      |
| 6                  | <5        | 3       | 2.1       | 1       | 5.2       | 4       |
| 7                  | 17        | 11      | 1.6       | 1       | 1.7       | 1       |
| 8                  | 7.4       | 5       | **        | **      | **        | **      |
| 9                  | **        | **      | **        | **      | **        | **      |
| 10                 | 12        | 8       | 3.8       | 3       | 2.1       | 1       |
| 11                 | 16        | 11      | 2.3       | 2       | 2.5       | 2       |
| 12                 | <5        | 3       | **        | **      | **        | **      |
| 13                 | 43        | 29      | **        | **      | **        | **      |
| 14                 | 14        | 9       | 2.3       | 2       | 2.8       | 2       |
| 15                 | 12        | 8       | <5        | 3       | <5        | 3       |
| 16                 | <5        | 3       | **        | **      | **        | **      |
| 17                 | 9.9       | 7       | **        | **      | **        | **      |
| 18                 | 15        | 10      | 4.7       | 3       | 6.8       | 5       |
| 19                 | 9         | 6       | 5.1       | 3       | **        | **      |
| 20                 | 19        | 13      | <5        | 3       | <5        | 3       |
| 21                 | 9.6       | 6       | **        | **      | **        | **      |
| 22                 | 6.2       | 4       | **        | **      | **        | **      |
| 23                 | 15        | 10      | **        | **      | **        | **      |
| 24                 | 5.2       | 4       | <5        | 3       | **        | **      |
| 25                 | <5        | 3       | **        | **      | **        | **      |
| 26                 | 20        | 14      | **        | **      | **        | **      |
| 27                 | 21        | 14      | 9.6       | 6       | **        | **      |
| 28                 | <5        | 3       | <5        | 3       | **        | **      |
| 29                 | 13        | 9       | <5        | 3       | **        | **      |
| 30                 | <5        | 0       | <5        | 3       | **        | **      |
| 31                 | 20        | 14      | <5        | 3       | **        | **      |
| AVERAGE            | 14.4      | 9.7     | 4.4       | 2.8     | 3.9       | 2.6     |

\* PLEASE FIND ATTACHED SAMPLE LOCATION KEY.  
 \*\* DENOTES THAT NO SAMPLE WAS TAKEN.

SOURCE: FEED MATERIALS PRODUCTION CENTER REMEDIAL INVESTIGATION  
 AND FEASIBILITY STUDY-TASK 3.8

## DECONTAMINATION AND DECOMMISSIONING FACILITY

## SAMPLE LOCATION KEY

SEPTEMBER 28, 1990

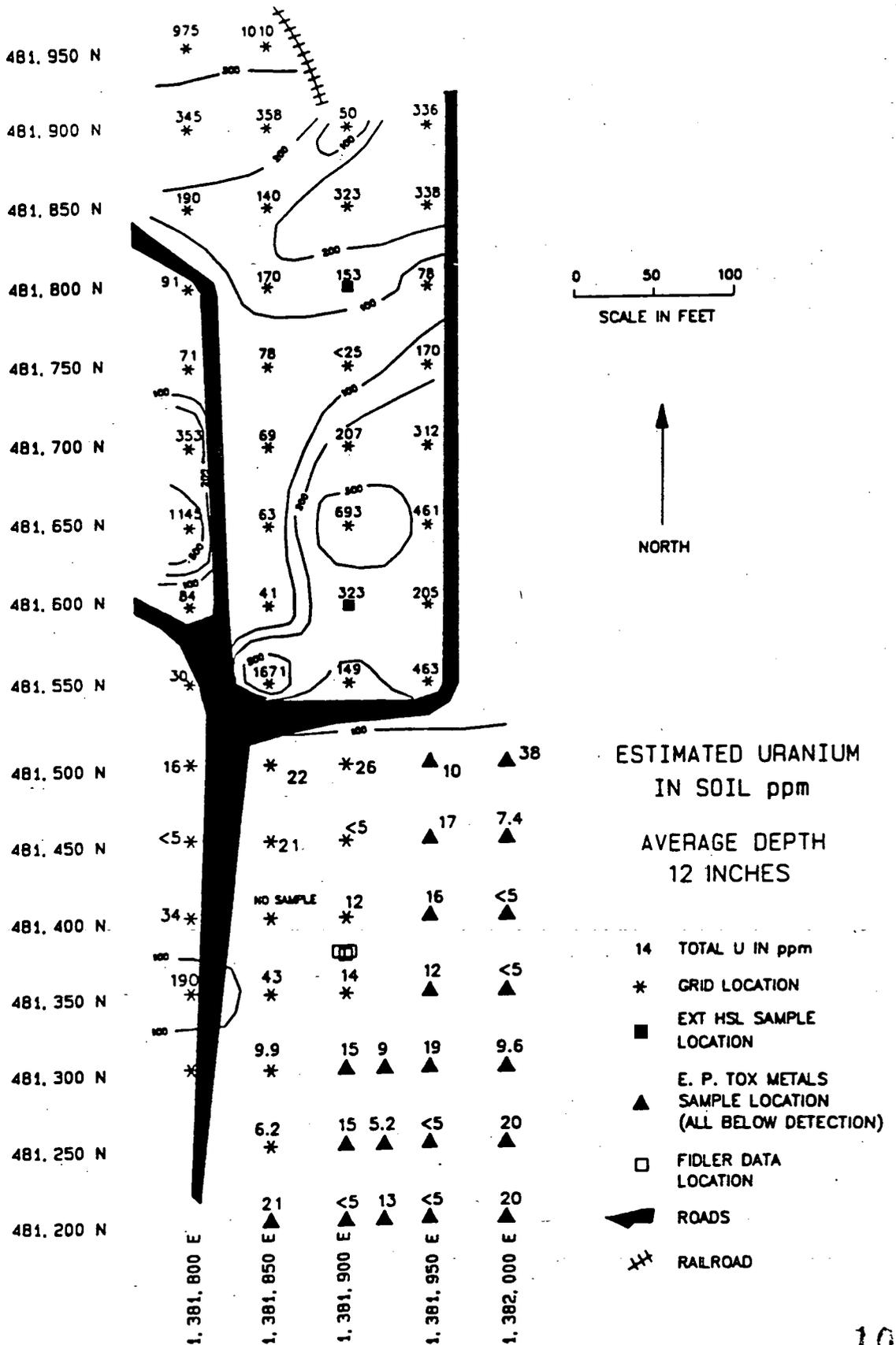
|           | 1,381,850 E | 1,381,900 E | 1,381,925 E | 1,381,950 E | 1,382,000 E |
|-----------|-------------|-------------|-------------|-------------|-------------|
| 481,500 N | 1           | 2           |             | 3           | 4           |
| 481,450 N | 5           | 6           |             | 7           | 8           |
| 481,400 N | 9           | 10          |             | 11          | 12          |
| 481,350 N | 13          | 14          |             | 15          | 16          |
| 481,300 N | 17          | 18          | 19          | 20          | 21          |
| 481,250 N | 22          | 23          | 24          | 25          | 26          |
| 481,200 N | 27          | 28          | 29          | 30          | 31          |

IF: ALL LOCATIONS ARE DENOTED IN STATE OF OHIO COORDINATES.

FORMER DRUM BALING AREA  
URANIUM IN SOIL

RI/FS TASK 3.8

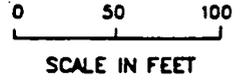
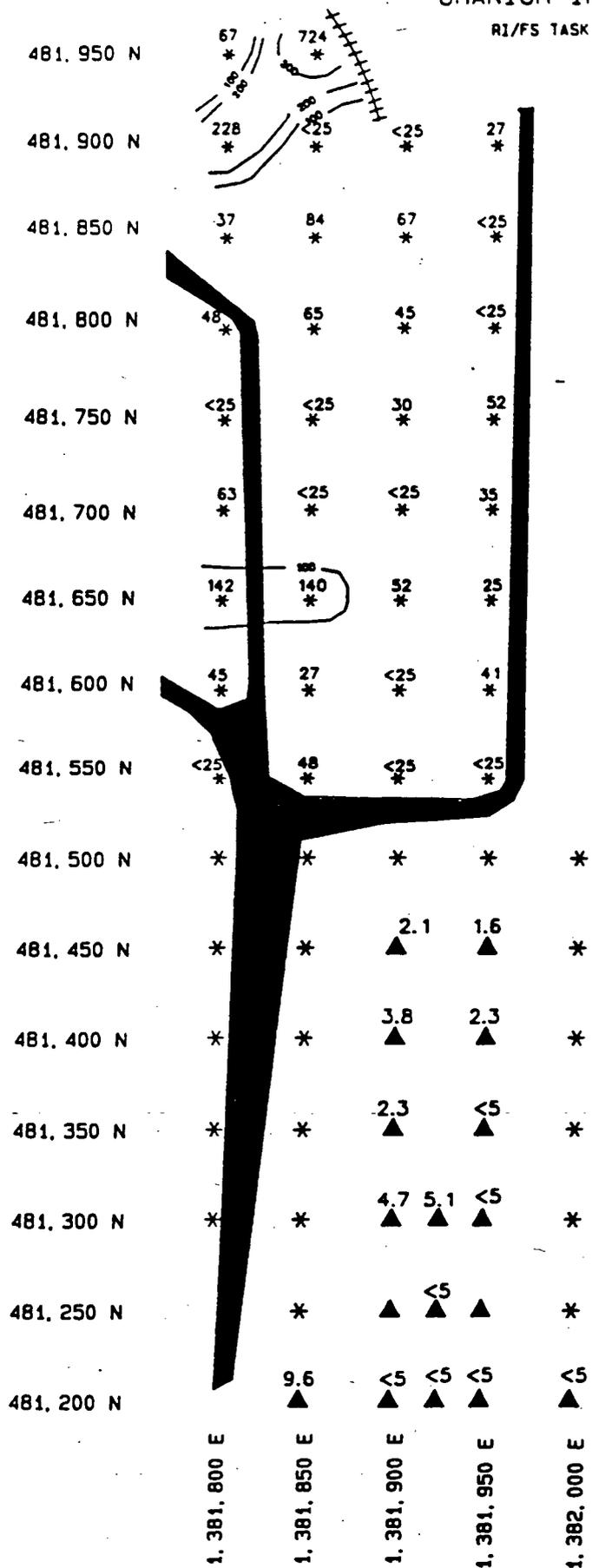
4057



FORMER DRUM BALING AREA  
URANIUM IN SOIL

RI/FS TASK 3.8

4057



ESTIMATED URANIUM  
IN SOIL ppm

AVERAGE DEPTH  
24 INCHES

▲ TOTAL U IN ppm

\* GRID LOCATION

▲ E. P. TOX METALS  
SAMPLE LOCATION  
(ALL BELOW DETECTION)

▬ ROADS

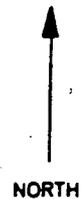
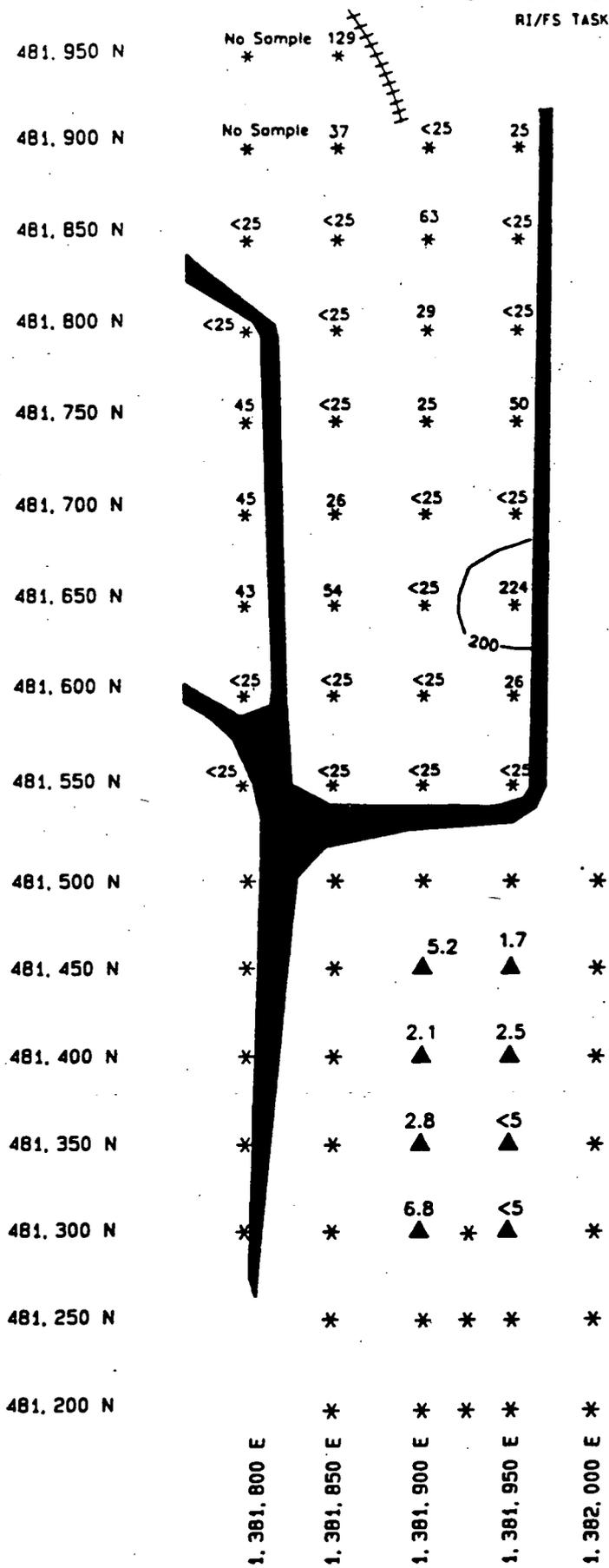
⋈ RAILROAD

105

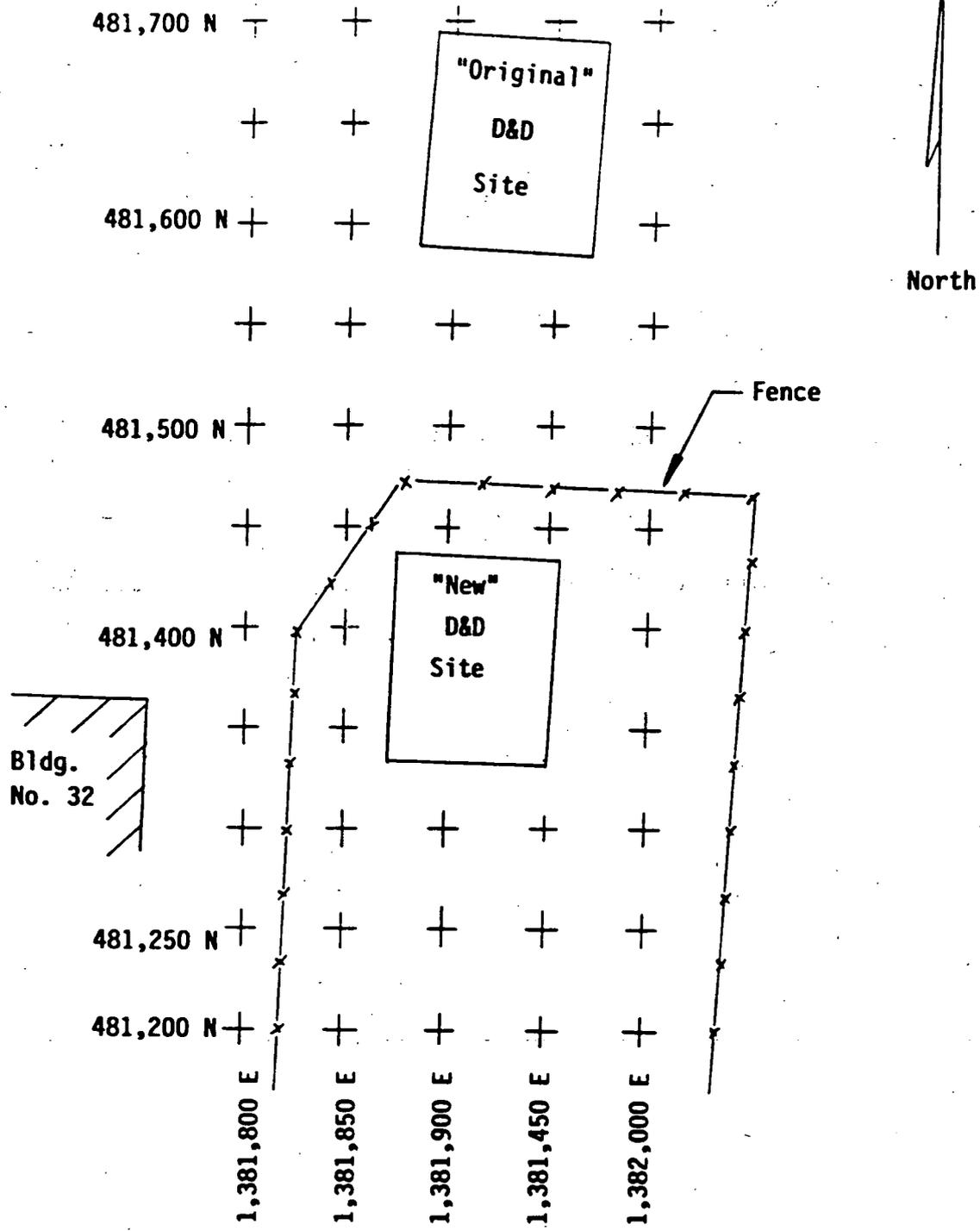
FORMER DRUM BALING AREA  
URANIUM IN SOIL

RI/FS TASK 3.8

4057



- ESTIMATED URANIUM IN SOIL ppm
- AVERAGE DEPTH 36 INCHES
- 26 TOTAL U IN ppm
- \* GRID LOCATION
- ▲ E. P. TOX METALS SAMPLE LOCATION (ALL BELOW DETECTION)
- ROADS
- ✕✕ RAILROAD



DECONTAMINATION AND DECOMMISSIONING FACILITY

Location Map



From: C. S. Waugh

WEMCO:EC&QA(OU3/FME):91-498

4057

Date: October 25, 1991

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION OF  
SEDIMENT TO BE REMOVED FROM THE STORM SEWER SYSTEM DURING  
THE PLANTWIDE STORM SEWER IMPROVEMENTS PROJECT (WBS  
1.1.2.4.03)

To :J. M. Schwing

- REFERENCE:
1. FMPC Site Procedure FMPC-720, "CONTROL OF CONSTRUCTION WASTE", issued November 10, 1988.
  2. Environmental Compliance Spill/Release Incident Tracking Report, dated August 27, 1991.
  3. Upset Condition Documentation, issued September 18, 1990.
  4. AEDO Spill Data Base.

This memo transmits the RCRA determination and radiological characterization for the sediment to be removed from the storm sewer system by the Plantwide Storm Sewer Improvements Project. The storm sewer system is to be flushed with high-pressure (55 gal/min) water in preparation for the addition of new sections and repair and replacement of existing sections of pipe within the system. The existing lines will be flushed into the stormwater retention basin.

#### PROCESS KNOWLEDGE

The Plantwide Storm Sewer Improvement project was undertaken in order to clean, repair, and expand the existing storm sewer system. The storm sewer system was constructed in the 1950s to collect and control stormwater runoff. The existing system consists of more than nine (9) miles of underground piping with 185 catch basins and manholes. Because the original system proved inadequate in controlling periods of heavy rainfall, a 6.2 million gallon retention basin was constructed in 1986 to collect excess outflow. This project will repair and replace existing lines where necessary and expand the system by installing new storm sewers, curbs, trench drains, storm sewer inlets, and manholes at various locations throughout the FEMP.

J. M. Schwing

-2- WEMCO:EC&amp;QA(OU3/FME):91-498

**SAMPLING AND ANALYSIS**

The FEMP storm sewer system has been in operation for more than 35 years. Over this period of time, spills and runoff from the production area would have drained to the system. Thus, the possibility existed that sedimentary layers of varying composition would have built up in sewer lines, particularly in elbows and areas of limited flow. Flushing of these lines could then result in discharge of radiological or RCRA hazardous materials to the stormwater retention basin. Such an action could result in identification of the retention basin as a Hazardous Waste Management Unit (HWMU) or, if particulate material proved too small to settle in the basin, in unintentional release to Paddy's Run.

Therefore, based on process knowledge and review of spill reports (References 2, 3, and 4), residue sampling was requested at ten (10) locations in the system. These locations are as follows:

- Manhole 17
- Manhole 20
- Manhole 21
- Manhole 23
- Manhole 33
- Manhole 41
- Manhole 53
- Manhole 55
- Catch Basin 13
- Catch Basin 62

Upon examination, it was determined that only two of these locations, Manholes 33 and 20, contained sediment. Manhole 33 is located on 1st Street, 75 feet north of Building 11 (Service Building). Manhole 20 is located on 2nd Street, 50 feet south of Building 19A (Tank Farm). One sediment sample was taken from each location and analyzed for metals via TCLP and for total volatile organic constituents.

All metals were well below regulated levels. Levels of organic constituents were all below detection limits.

Sampling results from the retention basin (May, 1991) also showed no presence of RCRA-regulated constituents.

J. M. Schwing

-3- WEMCO:EC&QA(OU3/FME):91-498

**RADIOLOGICAL CHARACTERIZATION**

The sediment samples were analyzed for total alpha and beta activities. Results are as follows:

| <u>Sample Location</u> | <u>Alpha (pCi/g)</u> | <u>Beta (pCi/g)</u> |
|------------------------|----------------------|---------------------|
| Manhole 20             | <9.2                 | <11                 |
| Manhole 33             | 70                   | <43                 |

These results indicate that the sediment and rinse water should be considered contaminated and should be disposed of in accordance with Reference 1.

**RCRA DETERMINATION**

Based upon the process knowledge outlined above and found in References 1 through 4, no materials have been identified that would cause the sediment waste from this project to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

The sediment waste generated from this project may be disposed of as RCRA non-hazardous (a.k.a., non-RCRA) in accordance with Reference 1. This determination applies only to the sewer line sediment described above. If any additional waste is generated subsequent to the issuance of this letter, a separate determination will be required.

Sediment from Manhole 33 was found to contain 1% chrysotile and 1% amosite asbestos. Asbestos concerns should be referred to the Air & Water Compliance group (P. B. Spotts, Manager) of the Sitewide Compliance section of EC & QA.

Based on this determination, the flushing of the storm sewer lines may proceed as scheduled.

If there are any questions, please contact Glenn Rieman at extension 6828 or myself at extension 6777.

Carolyn S. Waugh, Manager  
Facilities and Materials Evaluation  
Operable Unit 3 Compliance

DJS:djs

J. M. Schwing

-4- WEMCO:EC&QA(OU3/FME):91-498

c: S. D. Brown  
J. E. Clements  
R. L. Gardner  
R. W. Hairston  
J. E. Harmon  
T. A. Holstein  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
M. L. March

T. M. Patterson  
B. S. Perkins  
C. G. Rieman  
J. M. Sattler  
S. G. Schneider  
K. A. Solomon  
R. A. Thiel  
J. L. Trujillo  
T. J. Walsh

Central Files  
FME Files



From: C. S. Waugh

WMCO:EC(SW/FS):91-031

Date: January 7, 1991

Subject: RE-EVALUATION OF RCRA DETERMINATION FOR THE RUBBLE FROM THE PLANT 5 STORAGE PAD PROJECT, BASED UPON EP TOXICITY

To: J. R. Hughes

- Reference:
1. WMCO:EC(SW):90-342, S. G. Schneider to J. R. Hughes, "RCRA Determination and Radiological Characterization of Construction Rubble from the Plant 5 Storage Pad", dated August 7, 1990.
  2. FMPC Site Procedure, FMPC-720, "Control of Construction Waste", issued November 10, 1988.
  3. AEDO Spill Data Base.
  4. FMPC Weed Control Program File 1970 through 1990.

This memo transmits the re-evaluated RCRA determinations, reference number 1, for the seventy-nine (79) boxes of concrete, forty-one (41) boxes of concrete and soil, and the pile of soil and concrete at the northeast corner of Plant 5.

#### PROCESS KNOWLEDGE

Process knowledge from the original determination, reference number 1, indicated no RCRA materials were stored on the pad, and no spills were recorded per reference number 3.

Additional process knowledge from the FMPC Weed Control program shows no herbicides were sprayed on or around the Plant 5 Storage Area.

#### RCRA DETERMINATION

Based upon process knowledge, hazardous materials were not stored on the Plant 5 pad; there is no reason to suspect any organic or volatile materials in the waste. Herbicides were not applied on or near the pad; there is no reason to suspect herbicide in the waste (reference number 4). Based upon process knowledge and the knowledge gained through EP Toxicity metal analysis of the soil (Table Number 1), there is no reason to suspect any hazardous metals in the waste. The concrete, concrete and soil and the soil and concrete pile may be disposed of as non-RCRA material per reference number 2.



If there are any questions, please contact me at extension 6777, or Glenn Rieman at extension 6828.

*Thad Link*

C. S. Waugh, Manager  
Facility Support  
Solid Waste Compliance

CGR/dmw

Attachment

c:    W. M. Benson                    C. G. Rieman  
      S. L. Bradley                J. M. Sattler  
      J. E. Clements              E. D. Savage  
      S. J. Dechter                S. G. Schneider  
      S. R. Eleton                A. M. Schwartzman  
      R. L. Gardner                J. L. Trujillo  
      J. P. Hopper                 J. J. Volpe  
      ~~S. C. Hoskins~~             P. C. Weddle  
      H. J. Knue                    Central Files  
      L. B. Ko                      FS Files  
      S. J. Lund  
      T. M. Patterson

WMC0:EC(SW/FS):91-031

TABLE NUMBER 1  
EP TOXICITY ANALYTICAL RESULTS OF SOIL

Sample No. RC-0130-mg/l

|    | 1      | 2    | 3    | Avg. | S.D. |
|----|--------|------|------|------|------|
| As | .007   | ---- | ---- | ---- | ---- |
| Ba | .678   | .685 | .687 | .683 | .004 |
| Cd | .003   | .003 | .005 | .003 | .001 |
| Cr | .063   | .026 | .031 | .040 | .020 |
| Pb | .009   | .062 | ---- | ---- | ---- |
| Hg | .00002 | ---- | ---- | ---- | ---- |
| Se | .016   | ---- | ---- | ---- | ---- |
| Ag | .009   | ---- | ---- | ---- | ---- |

Sample No. Rc-0131-mg/L

|    | 1      | 2    | 3    | Avg. | S.D. |
|----|--------|------|------|------|------|
| Ar | .009   | ---- | ---- | ---- | ---- |
| Ba | .426   | .426 | .430 | .427 | .002 |
| Cd | .000   | .001 | .001 | .001 | .001 |
| Cr | .138   | .019 | .028 | .061 | .066 |
| Pb | .002   | .008 | ---- | ---- | ---- |
| Hg | .00008 | ---- | ---- | ---- | ---- |
| Se | .016   | ---- | ---- | ---- | ---- |
| Ag | .008   | ---- | ---- | ---- | ---- |

WMC0:EC(SW/FS):91-031

Sample No. RC-0132-mg/L

|    | 1     | 2    | 3    | Avg. | S.D.  |
|----|-------|------|------|------|-------|
| As | .006  | ---- | ---- | ---- | ----- |
| Ba | .601  | .598 | .598 | .599 | .001  |
| Cd | .001  | .000 | .002 | .001 | .000  |
| Cr | .084  | .037 | .041 | .054 | .026  |
| Pb | .0003 | .009 | ---- | ---- | ----  |
| Se | .016  | ---- | ---- | ---- | ----  |
| Ag | .010  | ---- | ---- | ---- | ----  |



From: C. G. Rieman\6828

WEMCO:EM:RCRA(FME):92-020

Date: August 4, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE NEW FIRE LINE TO THE BOILER HOUSE

To : D. T. Edwards

- Ref:
1. WEMCO Site Standard Operating Procedure, SSOP-0044, "Management of Soil, Debris and Waste from a Project", issued June 10, 1992
  2. WEMCO Safety Procedure SP-P-35-010, "Unrestricted Release of Materials From FMPC", issued March 13, 1990
  3. Environmental Compliance Spill/Release Incident Tracking Report, Dated July 21, 1992
  4. Upset Condition Documentation, issued September 18, 1990

This memo transmits the RCRA determination and radiological characterization for the waste to be generated from this project. The waste to be generated consists of 1000 cubic feet of rubble (concrete and asphalt), approximately 125,000 pounds wood (railroad ties), approximately 500 pounds, wood (shoring) approximately 100 pounds, and approximately 60 cubic feet of plastic, paper, cardboard, and protective clothing (anti-C, rubber gloves, etc.).

#### PROCESS KNOWLEDGE

This project is located in the controlled area of the FEMP on the east side of "B" Street, north of the tank farm (Fire Line FQ1-17-8"-L1) to north of the Boiler House (Fire Line FQ1-4-12"-L1), with branch lines to the Boiler House. Attachment Number I shows the location of this project.

This project will consist of installing a new 8" fire line in the location described above with 6" branch extending to the Boiler House. The soil will be excavated to a depth of approximately four feet. The soil excavated will be used as backfill and no soil will be generated from this project.

The installation of the new fire line will generate concrete and asphalt waste. Since the new line will pass under the railroad tracks, several railroad ties will also be generated as waste.

The wood waste to be generated will be new material (not pressure treated) used as shoring material in the trenches.

The plastic waste to be generated, will be from plastic sheets, used as dust barricades and plastic bags used to wrap any radiologically contaminated waste.

The cardboard and paper waste will be from off site, used to package and transport any new equipment that is to be installed.

The protective clothing to be generated (anti-C clothing, rubber gloves, etc.) will be used for worker protection, if required.

#### SAMPLING AND ANALYSIS

Three samples of asphalt were taken from the construction area and analyzed for TCLP VOAs and Semi-VOAs. Also two samples of the railroad ties were taken and analyzed for TCLP metals and Semi-VOAs. Analytical results are shown in Table Numbers 1 and 2.

#### RADIOLOGICAL CHARACTERIZATION

The waste from this project will have to be monitored by the Radiological Safety Group for proper radiological disposition per Reference Numbers 1 and 2.

#### RCRA DETERMINATION

The rubble waste (concrete and asphalt) to be generated from this project is RCRA nonhazardous (a.k.a. non-RCRA) based upon process knowledge and the analytical results (below TC regulatory levels) shown in Table 1.

The wood waste (railroad ties) to be generated from this project is also RCRA nonhazardous (a.k.a. non-RCRA) based upon the analytical results (below the TC regulatory levels) shown in Table 2.

The wood waste (new material) (shoring) to be generated from this project is RCRA nonhazardous (a.k.a. non-RCRA) based upon process knowledge of the material.

The plastic waste to be generated from this project is RCRA nonhazardous (a.k.a. non-RCRA), provided that it meets the conditions specified in MEF-1539, dated February 11, 1992, Attachment Number II.

The paper, cardboard and protective clothing to be generated from this project are RCRA nonhazardous (a.k.a. non-RCRA), provided they meet the following conditions.

- o Do not contain any entrapped liquids.
- o The waste material has not come in contact with any acutely toxic waste. Attachment Number II contains the list of acutely toxic wastes.

D. T. Edwards

-3-

WEMCO:EM:RCRA(FME):92-020

No materials have been identified that would cause the waste from this project to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-51-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristics under 40 CFR 261.24.

**SUMMARY**

The rubble waste (concrete, asphalt) and wood waste (railroad ties and shoring) can be disposed of as RCRA nonhazardous (a.k.a. non-RCRA). The plastic, paper, cardboard and protective clothing waste can also be disposed of as RCRA nonhazardous (a.k.a. non-RCRA) if they meet the conditions specified above. These waste will have to be monitored by the Radiological Safety Group for proper radiological disposition per Reference Numbers 1 and 2.

If any additional waste is generated from this project, an additional RCRA determination will be required.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.



C. G. Riemann  
Facilities and Materials Evaluation

CGR/bbs

Attachments

c w/Attachments

c: J. E. Clements  
C. L. Griffin  
L. A. Hurst  
H. J. Knue  
L. M. March  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
R. A. Thiel  
J. L. Trujillo  
K. N. Wintz

Central File  
FME File

TABLE NUMBER 1  
VOLATILE ORGANICS ANALYTICAL RESULTS

| VOLATILE ORGANICS    | MATRIX  | SAMPLE NUMBER AND LOCATION |            |            |            | REGULATORY LEVEL |
|----------------------|---------|----------------------------|------------|------------|------------|------------------|
|                      |         | mg/L                       | mg/L       | mg/L       | mg/L       |                  |
|                      |         | 920603-184                 | 920603-185 | 920603-186 | 920603-189 |                  |
| VINYL CHLORIDE       | ASPHALT | <0.15                      | <0.15      | <0.15      | <0.15      | .20              |
| 1,1-DICHLOROETHYLENE | ASPHALT | <0.12                      | <0.12      | <0.12      | <0.12      | .70              |
| 2-BUTANONE (MEK)     | ASPHALT | <0.25                      | <0.25      | <0.25      | <0.25      | 200              |
| CHLOROFORM           | ASPHALT | <0.12                      | <0.12      | <0.12      | <0.12      | 6.0              |
| CARBON TETRACHLORIDE | ASPHALT | <0.15                      | <0.15      | <0.15      | <0.15      | .50              |
| BENZENE              | ASPHALT | <0.09                      | <0.09      | <0.09      | <0.09      | .50              |
| 1,2-DICHLOROETHANE   | ASPHALT | <0.10                      | <0.10      | <0.10      | <0.10      | .50              |
| TRICHLOROETHYLENE    | ASPHALT | <0.22                      | <0.22      | <0.22      | <0.22      | .50              |
| CHLOROBENZENE        | ASPHALT | <0.19                      | <0.19      | <0.19      | <0.19      | 100              |
| TETRACHLOROETHYLENE  | ASPHALT | <0.50                      | <0.50      | <0.50      | <0.50      | .70              |
| 1,4-DICHLOROBENZENE  | ASPHALT | <0.35                      | <0.35      | <0.35      | <0.35      | 7.5              |

4057

TABLE NUMBER 1  
SEMI-VOLATILE ORGANICS ANALYTICAL RESULTS

| SEMI-VOLATILE ORGANICS    | MATRIX  | SAMPLE NUMBER AND LOCATION |            |            |            | REGULATORY LEVEL |
|---------------------------|---------|----------------------------|------------|------------|------------|------------------|
|                           |         | mg/L                       | mg/L       | mg/L       | mg/L       |                  |
|                           |         | 920603-184                 | 920603-185 | 920603-186 | 920603-189 |                  |
| PYRIDINE                  | ASPHALT | <0.08                      | <0.08      | <0.08      | <0.08      | 5.0              |
| O-CRESOL                  | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 200              |
| HEXACHLOROETHANE          | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 3.0              |
| M, P - CRESOL             | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 200              |
| NITROBENZENE              | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 2.0              |
| HEXACHLOROBUTADIENE       | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 0.5              |
| 2, 4, 6 - TRICHLOROPHENOL | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 2.0              |
| 2, 4, 5 - TRICHLOROPHENOL | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 400              |
| 2, 4 - DINITROTOLUENE     | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 0.13             |
| HEXACHLOROBENZENE         | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 0.13             |
| PENTACHLOROPHENOL         | ASPHALT | <0.04                      | <0.04      | <0.04      | <0.04      | 100              |

4057

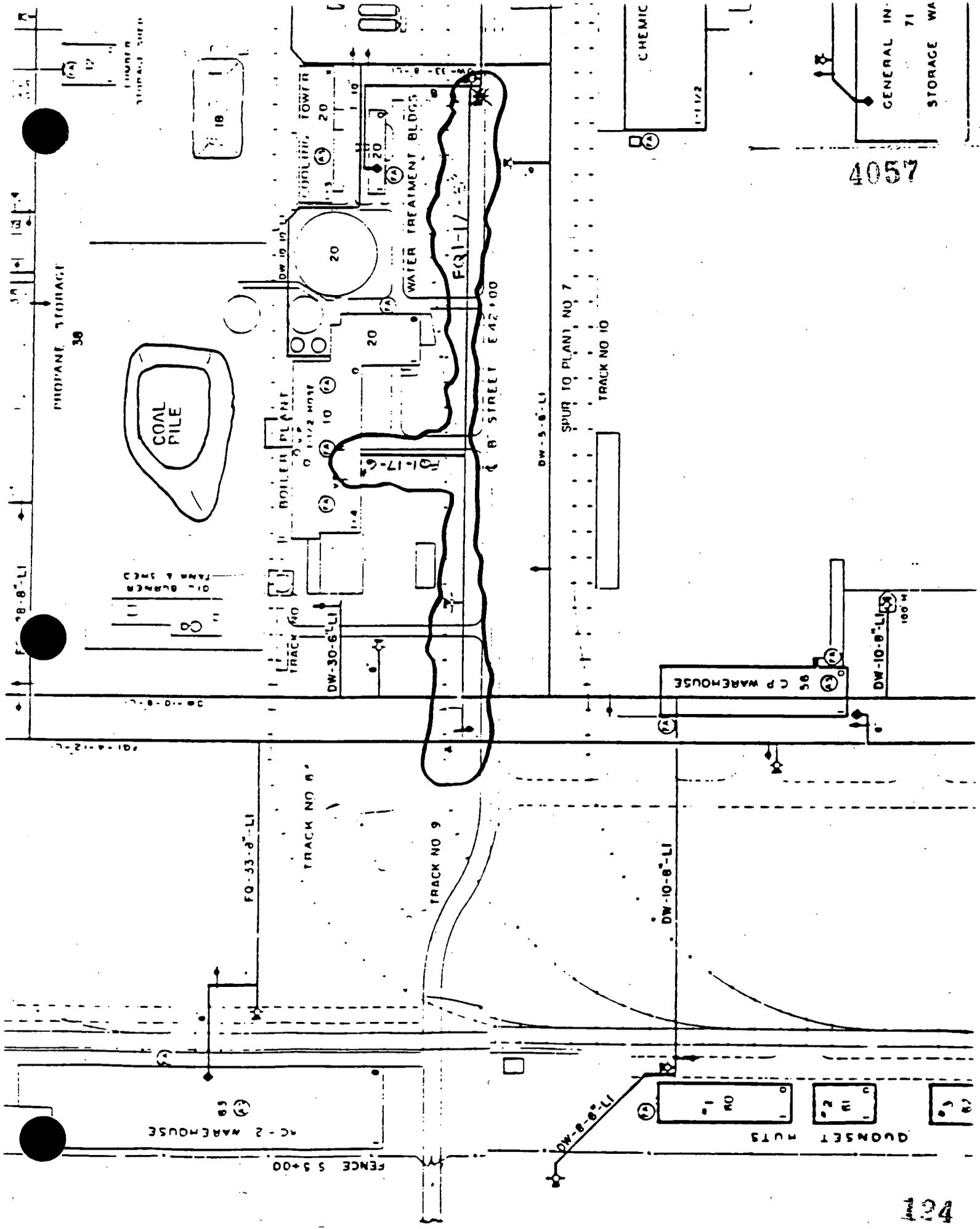
TABLE NUMBER 2  
SEMI-VOLATILE ORGANICS ANALYTICAL RESULTS

| SEMI-VOLATILE ORGANICS  | MATRIX        | SAMPLE NUMBER AND LOCATION |            |                  |
|-------------------------|---------------|----------------------------|------------|------------------|
|                         |               | mg/L                       | mg/L       | mg/L             |
|                         |               | 920603-187                 | 920603-188 | REGULATORY LEVEL |
| PYRIDINE                | RAILROAD TIES | <0.08                      | <0.08      | 5.0              |
| O-CRESOL                | RAILROAD TIES | <0.04                      | <0.04      | 200              |
| HEXACHLOROETHANE        | RAILROAD TIES | <0.04                      | <0.04      | 3.0              |
| M, P-CRESOL             | RAILROAD TIES | <0.04                      | <0.04      | 200              |
| NITROBENZENE            | RAILROAD TIES | <0.04                      | <0.04      | 2.0              |
| HEXACHLOROBUTADIENE     | RAILROAD TIES | <0.04                      | <0.04      | 0.5              |
| 2, 4, 6-TRICHLOROPHENOL | RAILROAD TIES | <0.04                      | <0.04      | 2.0              |
| 2, 4, 5-TRICHLOROPHENOL | RAILROAD TIES | <0.04                      | <0.04      | 400              |
| 2, 4-DINITROTOLUENE     | RAILROAD TIES | <0.04                      | <0.04      | 0.13             |
| HEXACHLOROBENZENE       | RAILROAD TIES | <0.04                      | <0.04      | 0.13             |
| PENTACHLOROPHENOL       | RAILROAD TIES | <0.04                      | <0.04      | 100              |

TABLE NUMBER 2  
TCLP METAL ANALYTICAL RESULTS

| SEMI-VOLATILE ORGANICS | MATRIX        | SAMPLE NUMBER AND LOCATION |            |                  |
|------------------------|---------------|----------------------------|------------|------------------|
|                        |               | mg/L                       | mg/L       | mg/L             |
|                        |               | 920603-187                 | 920603-188 | REGULATORY LEVEL |
| ARSENIC                | RAILROAD TIES | <0.010                     | 0.0107     | 5.0              |
| BARIUM                 | RAILROAD TIES | 0.9484                     | 0.9184     | 100              |
| CADMIUM                | RAILROAD TIES | 0.0124                     | 0.0050     | 1.0              |
| CHROMIUM               | RAILROAD TIES | 0.0155                     | <0.010     | 5.0              |
| LEAD                   | RAILROAD TIES | 0.041                      | 0.012      | 5.0              |
| MERCURY                | RAILROAD TIES | <0.0002                    | <0.0002    | .20              |
| SELENIUM               | RAILROAD TIES | <0.005                     | <0.005     | 1.0              |
| SILVER                 | RAILROAD TIES | 0.0110                     | <0.010     | 5.0              |

ATTACHMENT NUMBER I  
LOCATION OF CONSTRUCTION SITE



WEMCO:EM(FME):92-229<sup>4057</sup>

From: C. G. Rieman (6828)

Date: May 20, 1992

Subject: ADDITION RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE RECONSTRUCTION OF BOILER HOUSE ELEVATION 656 FEET

To: D. T. Edwards

- Ref: 1. FEMP Site Standard Operating Procedure SSOP-0044I, "Controlling the Generation of Construction/Maintenance Waste", issued February 19, 1992
2. WEMCO Safety Procedure SP-P-35-010, "Unrestricted Release of Materials from FMPC
3. Memo, WEMCO:EC(FME):92-130, C. G. Rieman to D. T. Edwards, "RCRA Determination and Radiological Characterization for the Reconstruction of Boiler House Elevation 656 Feet, Dated March 27, 1992
4. Environmental Compliance Spill/Release Incident Tracking Report, Dated April 1, 1992
5. Upset Condition Documentation, issued September 18, 1990
6. WEMCO Document No. WEMCO:EC&QA(OU3/FME):91-390, "Metal Coated With Lead Base Paint", Dated October 23, 1991
7. Letter, WEMCO:E(PM2):92-159, D. T. Edwards to S. C. Hoskins, "Revision to RCRA Determination for Waste to be Generated from the Reconstruction of the Boiler House El. 656 ft.", Dated April 6, 1992

This memo transmits additional RCRA determinations and radiological characterization for Reference 3, as requested in Reference 7 and the revised Construction Waste Identification/Disposition Form (CWID), dated January 31, 1992.

Reference 7 and the revised CWID identified additional waste that will be generated during construction of this project. This waste consists of wood (500 pounds), metal and electrical waste (conduit, fixtures, junction boxes, wire, tripper motor and two ventilators) (300 pounds), plastic (25 pounds), cardboard, paper, and work clothes (anti-C's, rubber gloves, etc.) (25 pounds).

#### PROCESS KNOWLEDGE

The wood waste to be generated will be all new materials (not pressure treated) used to construct dust barricades, structural supports and forming materials.

The metal waste generated will be from electrical conduit, light fixtures, junction boxes, wire, a tripper motor and two ventilators.

The plastic waste will be from the dust barricades and packaging material for any radiological contaminated waste.

The cardboard and paper waste will be from off site used to package and transport the new equipment that is to be installed.

The work clothes to be generated (anti-C's, rubber gloves, etc.) will be used for worker radiological protection if required.

As stated in Attachment 3, the area of construction has never been used for the production of uranium or thorium. There were no hazardous materials stored or spilled in the construction area per references 4 and 5.

#### **SAMPLING AND ANALYSIS**

Sampling and analysis will not be required due to the nature of the waste to be generated and the process knowledge available for this project.

#### **RADIOLOGICAL CHARACTERIZATION**

The waste specified above will require monitoring by the Radiological Safety Group to determine the radiological characterization for proper disposal per References 1 or 2.

#### **RCRA DETERMINATION**

The wood wastes to be generated from this project are RCRA nonhazardous (a.k.a. non RCRA) based upon process knowledge.

The plastic waste to be generated from this project is RCRA nonhazardous (a.k.a. non-RCRA), provided that it meets the conditions specified in MEF-1539, dated February 11, 1992, see Attachment I.

The metal waste to be generated from this project (electrical conduit, junction boxes, wire, and ventilators) are RCRA nonhazardous (a.k.a. non-RCRA) based upon process knowledge.

The tripper motor to be generated from this project is RCRA nonhazardous (a.k.a. non-RCRA) based upon process knowledge. Any fluids associated with the motor will have to be drained tagged, and verified by EC/QA to be free of fluids.

The paper, cardboard and work clothes (anti-C's, rubber gloves, etc) to be generated from this project are RCRA nonhazardous (a.k.a. non-RCRA) if they meet the following conditions.

- o Do not contain any entrapped liquids.
- o The waste material has not come in contact with any acutely toxic waste. Attachment II is the list of acutely toxic wastes.

The light fixtures to be generated from this project are RCRA nonhazardous (a.k.a. non-RCRA) based upon process knowledge. The light ballasts in the fixtures are not controlled by RCRA regulations, however; the light ballast should be removed and handled per Attachment Number IV.

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

#### SUMMARY

The waste materials (metal, electrical conduit, light fixtures, junction boxes, wire, electric motor, ventilators, plastic, cardboard, paper, and work clothes) are RCRA nonhazardous (a.k.a. non-RCRA) if the conditions specified above are maintained. The waste materials will have to be monitored by the Radiological Safety Group for proper radiological characterization.

If any additional waste materials are generated, they will require a separate RCRA determination and radiological characterization.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.



C. G. Rieman  
Facilities and Materials Evaluation  
Environmental Management

CGR/tmk

Attachments

- c: J. E. Clements  
L. S. Farmer  
C. L. Griffin  
J. E. Harmon  
J. P. Hopper  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
J. L. Trujillo  
T. J. Walsh  
K. N. Wintz

Central Files  
FME Files

4057

ATTACHMENT I  
MEF-1539 - PLASTIC

MATERIAL EVALUATION FORM

MEF REV. NO.: 1

| SECTION I - MATERIAL GENERATOR   |   |   |  |
|--|---|---|--|
| 1. FMPC SRC: <u>003</u>  | MTC: <u>003</u>   | 2. PLANT AND/OR BUILDING NO.: <u>5 ft wide</u>  | 3. PROCESS AREA: <u>site wide</u> <span style="float: right;">4057</span>  |
| EQUIPMENT NAME(S): <u>Waste (hazardous) liners</u>   |   | 5. MEF NO. DATE: <u>2/11/92</u>   | MEF REV. DATE: _____   |
| PROXIMATE NET WEIGHT OF FULL CONTAINER?<br><input type="checkbox"/> <100 lbs. <input type="checkbox"/> 100 to 1000 lbs. <input type="checkbox"/> >1000 lbs.  |   | 8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE?<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO | 6. MATERIAL PHYSICAL STATE:<br><input type="checkbox"/> Liquid <input type="checkbox"/> Gas<br><input type="checkbox"/> Wet Solid <input checked="" type="checkbox"/> Dry Solid (Sludge) |
| 9. IS MATERIAL A WASTE?<br><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO   | 10. COMMON NAMES: <u>plastic</u>                        | 11. CHEMICAL NAMES: <u>N/A</u>  |  |
| 12. COMMON/CHEMICAL NAME SOURCE:<br><input checked="" type="checkbox"/> Process Information <input type="checkbox"/> MSDS<br><input type="checkbox"/> Container Label <input type="checkbox"/> FMPC Lot Code | OTHER: _____  | 13. SIMILAR MATERIAL NAME: <u>N/A</u>   | 14. SIMILAR MATERIAL LOT CODE(S): <u>N/A</u>   |
| 15. SUBSTANCES SUSPECTED:  |   |   |  |
| <input type="checkbox"/> Aerosols  | <input type="checkbox"/> Cresol                         | <input type="checkbox"/> Endrine  | <input type="checkbox"/> Methylene Chloride  |
| <input type="checkbox"/> Arsenic   | <input type="checkbox"/> m-Cresol                       | <input type="checkbox"/> Heptachlor   | <input type="checkbox"/> Motor/Engine Oil  |
| <input type="checkbox"/> Barium  | <input type="checkbox"/> o-Cresol                       | <input type="checkbox"/> Hexachlorobenzene  | <input type="checkbox"/> Nitrobenzene  |
| <input type="checkbox"/> Benzene   | <input type="checkbox"/> p-Cresol                       | <input type="checkbox"/> Hexachloroethane   | <input type="checkbox"/> Other Organics  |
| <input type="checkbox"/> Cadmium   | <input type="checkbox"/> 2,4-D                          | <input type="checkbox"/> Hexachloro-1,3-butadiene   | <input type="checkbox"/> Paint Stripper  |
| <input type="checkbox"/> Carbon Tetrachloride  | <input type="checkbox"/> Degreaser                      | <input type="checkbox"/> Hydraulic Oil  | <input type="checkbox"/> Paint Thinner/Mineral Spirits   |
| <input type="checkbox"/> Chlordane   | <input type="checkbox"/> 1,4-Dichlorobenzene            | <input type="checkbox"/> Ink  | <input type="checkbox"/> Pentachlorophenol   |
| <input type="checkbox"/> Chlorobenzene   | <input type="checkbox"/> 1,2-Dichloroethane             | <input type="checkbox"/> Lead   | <input type="checkbox"/> Perchloroethylene   |
| <input type="checkbox"/> Chloroform  | <input type="checkbox"/> 1,1-Dichloroethylene           | <input type="checkbox"/> Lindane  | <input type="checkbox"/> Pyridine  |
| <input type="checkbox"/> Chromium  | <input type="checkbox"/> 2,4-Dinitrotoluene             | <input type="checkbox"/> Mercury  | <input type="checkbox"/> Selenium  |
| <input type="checkbox"/> Coolants  | <input type="checkbox"/> Enamel                         | <input type="checkbox"/> Methoxychlor   | <input type="checkbox"/> Silver  |
|  |   | <input type="checkbox"/> Methyl ethyl ketone  | <input type="checkbox"/> Synthetic oil   |
| 16. a. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY: <u>None suspected</u>  |   |   |  |
| 16. b. SOURCE FOR REASON AND QUANTITY: (Attach MSDS if Available)  |   |   |  |
| <input type="checkbox"/> Personnel Interviews  | <input type="checkbox"/> MSDS                           | <input type="checkbox"/> Prior Evaluation of Similar Material   |  |
| <input type="checkbox"/> Physical Records  | <input type="checkbox"/> Container Label                |   | What Material: _____   |
| <input type="checkbox"/> MSDS Lot Code   | <input checked="" type="checkbox"/> Physical Evidence   | <input type="checkbox"/> Sump Report  |  |
|  | <input checked="" type="checkbox"/> Process Information | <input type="checkbox"/> Spill Database   | SRC: _____ MTC: _____  |
| 16. c. HEALTH AND SAFETY CONCERNS/ REQUIREMENTS:   |   | 16. d. SIGNATURE AND DATE: <u>Paul Dyck 2-12-92</u>   |  |
| 17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED?<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   | 18. NUMBER OF PHASES: _____                             | 19. pH (IF KNOWN): (Attach Lab Results)   | 20. FLASH POINT (IF KNOWN): (Attach Lab Results)   |
| 21. HAS A PAINT FILTER TEST BEEN COMPLETED?<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |   |   |  |
| 22. IS IT REACTIVE? EXPLAIN:<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |   |   |  |
| 23. IS IT IGNITABLE? EXPLAIN:<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |   |   |  |
| 24. OTHER INFORMATION: (Example: Is the Material a Product or Waste?)  |   |   |  |
| 25. ADDITIONAL SOURCES OF INFORMATION:   |   |   |  |
| 26. PRIMARY CONTACT INDIVIDUAL: <u>Ronal Thiel</u>   | EXTENSION: <u>8685</u>                                  | DATE COMPLETED: <u>2/11/92</u>  |  |

NOTE: Form shall be completed using ink or a typewriter.  
NOTE: Only WACO employees shall sign this form.

(Continued on Reverse)



Plastic materials are considered to be RCRA nonhazardous if the following criteria are met:

- Does not contain any entrapped liquids,
- Spills which may occur on plastic (i.e., tarps) must be cleaned-up according to SOP-20-C-606 and FMPC-503 Procedure before disposal,
- Plastic insulation on electrical wire is not regulated (the wire must be addressed through the metals checklist).
- Plastic containers (i.e., sample jars) must be "empty" as defined by ORC 3745-51-07 in lieu of CFR 40 261.7,

(B)(1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste in rule 3745-51-31, 3745-51-32, or paragraph (E) of rule 3745-51-33 of the Administrative Code, is empty if:

(a) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating; and

(b) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner; or

(c)(i) No more than three percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to one hundred ten gallons in size; or

(ii) No more than 0.3 per cent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than one hundred ten gallons in size.

(2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.

(3) A container or inner liner removed from a container that has held an acute hazardous waste listed in rule 3745-51-31, 3745-51-32, or paragraph (E) of rule 3745-51-33 of the Administrative Code is empty if:

(a) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(b) The container or inner liner has been cleansed by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(c) In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

\* See attached list for acutely toxic wastes.



From: C. G. Rieman

WEMCO:EM(FME):92-130

Date: March 27, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE RECONSTRUCTION OF BOILER HOUSE ELEVATION 656 FEET

To : D. T. Edwards

- Ref: 1. FEMP Site Standard Operating Procedure SSOP-0044I, "Controlling the Generation of Construction/Maintenance Waste", issued February 19, 1992
2. Environmental Compliance Spill/Release Incident Tracking Report, dated February 28, 1992
3. Upset Condition Documentation, issued September 18, 1990
4. WEMCO Document No. WEMCO:EC&QA(OU3/FME):91-390, "Metal Coated With Lead-Based Paint", October 23, 1991

This memo transmits the RCRA determination and radiological characterization for the construction waste to be generated for the above-referenced project. The waste to be generated consists of approximately 44,440 pounds of structural steel, approximately 12,135 pounds of transite siding, and approximately 120 pounds of lead washers, anchors, and flashing.

#### PROCESS KNOWLEDGE

The project will include the removal of structural steel, steel decking, and transite asbestos siding that was damaged during the bunker coal fire on January 20, 1992. Removal of the siding will also generate lead washers, anchors, and flashing. The existing structural steel and steel decking is painted with Red Lead Primer, however, the major portion of the paint was burned off from the heat of the fire. The roof and walls are constructed of corrugated asbestos siding that is fastened using 1/4 inch bolts and lead washers. Material used in weatherproofing penetrations and connections between asbestos panels is constructed of 4-inch sheet metal lead flashing.

The area of Construction has never been used for the production of uranium or thorium. There were no hazardous materials stored or spilled in the construction area per References Numbers 2 and 3.

#### SAMPLING AND ANALYSIS

Sampling and analysis was not required due to the process knowledge available for this project.

**RADIOLOGICAL CHARACTERIZATION**

The waste to be generated (structural steel, steel decking, asbestos siding, and lead) will require monitoring by the Radiological Safety Group to determination radiological characterization for proper disposal.

**RCRA DETERMINATION**

The structural steel and steel decking has been painted with Red Lead Primer. The primer is the only potential source of hazardous constituents. Since OAC 3745-51-20(C) [40 CFR 261.20(c)] states that the entire waste must be evaluated, the following calculation is employed to mathematically determine the lead concentration taking into account the entire waste and not just the paint. The calculation is based upon the thickness ratio of paint to metal:

$$TC > V_{TCLP} \cdot (Q_p \cdot h) / \{(H \cdot Q_s) + (h \cdot Q_p)\} \cdot S\%$$

Where;

|            |   |   |
|------------|---|---|
| TC         | = | Regulatory level for lead, 5.0 ppm                      |
| $V_{TCLP}$ | = | Analytical value for lead in paint, 50 ppm              |
| h          | = | Paint thickness, inches                                 |
| H          | = | Substrate thickness, inches                             |
| $Q_p$      | = | Paint density, lb./cu.ft.                               |
| $Q_s$      | = | Substrate density, lb./cu.ft.                           |
| S%         | = | Percent of substrate's surface covered with paint, 100% |

Since the density of steel (500 lb./cu.ft.) is approximately the same as the density of paint (482 lb./cu.ft.), the above equation simplifies to the following:

$$TC = \frac{(h \cdot TCLP)}{(H + h)} \quad \text{for 100\% painted surface}$$

An average thickness for paint is 0.010 inch based on other site sampling projects. Engineering data indicates that the thinnest metal to be removed has a thickness of 0.25 inches. The lead concentration in the paint is assumed to be no greater than 50 ppm based on other site paint analyses and this concentration can be assigned as the maximum TCLP value. The TCLP lead value for 0.25 inch thick metal with 0.01 inches of paint with a concentration of 50 ppm is calculated to be 1.92 ppm. The metal waste is therefore classified as RCRA nonhazardous (a.k.a. non-RCRA).

This methodology for characterizing waste coated with lead based paint, Reference Number 4, has been submitted to Ohio EPA for review. A verbal approval for use of this method in RCRA determinations has been received.

The transite siding which contains asbestos is a RCRA nonhazardous (a.k.a. non-RCRA) waste based upon process knowledge. Handling of asbestos containing material should be handled in accordance with WEMCO procedures OS&H-P-41-006 and IH&S-IH-03.

The lead washers, anchors, and flashing is a RCRA hazardous waste. The lead waste may be disposed of as RCRA D008.

#### SUMMARY

The structural steel and steel decking waste is RCRA nonhazardous (a.k.a. non-RCRA) waste.

The transite siding which contains asbestos is RCRA nonhazardous (a.k.a. non-RCRA) waste.

The lead washers, anchors, and flashing waste is a RCRA hazardous waste. The lead waste may be disposed of as RCRA D008 waste.

This determination applies only to the steel, transite, and lead washers, anchors, and flashing listed on the Construction Waste Identification/Disposition (CWID) form date January 31, 1992.

If any additional waste is generated from this project, and additional RCRA determination will be required.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.



C. G. Rieman  
Facilities and Materials Evaluation  
Environmental Management

DAL\tnk

D. T. Edwards

-4-

WEMCO:EM(FME):92-130

c: J. E. Clements  
L. S. Farmer  
R. W. Hairston  
S. W. Heisler Jr.  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
T. M. Patterson  
B. S. Perkins  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
F. B. Thompson  
J. L. Trujillo  
T. J. Walsh

FME Files  
Central Files



From: C. S. Waugh

WEMCO: (EMT/FME):92-004

Date: January 2, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE WASTE TO BE GENERATED FROM THE CONSTRUCTION PROJECT "MULTIPLEX OFFICE TRAILERS (EPA/PARSONS OFFICE TRAILERS)"

To : J. Apple

- Reference:
1. FEMP Site Operating Requirement - IN-6031 - "Disposition of Contaminated and Uncontaminated Construction/Maintenance Waste", dated December 12, 1991
  2. Environmental Compliance Spill/Release Incident Tracking Report, dated August 27, 1991
  3. Upset Condition Documentation, issued September 18, 1990
  4. FMPC Weed Control Program File, 1980 through 1986
  5. Memo, WEMCO:EC&QA(OU3/FME):91-473, C. S. Waugh to L. Copeland, "RCRA Determination and Radiological Characterization of Construction Rubble Generated During the Steam and Condensate Line Replacement Project (P.A. #00-90101)", dated September 25, 1991
  6. Memo, WEMCO:EC&QA(OU3/FME):91-473, C. S. Waugh to J. R. Fry, "RCRA Determination and Radiological Characterization of Construction Rubble Generated During the Telecommunications Project (P.A. #00-88101)", dated September 26, 1991

This memo transmits the RCRA determination and radiological characterization for the Construction Project "Multiplex Office Trailers (EPA/Parsons Office Trailers)". The waste to be generated from this project consists of approximately 37,080 cu. ft. of soil and approximately 5 cu. ft. of concrete.

#### PROCESS KNOWLEDGE

This construction project will be located in the Uncontrolled area of the FEMP, South of the Laboratory Building Number 15.

A trench will be excavated East of the Laboratory from 1st street to the construction area West of the parking lot for water and sewer lines.

A trench will also be excavated from the construction area to the Southwest corner of the Service Building Number 11 for electric service. This project will consist of installing two 10 plex office trailers and two 2 plex office trailers. The area of construction and excavation has never been used for the production of uranium, thorium or used for any other processes. There were no hazardous materials used, stored or spilled in the construction area per reference numbers 2 and 3. The grass area west of the Administration Building Number 14 and south of the Laboratory Building Number 15, was sprayed with Herbicides per reference number 4. However, TCLP analytical results (Herbicides/Pesticides) from samples taken from the area, summarized in Table Number 2 and analytical data from other construction projects in the area (reference numbers 5 and 6) show herbicides/pesticides to be well below the regulatory limit. In addition, TCLP analytical results for TCLP Metals from other Construction Projects in the area (reference numbers 5 and 6), are all well below the regulatory limits.

#### SAMPLING AND ANALYSIS

Soil samples were taken from 13 locations affected by this construction project. Samples were taken at 0-6" depth and at 12" depth. Because of process knowledge of the area and prior sampling (reference numbers 5 & 6), only TCLP herbicides/pesticides and radiological analysis were requested. Sample locations area shown in attachment number 1, radiological results are shown in Table Number 1 and TCLP herbicides/pesticides results are shown in Table Number 2.

#### RADIOLOGICAL CHARACTERIZATION

Soil samples from reference Number 4, (Telecommunication Project) show that the soil immediately east and southeast of the Laboratory Building Number 15 to be classified as low level radiologically contaminated (greater than 100 pCi/g U), (sample points Number 1 through 7 as shown in attachment number 3). Sample points 8, 9, 10 and 11 have analytical results less than 35 pCi/g U and less than 10 pCi/g Th. This soil can be disposed of as Category I material. Sample points 12, 13 and 14 have analytical results greater than 35 pCi/g and less than 50 pCi/g Th, this soil can be disposed of as Category II materials. The above samples were taken at a depth of 0 to 6". Samples results from the same points at a depth of 12" were all below 35 pCi/g U and 10 pCi/g Th, and can be disposed of as Category I materials.

Concrete samples of the sidewalk from the Laboratory Building Number 15 to the Administration Building number 14 have analytical results less than 35 pCi/g U and less than 10 pCi/g Th, therefore this concrete can be disposed of as Category I material. Sample results are shown in attachment number 2 and sample locations are shown in attachment number 3.

Radiological analytical results shown in Table 1 show that the soil from this area can be disposed of as Category I (less than 35 pCi/g U, and less than 10 pCi/g Th), except sample point number PT-10 which was 35 pCi/g U and will have to be disposed of as Category II. Radiological analytical results are shown in Table I and sample locations are shown in attachment number 1. The soil and concrete waste from this project can be disposed of as stated above per reference number 1.

#### RCRA DETERMINATION

The construction waste to be generated from this project (soil and concrete) can be disposed of as RCRA non-hazardous (a.k.a. non-RCRA) in accordance with reference number 1. This determination is based upon process knowledge that no uranium, thorium or any other materials were processed in the construction area, no recorded spills/releases of any materials in the area, and analytical results from reference numbers 5 and 6, (TCLP metals below regulatory limits) and analytical results (TCLP herbicides/pesticides) were all below regulatory limits.

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristics under 40 CFR 261.24.

#### SUMMARY

The soil and concrete waste described above is RCRA non-hazardous (a.k.a. non RCRA), and may be disposed of in accordance with reference Number 1. This determination applies only to the soil and concrete listed on the Construction Waste Identification/Disposition (CWID) form dated October 30, 1990. If any additional waste is generated from this project, an additional RCRA determination and radiological characterization will be required.

J. Apple

-4-

WEMCO: (EMT/FME):92-004

4057

If there are any questions, please contact Glenn Rieman at extension 6828, or myself at extension 6777.

*Jerry Hoyer for C.S. Waugh*

C. S. Waugh, Manager  
Environmental Management

CGR/tmk

J. Apple

-5-

WEMCO: (EMT/FME) :92-004

c: S. D. Brown  
J. E. Clements  
R. L. Gardner  
S. D. Hairston  
J. E. Harmon  
S. W. Heisler  
A. T. Holstein  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
M. L. March

T. M. Patterson  
B. S. Perkins  
C. G. Rieman  
J. M. Sattler  
S. G. Schneider  
K. A. Solomon  
R. A. Thiel  
F. B. Thompson  
J. L. Trujillo  
T. J. Walsh  
P. C. Weddle

Central Files  
FME Files

TABLE NUMBER 1

RADIOLOGICAL ANALYTICAL RESULTS

| SAMPLE LOCATION NUMBER | MATRIX | TOTAL pCi/gm |     | TOTAL PPM |     | ISOTOPIC URANIUM Wt. % (U) |      |      | ISOTOPIC THORIUM pCi/g |       |     |     |     |
|------------------------|--------|--------------|-----|-----------|-----|----------------------------|------|------|------------------------|-------|-----|-----|-----|
|                        |        | U            | TH  | U         | TH  | 233                        | 234  | 235  | 236                    | 238   | 228 | 230 | 232 |
| PT-1-0-6"<br>EM-2437   | SOIL   |              |     |           |     |                            |      |      |                        |       |     |     |     |
| PT-2-06"<br>EM-2438    | SOIL   |              |     |           |     |                            |      |      |                        |       |     |     |     |
| PT-3-0-6"<br>EM-2439   | SOIL   |              |     |           |     |                            |      |      |                        |       |     |     |     |
| PT-4-0-6"<br>EM-2440   | SOIL   | <5.5         | 5.6 | <11       | <18 | <.001                      | .002 | 0.72 | .002                   | 99.27 |     |     |     |
| PT-5-0-6"<br>EM-2441   | SOIL   | <6.9         | 4.3 | <11       | <18 | <.001                      | .005 | 0.70 | <.001                  | 99.27 |     |     |     |
| PT-6-0-6"<br>EM-2442   | SOIL   | <7.2         | 1.8 | <11       | <18 | <.001                      | .005 | 0.72 | .006                   | 99.27 |     |     |     |
| PT-7-0-6"<br>EM-2443   | SOIL   | 15           | 5.8 | 23        | <18 | <.001                      | .005 | 0.73 | .005                   | 99.26 |     |     |     |
| PT-7-0-12"<br>EN-2445  | SOIL   |              |     | 24        | <18 |                            |      |      |                        |       |     |     |     |
| PT-8-0-6"<br>EM-2446   | SOIL   | 34           | 5.2 | 57        | <18 | <.001                      | .004 | 0.73 | .006                   | 99.26 |     |     |     |
| PT-8-0-12"<br>EN-2447  | SOIL   |              |     | 61        | <18 |                            |      |      |                        |       |     |     |     |
| PT-9-0-6"<br>EM-2448   | SOIL   | 19           | 4.7 | 32        | <18 | <.001                      | .004 | 0.73 | .007                   | 99.26 |     |     |     |
| PT-9-0-12"<br>EM-2449  | SOIL   |              |     | 37        | <18 |                            |      |      |                        |       |     |     |     |
| PT-10-0-6"<br>EM-2450  | SOIL   | 35           | 6.0 | 50        | <18 | <.001                      | .006 | 0.74 | .008                   | 99.25 |     |     |     |
| PT-10-0-12"<br>EM-2452 | SOIL   |              |     | 37        | <18 |                            |      |      |                        |       |     |     |     |

4057



TABLE NUMBER 2  
 HERBICIDE/PESTICIDE ANALYTICAL RESULTS

| ANALYTE            | MATRIX | SAMPLE LOCATION AND NUMBER |                      |                      |                      |                      |      |
|--------------------|--------|----------------------------|----------------------|----------------------|----------------------|----------------------|------|
|                    |        | PT-1-0-6"<br>EM-2437       | PT-2-0-6"<br>EM-2438 | PT-3-0-6"<br>3M-2439 | PT-7-0-6"<br>EM-2443 | PT-8-0-6"<br>EM-2446 | ug/l |
| TCLP HERBICIDES    |        | ug/l                       | ug/l                 | ug/l                 | ug/l                 | ug/l                 | ug/l |
| 2,4-D              | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| SILVER (2,4,5-TP)  | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| TCLP PESTICIDES    |        |                            |                      |                      |                      |                      |      |
| ENDRIN             | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| HEPTACHLOR         | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| HEPTACHLOR EPOXIDE | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| LINDANE            | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| CHLORDANE          | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| METHOXYCHLOR       | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
| TOXAPHENE          | SOIL   | ND                         | ND                   | ND                   | ND                   | ND                   | ND   |
|                    |        |                            |                      |                      |                      |                      |      |
|                    |        |                            |                      |                      |                      |                      |      |
|                    |        |                            |                      |                      |                      |                      |      |

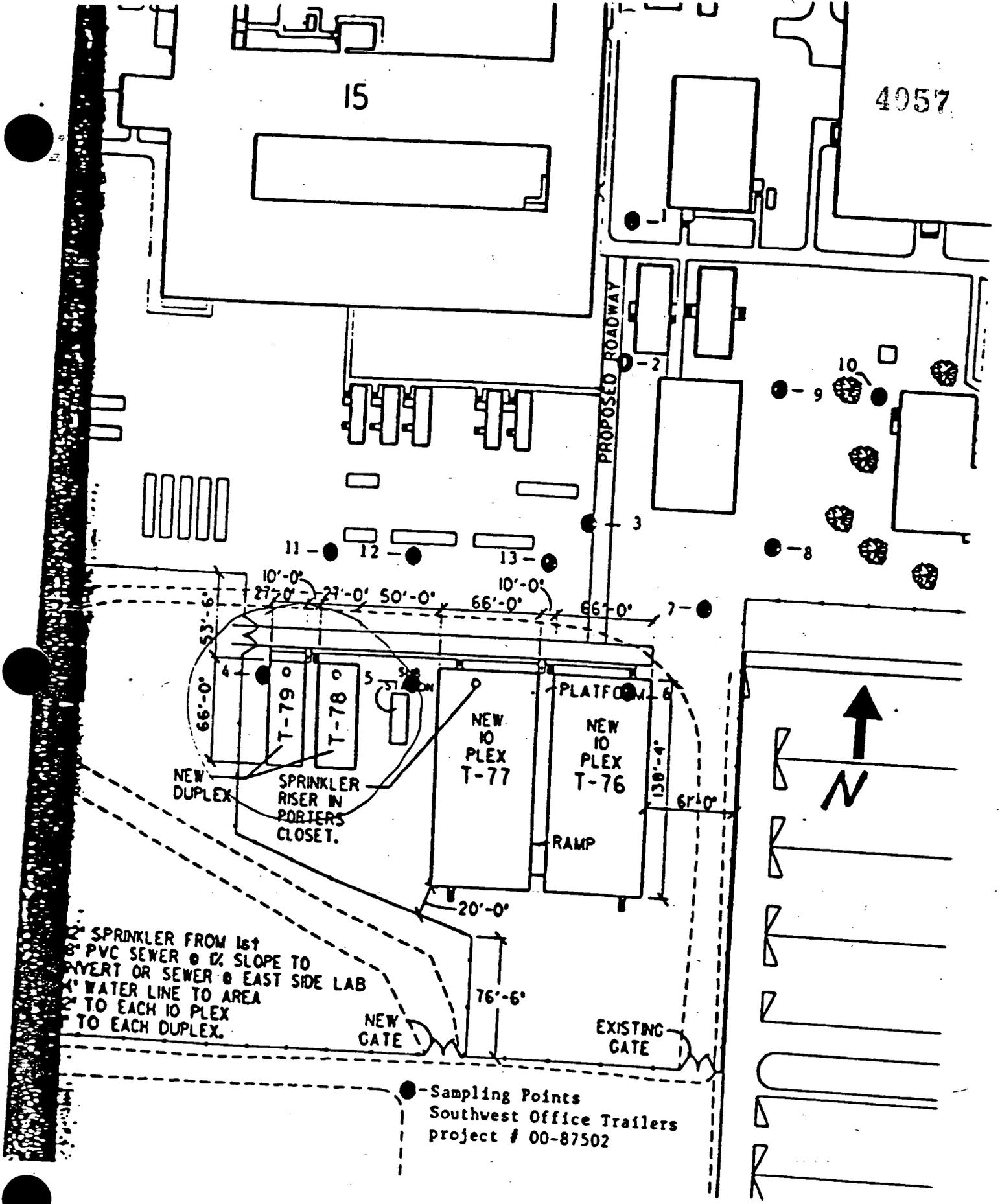
4057

4057

ATTACHMENT NUMBER 1

SAMPLE LOCATIONS

-145



SPRINKLER FROM 1st  
 8" PVC SEWER @ 1% SLOPE TO  
 INVERT OR SEWER @ EAST SIDE LAB  
 4" WATER LINE TO AREA  
 TO EACH IO PLEX  
 TO EACH DUPLEX.

● Sampling Points  
 Southwest Office Trailers  
 project # 00-87502

**SOUTHWEST OFFICE  
 TRAILERS**

4057

ATTACHMENT NUMBER 2  
ANALYTICAL RESULTS FROM REFERENCE NUMBER 6

| Computer Sample No. | CUSTOMER NUMBER | DATE SAMPLED | MATL DESCRIPTION                | ANALYSIS                   | RESULT         |
|---------------------|-----------------|--------------|---------------------------------|----------------------------|----------------|
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | U Activity Calc - 150 RAD  | 290 pCi/g      |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | Beta Activity - 150 RAD    | 62 pCi/g       |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | Alpha Activity - 150 RAD   | 260 pCi/g      |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | U-234 - 150 TMS            | 0.004 Wt % (U) |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | U-235 - 150 TMS            | 0.73 Wt % (U)  |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | U-236 - 150 TMS            | 0.002 Wt % (U) |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | U-238 - 150 TMS            | 99.27 Wt % (U) |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | Total Th - 155 Am          | 24 ppm         |
| 000720-054          | EA-1462         | 23-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-0    | Total U - 155 Am           | 431 ppm        |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | U Activity Calc - 150 RAD  | 300 pCi/g      |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | Beta Activity - 150 RAD    | 194 pCi/g      |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | Alpha Activity - 150 RAD   | 200 pCi/g      |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | U-234 - 150 TMS            | 0.005 Wt % (U) |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | U-235 - 150 TMS            | 0.74 Wt % (U)  |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | U-236 - 150 TMS            | 0.005 Wt % (U) |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | U-238 - 150 TMS            | 99.25 Wt % (U) |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | Total Th - 155 Am          | 37 ppm         |
| 0007-059            | EA-1450         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 02-0 | Total U - 155 Am           | 432 ppm        |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | Th Activity Calc - 150 RAD | 39 pCi/g       |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | U Activity Calc - 150 RAD  | 220 pCi/g      |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | Beta Activity - 150 RAD    | 195 pCi/g      |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | Alpha Activity - 150 RAD   | 130 pCi/g      |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | Th-228 - 150 RAD           | 13 pCi/g       |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | U-234 - 150 TMS            | 0.004 Wt % (U) |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | U-235 - 150 TMS            | 0.72 Wt % (U)  |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | U-236 - 150 TMS            | 0.004 Wt % (U) |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | U-238 - 150 TMS            | 99.27 Wt % (U) |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | Total Th - 155 Am          | 88 ppm         |
| 0007-059            | EA-1451         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 03-0 | Total U - 155 Am           | 328 ppm        |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | U Activity Calc - 150 RAD  | 180 pCi/g      |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | Beta Activity - 150 RAD    | 195 pCi/g      |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | Alpha Activity - 150 RAD   | 91 pCi/g       |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | U-234 - 150 TMS            | 0.005 Wt % (U) |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | U-235 - 150 TMS            | 0.76 Wt % (U)  |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | U-236 - 150 TMS            | 0.006 Wt % (U) |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | U-238 - 150 TMS            | 99.23 Wt % (U) |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | Total Th - 155 Am          | 118 ppm        |
| 001                 | EA-1452         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 04-0 | Total U - 155 Am           | 267 ppm        |

4057

| Computer Sample No. | CUSTOMER NUMBER | DATE SAMPLED | WELL DESCRIPTION                | ANALYSIS                  | RESULT | UNITS    |
|---------------------|-----------------|--------------|---------------------------------|---------------------------|--------|----------|
| 062                 | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | U Activity Calc - 150 RAD | 190    | pCi/g    |
| 607-062             | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | Beta Activity - 150 RAD   | <95    | pCi/g    |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | Alpha Activity - 150 RAD  | 130    | pCi/g    |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | U-234 - 150 D6            | 0.004  | Wt % (U) |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | U-235 - 150 D6            | 0.72   | Wt % (U) |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | U-236 - 150 D6            | 0.007  | Wt % (U) |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | U-238 - 150 D6            | 99.27  | Wt % (U) |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | Total Th - 150 Ar         | <18    | ppm      |
| 900607-062          | EA-1453         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 85-0 | Total U - 150 Ar          | 778    | ppm      |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | U Activity Calc - 150 RAD | 140    | pCi/g    |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | Beta Activity - 150 RAD   | <95    | pCi/g    |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | Alpha Activity - 150 RAD  | <81    | pCi/g    |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | U-234 - 150 TMS           | 0.005  | Wt % (U) |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | U-235 - 150 TMS           | 0.75   | Wt % (U) |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | U-236 - 150 TMS           | 0.006  | Wt % (U) |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | U-238 - 150 TMS           | 99.24  | Wt % (U) |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | Total Th - 150 Ar         | <18    | ppm      |
| 900607-063          | EA-1454         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 86-0 | Total U - 150 Ar          | 201    | ppm      |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | U Activity Calc - 150 RAD | 92     | pCi/g    |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | Beta Activity - 150 RAD   | <94    | pCi/g    |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | Alpha Activity - 150 RAD  | <79    | pCi/g    |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | U-234 - 150 TMS           | 0.006  | Wt % (U) |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | U-235 - 150 TMS           | 0.78   | Wt % (U) |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | U-236 - 150 TMS           | 0.008  | Wt % (U) |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | U-238 - 150 TMS           | 99.20  | Wt % (U) |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | Total Th - 150 Ar         | <18    | ppm      |
| 07-064              | EA-1455         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 87-0 | Total U - 150 Ar          | 132    | ppm      |
| 051                 | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 88-0    | Beta Activity - 150 RAD   | <55    | pCi/g    |
| 051                 | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 88-0    | Alpha Activity - 150 RAD  | 41     | pCi/g    |
| 051                 | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 88-0    | Total Th - 150 Ar         | <18    | ppm      |
| 051                 | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 88-0    | Total U - 150 Ar          | 34     | ppm      |

| Computer Sample No. | CUSTOMER NUMBER | DATE SAMPLED | NATL DESCRIPTION                 | ANALYSIS                  | RESULTS        |
|---------------------|-----------------|--------------|----------------------------------|---------------------------|----------------|
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | U Activity Calc - 150 RAD | 32 pCi/g       |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | Beta Activity - 150 RAD   | 156 pCi/g      |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | Alpha Activity - 150 RAD  | 37 pCi/g       |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | U-234 - 150 DIS           | 0.005 wt % (U) |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | U-235 - 150 DIS           | 0.76 wt % (U)  |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | U-238 - 150 DIS           | 0.007 wt % (U) |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | U-238 - 150 DIS           | 99.23 wt % (U) |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | Total Th - 150 AUC        | 118 ppm        |
| 900726-052          | EA-1476         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 89-0     | Total U - 150 AUC         | 46 ppm         |
| 900726-052          | EA-1450         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 810-0    | Beta Activity - 150 RAD   | 155 pCi/g      |
| 900726-052          | EA-1450         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 810-0    | Alpha Activity - 150 RAD  | 129 pCi/g      |
| 900726-052          | EA-1450         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 810-0    | Total Th - 150 AUC        | 116 ppm        |
| 900726-052          | EA-1450         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 810-0    | Total U - 150 AUC         | 33 ppm         |
| 00807-065           | EA-1456         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 811-0 | Beta Activity - 150 RAD   | 195 pCi/g      |
| 00807-065           | EA-1456         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 811-0 | Alpha Activity - 150 RAD  | 181 pCi/g      |
| 00807-065           | EA-1456         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 811-0 | Total Th - 150 AUC        | 118 ppm        |
| 00807-065           | EA-1456         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 811-0 | Total U - 150 AUC         | 19 ppm         |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | U Activity Calc - 150 RAD | 42 pCi/g       |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | Beta Activity - 150 RAD   | 195 pCi/g      |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | Alpha Activity - 150 RAD  | 180 pCi/g      |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | U-234 - 150 DIS           | 0.005 wt % (U) |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | U-235 - 150 DIS           | 0.76 wt % (U)  |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | U-238 - 150 DIS           | 0.006 wt % (U) |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | U-238 - 150 DIS           | 99.23 wt % (U) |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | Total Th - 150 AUC        | 118 ppm        |
| 00807-066           | EA-1458         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 812-0 | Total U - 150 AUC         | 61 ppm         |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | U Activity Calc - 150 RAD | 44 pCi/g       |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | Beta Activity - 150 RAD   | 195 pCi/g      |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | Alpha Activity - 150 RAD  | 180 pCi/g      |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | U-234 - 150 DIS           | 0.005 wt % (U) |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | U-235 - 150 DIS           | 0.76 wt % (U)  |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | U-238 - 150 DIS           | 0.007 wt % (U) |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | U-238 - 150 DIS           | 99.23 wt % (U) |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | Total Th - 150 AUC        | 118 ppm        |
| 07-067              | EA-1460         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 813-0 | Total U - 150 AUC         | 64 ppm         |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | U Activity Calc - 150 RAD | 39 pCi/g       |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | Beta Activity - 150 RAD   | 195 pCi/g      |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | Alpha Activity - 150 RAD  | 181 pCi/g      |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | U-234 - 150 DIS           | 0.005 wt % (U) |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | U-235 - 150 DIS           | 0.77 wt % (U)  |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | U-238 - 150 DIS           | 0.006 wt % (U) |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | U-238 - 150 DIS           | 99.22 wt % (U) |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | Total Th - 150 AUC        | 118 ppm        |
| 7-068               | EA-1462         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT 814-0 | Total U - 150 AUC         | 56 ppm         |

4057

| Computer Sample No. | CUSTOMER NUMBER | DATE SAMPLED | MATERIAL DESCRIPTION            | ANALYSIS           | RESULT | UNITS |
|---------------------|-----------------|--------------|---------------------------------|--------------------|--------|-------|
| 900724-046          | EA-1463         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-1    | Total Tn - 156 ArL | <18    | ppm   |
| 900724-046          | EA-1463         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 01-1    | Total U - 156 ArL  | 45     | ppm   |
| 900724-047          | EA-1441         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.02-1 | Total Tn - 156 ArL | <18    | ppm   |
| 900724-047          | EA-1441         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.02-1 | Total U - 156 ArL  | 49     | ppm   |
| 900724-048          | EA-1442         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.03-1 | Total Tn - 156 ArL | <18    | ppm   |
| 900724-048          | EA-1442         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.03-1 | Total U - 156 ArL  | 16     | ppm   |
| 900724-049          | EA-1443         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.04-1 | Total Tn - 156 ArL | <18    | ppm   |
| 900724-049          | EA-1443         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.04-1 | Total U - 156 ArL  | 12     | ppm   |
| 900724-100          | EA-1444         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.05-1 | Total Tn - 156 ArL | <18    | ppm   |
| 900724-100          | EA-1444         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.05-1 | Total U - 156 ArL  | 12     | ppm   |
| 900724-101          | EA-1445         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.06-1 | Total Tn - 156 ArL | <18    | ppm   |
| 900724-101          | EA-1445         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.06-1 | Total U - 156 ArL  | 27     | ppm   |
| 900724-102          | EA-1446         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.07-1 | Total Tn - 156 ArL | <18    | ppm   |
| 900724-102          | EA-1446         | 19-Jul-1990  | SOIL-TELECOMMUNICATIONS PT.07-1 | Total U - 156 ArL  | <11    | ppm   |
| 900724-145          | EA-1477         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 08-1    | Total Tn - 156 ArL | <18    | ppm   |
| 900724-145          | EA-1477         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 08-1    | Total U - 156 ArL  | <11    | ppm   |
| 720-046             | EA-1479         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 09-1    | Total Tn - 156 ArL | <18    | ppm   |
| 720-046             | EA-1479         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 09-1    | Total U - 156 ArL  | 27     | ppm   |
| 720-047             | EA-1481         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 010-1   | Total Tn - 156 ArL | <18    | ppm   |
| 720-047             | EA-1481         | 25-Jul-1990  | SOIL-TELECOMMUNICATIONS 010-1   | Total U - 156 ArL  | 21     | ppm   |
| 720-077             | EA-1457         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT011-1 | Total Tn - 156 ArL | <18    | ppm   |
| 720-077             | EA-1457         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT011-1 | Total U - 156 ArL  | 22     | ppm   |
| 720-078             | EA-1459         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT012-1 | Total Tn - 156 ArL | <18    | ppm   |
| 720-078             | EA-1459         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT012-1 | Total U - 156 ArL  | 17     | ppm   |
| 720-079             | EA-1461         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT013-1 | Total Tn - 156 ArL | <18    | ppm   |
| 720-079             | EA-1461         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT013-1 | Total U - 156 ArL  | 29     | ppm   |
| 720-080             | EA-1463         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT014-1 | Total Tn - 156 ArL | <18    | ppm   |
| 720-080             | EA-1463         | 23-Jul-1990  | SOIL-TELECOMM LINE PRJT PT014-1 | Total U - 156 ArL  | 16     | ppm   |

Westinghouse Materials Co of Ohio  
Analytical Chemistry Department  
Results of Analyses

4057

Analysis ID: 990019-27    Project: 0020 0001    Customer Sample ID: EM-1709  
 Customer: ENR. COMPLIANCE    Requisition Number:  
 Date Sampled: 5-SEP-1990    Date Sample Received: 17-SEP-1990  
 Sampled by: L.W.M.    Date Sample Completed: 9-JAN-1991  
 Material Description: CONCRETE-TELECOM.SIDWALK PROJ.    Charge Number: 00601

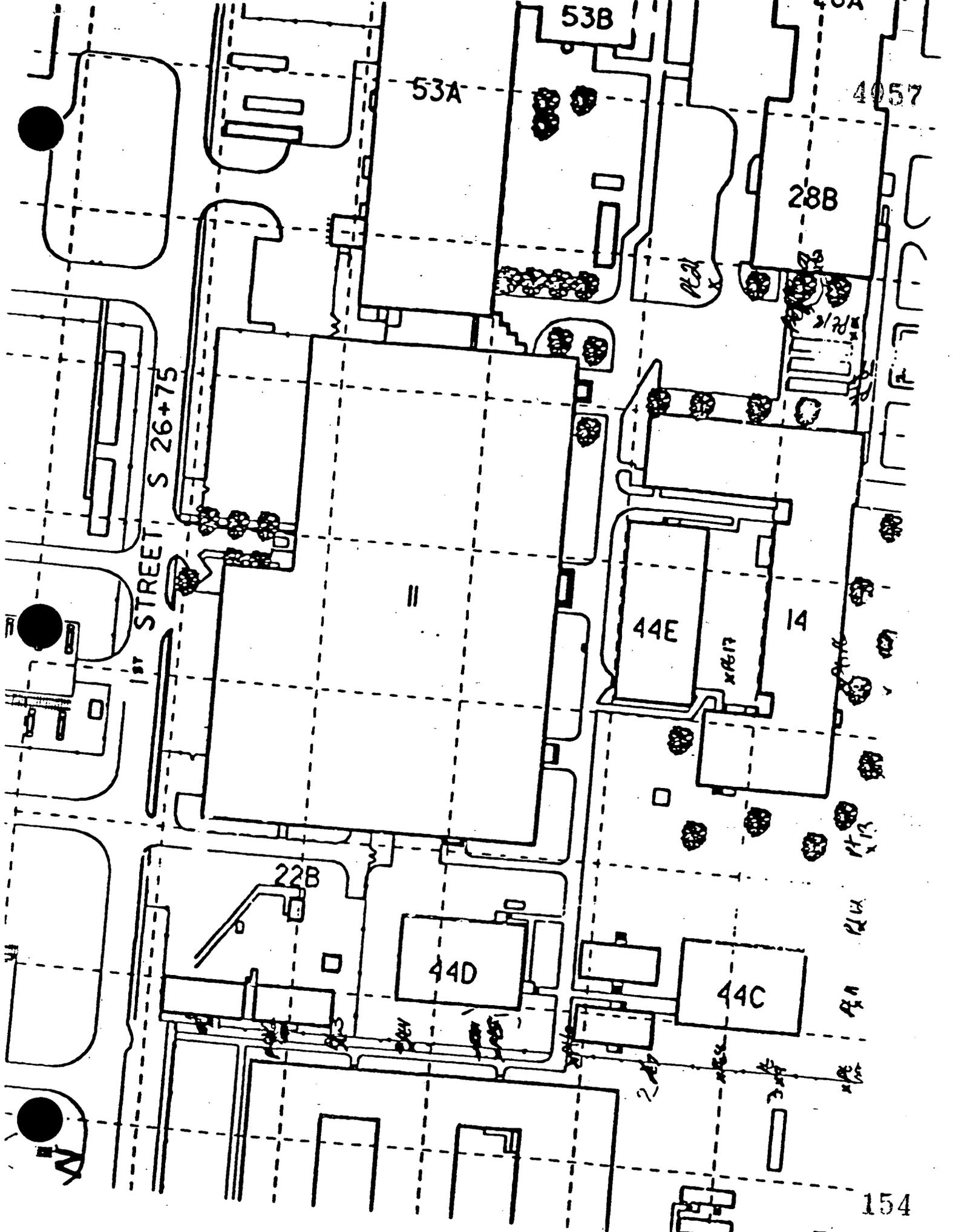
| Procedure No. | Analysis                   | Result | Units | Analyst    | BA File Number | Date Completed |
|---------------|----------------------------|--------|-------|------------|----------------|----------------|
| 000044        | Th Activity Calc - 100 RAD | 3.0    | µCi/g | PJ STOY    | 4024-90-052    | 9-JAN-1991     |
| 000044        | U Activity Calc - 100 RAD  | 0.7    | µCi/g | KE CHILES  | 4018-90-046    | 15-OCT-1990    |
| 024           | Th-230 - 100 RAD           | 3.0    | µCi/g | PJ STOY    | 4024-90-052    | 9-JAN-1991     |
| 024           | Th-230 - 100 RAD           | 3.0    | µCi/g | PJ STOY    | 4024-90-052    | 9-JAN-1991     |
| 05            | U-234 - 100 TMS            | 0.004  | µCi/g | BA STEWART | 4018-90-046    | 12-OCT-1990    |
| 05            | U-235 - 100 TMS            | 0.75   | µCi/g | BA STEWART | 4018-90-046    | 12-OCT-1990    |
| 05            | U-236 - 100 TMS            | 0.010  | µCi/g | BA STEWART | 4018-90-046    | 12-OCT-1990    |
| 05            | U-238 - 100 TMS            | 99.23  | µCi/g | BA STEWART | 4018-90-046    | 12-OCT-1990    |

|        |         |            |                                |                            |       |       |       |
|--------|---------|------------|--------------------------------|----------------------------|-------|-------|-------|
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | Th - Color Amt             | -     | 0.45  | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | Th Activity Calc - 100 RAD | -     | 3.0   | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | U Activity Calc - 100 RAD  | -     | 0.7   | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | Th-230 - 100 RAD           | +++++ | 3.0   | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | Th-230 - 100 RAD           | +++++ | 3.0   | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | U-234 - 100 TMS            | +++++ | 0.004 | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | U-235 - 100 TMS            |       | 0.75  | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | U-236 - 100 TMS            |       | 0.010 | µCi/g |
| 19-071 | EM-1709 | 5-Sep-1990 | CONCRETE-TELECOM.SIDWALK PROJ. | U-238 - 100 TMS            |       | 99.23 | µCi/g |

4052

4057

ATTACHMENT NUMBER 3  
SAMPLE LOCATIONS FROM REFERENCE NUMBER 6



53A

53B

4057

288

1ST STREET S 26+75

44E

14

22B

44D

44C

154



From: C. S. Waugh

WEMCO: (EMT/FME):92-002

Date: November 21, 1991

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE CONSTRUCTION PROJECT "DUPLEX OFFICE TRAILERS WEST OF PLANT 5

To : L. Copeland

- Reference:
1. FEMP Operation Requirement, IN-6015 - "Disposition Requirements for Radiologically Contaminated and Uncontaminated Construction/Maintenance Waste", issued September 17, 1991
  2. AEDO Spill Data Base
  3. Environmental Compliance Spill/Release Incident Tracking Report, dated August 27, 1991
  4. Upset Condition Documentation, issued September 18, 1989
  5. FEMP Weed Control Program File, 1980 through 1986

This memo transmits the RCRA Determination and Radiological Characterization for the Construction Project, "Duplex Trailers southwest of Plant 5.

The waste to be generated from this project consists of 11,200 cu. ft. of soil and 129 cu. ft. of concrete.

#### PROCESS KNOWLEDGE

This project is located in the controlled area of the FEMP, in the grass area southwest of Plant 5.

This area was never used to process or store uranium, thorium or any other materials. This project consists of installing three (3) duplex trailers. A trench will be excavated (three feet wide by three feet deep) for installation of water lines (sanitary and fire) and sewer lines. This trench will be located south and west of Plant 5. The soil and concrete will be generated from this excavation.

L. Copeland

-2-

WEMCO: (EMT/FME):92-002

There were no recorded spills or releases in this area per reference numbers 2, 3 and 4. The area was not treated with any Herbicides per reference number 5, however, soil samples were analyzed to confirm that no herbicides or pesticides were present.

#### SAMPLING AND ANALYSIS

Seven soil and two concrete samples were taken from the areas where the trench is to be excavated. Samples were taken at four depth, 0 to 6", 6" to 12", 12" to 24" and 24" to 36").

Radiological analysis were run on all of the samples, and TCLP herbicide/pesticide and metals were run on two of the soil samples, at the 0 to 6" depth. Sample locations are shown in attachment number 1 and the analytical results are shown in tables numbers 1 through 3.

#### RADIOLOGICAL CHARACTERIZATION

The concrete waste for this project can be disposed of as Category I material, (analytical results below 35 pCi/g) per reference number 1.

The soil from sample points 14, 15, 17, and 18 can be disposed of as Category I material, (analytical results below 35 pCi/g) per reference number 1. Sample points 16, 21 and 22 can be disposed of as Low Level Material (analytical results above 100 pCi/g) per reference number 1.

#### RCRA DETERMINATION

The construction waste to be generated from this project (soil and concrete) can be disposed of as RCRA non-hazardous (a.k.a. non-RCRA) material in accordance with reference number 1. This determination is based upon process knowledge that no uranium, thorium, were processed, spilled, or released in the construction area, and the TCLP analytical results in table numbers 2 and 3, (all results below regulatory limits).

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristics under 40 CFR 261.24).

L. Copeland

-3-

WEMCO: (EMT/FME):92-002

**SUMMARY**

The soil and concrete waste described above is RCRA non-hazardous (a.k.a. non-RCRA) material, and may be disposed of in accordance with reference number 1. This determination applies only to the soil and concrete listed on the Construction Waste Identification Disposition (CWID) form dated August 8, 1991.

If any additional waste is generated from this project, an additional RCRA determination will be required.

If there are any questions, please contact Glenn Rieman at extension 6828, or myself at extension 6777.

*Larry Hopper for C.S. Waugh*

C. S. Waugh, Manager  
Facilities and Materials Evaluation  
Environmental Management

CGR/tmk

|    |                |                 |
|----|----------------|-----------------|
| c: | S. D. Brown    | T. M. Patterson |
|    | J. E. Clements | B. S. Perkins   |
|    | R. L. Gardner  | C. G. Rieman    |
|    | S. D. Hairston | J. M. Sattler   |
|    | J. E. Harmon   | S. G. Schneider |
|    | S. W. Heisler  | K. A. Solomon   |
|    | A. T. Holstein | R. A. Thiel     |
|    | J. P. Hopper   | F. B. Thompson  |
|    | S. C. Hoskins  | J. L. Trujillo  |
|    | L. A. Hurst    | T. J. Walsh     |
|    | H. J. Knue     | P. C. Weddle    |
|    | S. J. Lund     |                 |
|    | M. L. March    | Central Files   |
|    |                | FME Files       |

TABLE NUMBER 1

RADIOLOGICAL ANALYTICAL RESULTS

| SAMPLE LOCATION NUMBER  | MATRIX | TOTAL pCi/gm |     | TOTAL PPM |     | ISOTOPIC URANIUM Wt. % (U) |      |      |      | ISOTOPIC THORIUM pCi/g |      |     |      |
|-------------------------|--------|--------------|-----|-----------|-----|----------------------------|------|------|------|------------------------|------|-----|------|
|                         |        | U            | TH  | U         | TH  | 233                        | 234  | 235  | 236  | 238                    | 230  | 232 |      |
| PT-14-0-6"<br>EM-2460   | SOIL   | <6.1         | 3.2 | <11       | <18 | <.001                      | .003 | 0.48 | .007 | 99.51                  | 1.4  | 1.0 | 0.77 |
| PT-14-6-12"<br>EM-2461  | SOIL   |              |     | 14        | <18 |                            |      |      |      |                        |      |     |      |
| PT-14-12-24"<br>EM-2462 | SOIL   |              |     | 19        | <18 |                            |      |      |      |                        |      |     |      |
| PT-14-24-36"<br>EM-2463 | SOIL   |              |     | <11       | <18 |                            |      |      |      |                        |      |     |      |
| PT-15-0-6"<br>EM-2464   | SOIL   | <7.8         | 2.8 | <11       | <18 | <.001                      | .006 | 0.66 | .006 | 99.32                  | 1.1  | 1.0 | 0.72 |
| PT-15-6-12"<br>EM-2465  | SOIL   |              |     | 16        | <18 |                            |      |      |      |                        |      |     |      |
| PT-15-12-24"<br>EM-2466 | SOIL   |              |     | 38        | <18 |                            |      |      |      |                        |      |     |      |
| PT-15-24-36"<br>EM-2467 | SOIL   |              |     | 15        | <18 |                            |      |      |      |                        |      |     |      |
| PT-16-0-6"<br>EM-2568   | SOIL   | 62           | 2.9 | 97        | <18 | <.001                      | .005 | 0.68 | .005 | 99.31                  | 0.87 | 2.1 | 0.98 |
| PT-16-6-12"<br>EM-2469  | SOIL   |              |     | 238       | <18 |                            |      |      |      |                        |      |     |      |
| PT-16-12-24"<br>EM-2470 | SOIL   |              |     | 28        | <18 |                            |      |      |      |                        |      |     |      |
| PT-16-24-36"<br>EM-2471 | SOIL   |              |     | <11       | <18 |                            |      |      |      |                        |      |     |      |

TABLE NUMBER 1  
RADIOLOGICAL ANALYTICAL RESULTS

| SAMPLE LOCATION NUMBER  | MATRIX   | TOTAL pCi/gm |     | TOTAL PPM |     | ISOTOPIC URANIUM pCi/g |      |      |      |       |      | ISOTOPIC THORIUM pCi/g |      |
|-------------------------|----------|--------------|-----|-----------|-----|------------------------|------|------|------|-------|------|------------------------|------|
|                         |          | U            | TH  | U         | TH  | 233                    | 234  | 235  | 236  | 238   | 230  | 232                    |      |
| PT-17-0-6"<br>EM-2472   | SOIL     | 8.6          | 2.6 | 12        | <18 | <.001                  | .006 | 0.63 | .009 | 99.35 | 0.86 | 1.1                    | 0.59 |
| PT-17-6-12"<br>EM-2473  | SOIL     |              |     | 15        | <18 |                        |      |      |      |       |      |                        |      |
| PT-17-12-24"<br>EM-2474 | SOIL     |              |     | 19        | <18 |                        |      |      |      |       |      |                        |      |
| PT-17-24-36"<br>EM-2475 | SOIL     |              |     | <11       | <18 |                        |      |      |      |       |      |                        |      |
| PT-18-0-6"<br>EM-2476   | SOIL     | 23           | 3.9 | 44        | <18 | <.001                  | .003 | 0.64 | .005 | 99.35 | 1.2  | 1.8                    | 1.0  |
| PT-18-6-12"<br>EM-2477  | SOIL     |              |     | 43        | <18 |                        |      |      |      |       |      |                        |      |
| PT-18-12-24"<br>EM-2478 | SOIL     |              |     | 45        | <18 |                        |      |      |      |       |      |                        |      |
| PT-18-24-36"<br>EM-2479 | SOIL     |              |     | 29        | <18 |                        |      |      |      |       |      |                        |      |
| PT-19-0-6"<br>EM-2482   | CONCRETE | <6.5         | 4.9 | <11       | <18 | <.001                  | .004 | 0.70 | .003 | 99.30 | 0.57 | 3.8                    | 0.52 |
| PT-19-6-12"<br>EM-2484  | CONCRETE |              |     | 12        | <18 |                        |      |      |      |       |      |                        |      |
| PT-19-12-24"<br>EM-2485 | CONCRETE |              |     | <11       | <18 |                        |      |      |      |       |      |                        |      |
| PT-19-24-36"<br>EM-2486 | CONCRETE |              |     | <11       | <18 |                        |      |      |      |       |      |                        |      |



TABLE NUMBER 2  
HERBICIDE/PESTICIDE ANALYTICAL RESULTS

| ANALYTE            | MATRIX | SAMPLE LOCATION AND NUMBER |                      |     |     |
|--------------------|--------|----------------------------|----------------------|-----|-----|
|                    |        | R-21-0-6"<br>EM-2492       | PT-22-0-6"<br>EM2496 | PPM | PPM |
| TCLP HERBICIDES    |        |                            |                      |     |     |
| 2,4-D              | SOIL   | ND                         | ND                   |     |     |
| SILVER (2,4,5-TP)  | SOIL   | ND                         | ND                   |     |     |
| TCLP PESTICIDES    |        |                            |                      |     |     |
| ENDRIN             | SOIL   | <0.0004                    | <0.0004              |     |     |
| HEPTACHLOR         | SOIL   | <0.0004                    | <0.0004              |     |     |
| HEPTACHLOR EPOXIDE | SOIL   | <0.0004                    | <0.0004              |     |     |
| LINDANE            | SOIL   | <0.0004                    | <0.0004              |     |     |
| CHLORDANE          | SOIL   | <0.0004                    | <0.0004              |     |     |
| METHOXYCHLOR       | SOIL   | <0.0004                    | <0.0004              |     |     |
| TOXAPHENE          | SOIL   | <0.02                      | <0.02                |     |     |
|                    |        |                            |                      |     |     |
|                    |        |                            |                      |     |     |
|                    |        |                            |                      |     |     |

TABLE NUMBER 3  
 TCLP METAL ANALYTICAL RESULTS

| METALS   | MATRIX | SAMPLE NUMBER AND LOCATION |        |                       |        |        |        |
|----------|--------|----------------------------|--------|-----------------------|--------|--------|--------|
|          |        | (UG/L)                     | (UG/L) | (UG/L)                | (UG/L) | (UG/L) | (UG/L) |
| ARSENIC  | SOIL   | PT-21-0-6"<br>EM-2492      | ND     | PT-22-0-6"<br>EM-2497 | ND     |        |        |
| BARIUM   | SOIL   | 545                        |        | 826                   |        |        |        |
| CADMIUM  | SOIL   | ND                         |        | ND                    |        |        |        |
| CHROMIUM | SOIL   | ND                         |        | ND                    |        |        |        |
| LEAD     | SOIL   | ND                         |        | ND                    |        |        |        |
| SELENIUM | SOIL   | ND                         |        | ND                    |        |        |        |
| SILVER   | SOIL   | ND                         |        | ND                    |        |        |        |
| MERCURY  | SOIL   | ND                         |        | ND                    |        |        |        |
|          |        |                            |        |                       |        |        |        |
|          |        |                            |        |                       |        |        |        |
|          |        |                            |        |                       |        |        |        |
|          |        |                            |        |                       |        |        |        |

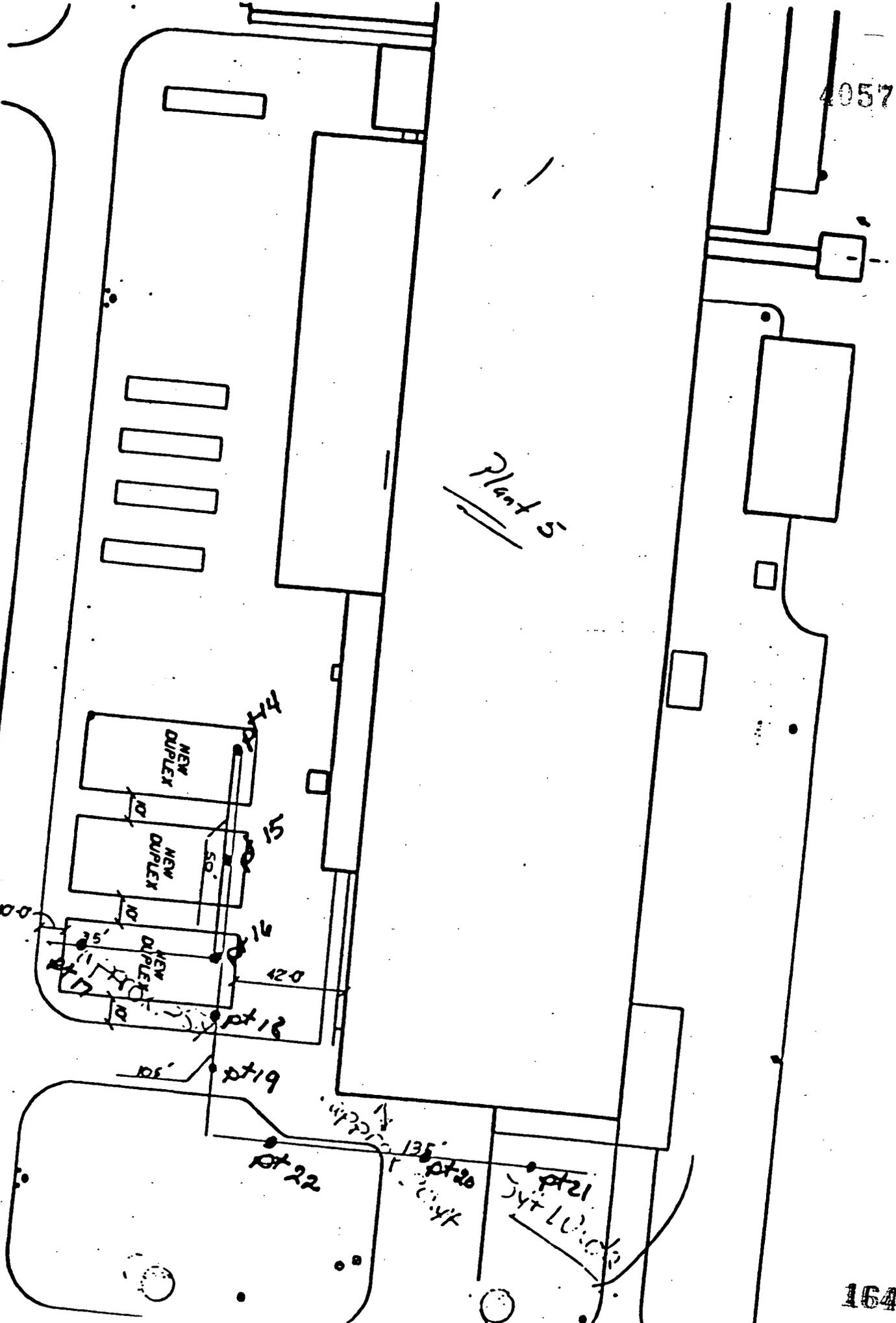
ATTACHMENT NUMBER 1

SAMPLE LOCATION AND NUMBER

Plant 5



wid  
steep



From: Steve Schooler

Date: May 5, 1992

SUBJECT: ADDENDUM TO RCRA DETERMINATION FOR THE CONSTRUCTION PROJECT "DUPLEX OFFICE TRAILERS WEST OF PLANT 5"

To: C. G. Rieman

Ref: WEMCO:(EMT/FME):92-002, C. S. Waugh to L. Copeland, "RCRA determination and Radiological Characterization for the Construction project 'Duplex Office Trailers West of Plant 5'," November 21, 1991

This memo is requesting an addendum to the above reference. We have expanded the scope of work for the above referenced project by relocating duplex Trailer #4 to the south.

The fire lines were relocated from where the RCRA Determination samples were taken, parallel to C Street. Excavated soil from the first two feet of the fire lines was boxed and then sampled from the boxes. The remaining soil was used for backfill and clean fill was trucked in to fill the ditch to the proper grade. Any soil that was not used in the ditch was trucked to the Third Street disposition location.

Relocating Trailer #4 caused additional utility work for tie-ins of the firemain, sanitary, and potable water. The digging was performed in the previously installed clean fill. Once the backfilling operation was complete, some soil remains on the construction site. An addendum to the RCRA Determination is needed so that this soil can be trucked to the Third Street disposition location.

From the completion of backfilling to today's date there has been no recorded spills or releases, herbicides or pesticides applied in this area.

If there are any questions, please call Steve Schooler at extension 8697.



S. E. Schooler, Project Engineer  
Project Management #2

SES:kdm

## Attachments

c: R. W. Helmes  
S. J. Lund

Central Files

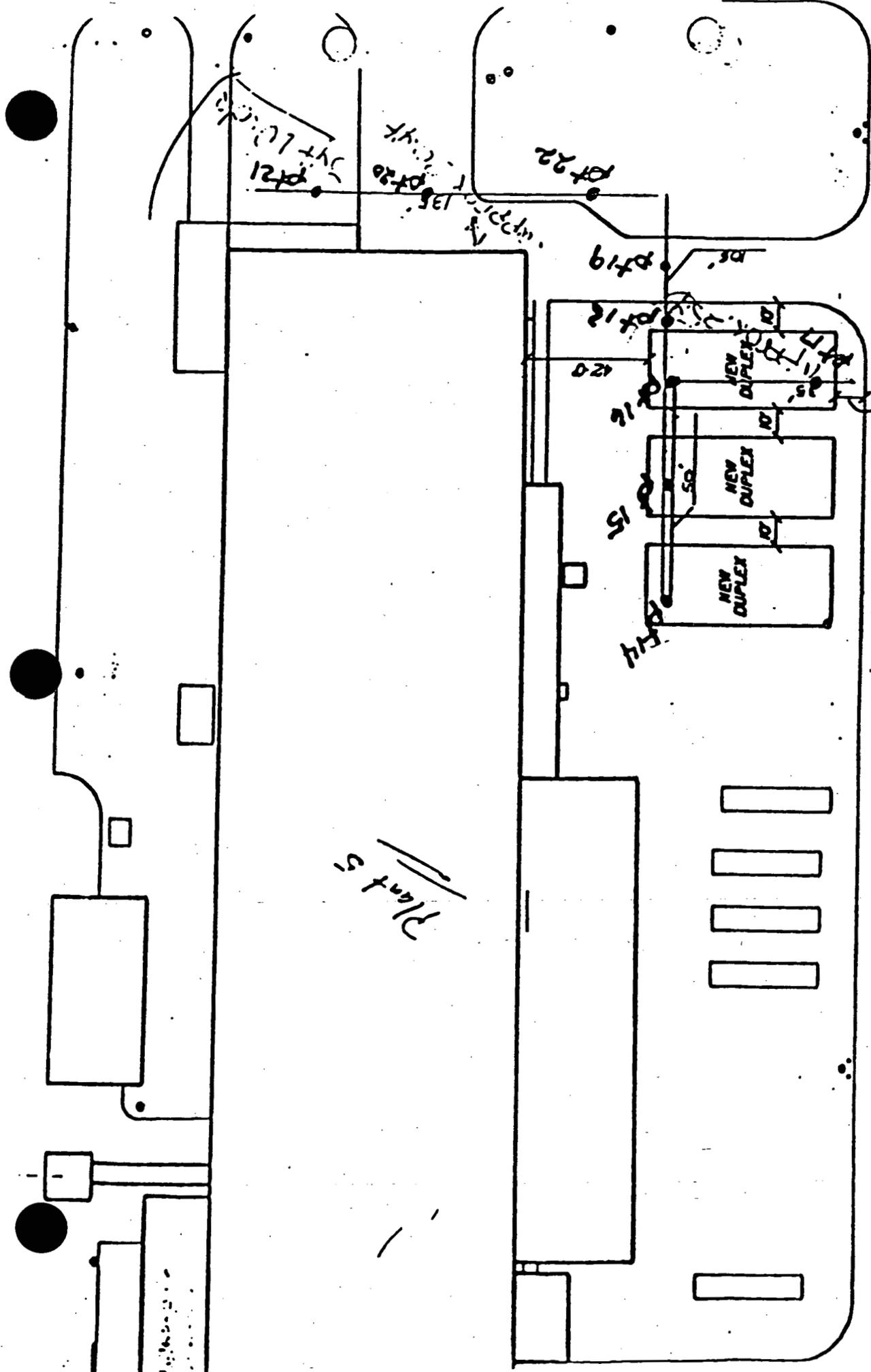
4057

# wires of sleep

Plant 5



166



FMPCC MATERIAL EVALUATION FORM

MEF NO: 1795

MEF REV. NO:

**SECTION I - MATERIAL GENERATOR**

|   |  |   |  |   |  |   |  |
|---|--|---|--|---|--|---|--|
| 1. FMPCC SRC: 1800  |  | MTC: N/A  |  | 2. PLANT AND/OR BUILDING NO.: Plant 1 Pad   |  | 3. PROCESS AREA: Plant 1                                      |  |
| 4. EQUIPMENT NAME(S): N/A   |  |   |  | 5. MEF NO. DATE:  |  | 6. MEF REV. DATE:   |  |
| 7. APPROXIMATE NET WEIGHT OF FULL CONTAINER?<br><input type="checkbox"/> <100 lbs <input checked="" type="checkbox"/> 100 to 1000 lbs <input checked="" type="checkbox"/> >1000 lbs |  |   |  | 8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE?<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO |  |   |  |
| 9. IS MATERIAL A WASTE?<br><input checked="" type="checkbox"/> YES <input type="checkbox"/> NO  |  | 10. COMMON NAMES: Soil from around plant 1 pad<br>Ger Treat. Study    |  | 11. CHEMICAL NAMES: - Soil -  |  |   |  |
| 12. COMMON CHEMICAL NAME SOURCE:<br><input type="checkbox"/> Process Information <input type="checkbox"/> Container Label   |  | <input type="checkbox"/> MSDS <input type="checkbox"/> FMPCC Lot Code |  | OTHER: #  |  | 13. SIMILAR MATERIAL NAME: #                                  |  |
| 14. SIMILAR MATERIAL LOT CODE(S): #   |  | 15. SUBSTANCES SUSPECTED:<br>None                                     |  |   |  |   |  |
| <input type="checkbox"/> Aerosols   |  | <input type="checkbox"/> Cresol                                       |  | <input type="checkbox"/> Endrine  |  | <input type="checkbox"/> Methylene Chloride                   |  |
| <input type="checkbox"/> Arsenic  |  | <input type="checkbox"/> m-Cresol                                     |  | <input type="checkbox"/> Heptachlor   |  | <input type="checkbox"/> Motor/Engine Oil                     |  |
| <input type="checkbox"/> Barium   |  | <input type="checkbox"/> o-Cresol                                     |  | <input type="checkbox"/> Hexachlorobenzene  |  | <input type="checkbox"/> Nitrobenzene                         |  |
| <input type="checkbox"/> Benzene  |  | <input type="checkbox"/> p-Cresol                                     |  | <input type="checkbox"/> Hexachloroethane   |  | <input type="checkbox"/> Other Organics                       |  |
| <input type="checkbox"/> Cadmium  |  | <input type="checkbox"/> 2,4-D  |  | <input type="checkbox"/> Hexachloro-1,3-butadiene   |  | <input type="checkbox"/> Paint Stripper                       |  |
| <input type="checkbox"/> Carbon Tetrachloride   |  | <input type="checkbox"/> Degreaser                                    |  | <input type="checkbox"/> Hydraulic Oil  |  | <input type="checkbox"/> Paint Thinner/Mineral Spirits        |  |
| <input type="checkbox"/> Chloroform   |  | <input type="checkbox"/> 1,4-Dichlorobenzene                          |  | <input type="checkbox"/> Ink  |  | <input type="checkbox"/> Pentachlorophenol                    |  |
| <input type="checkbox"/> Chlorobenzene  |  | <input type="checkbox"/> 1,2-Dichloroethane                           |  | <input type="checkbox"/> Lead   |  | <input type="checkbox"/> Perchloroethylene                    |  |
| <input type="checkbox"/> Chlorotoluene  |  | <input type="checkbox"/> 1,1-Dichloroethylene                         |  | <input type="checkbox"/> Lindane  |  | <input type="checkbox"/> Pyridine                             |  |
| <input type="checkbox"/> Chromium   |  | <input type="checkbox"/> 2,4-Dinitrotoluene                           |  | <input type="checkbox"/> Mercury  |  | <input type="checkbox"/> Selenium                             |  |
| <input type="checkbox"/> Copper   |  | <input type="checkbox"/> Enamel                                       |  | <input type="checkbox"/> Methoxychlor   |  | <input type="checkbox"/> Silver                               |  |
|   |  |   |  | <input type="checkbox"/> Methyl ethyl ketone  |  | <input type="checkbox"/> Synthetic oil                        |  |
|   |  |   |  |   |  | <input type="checkbox"/> TBP/Kerosene                         |  |
|   |  |   |  |   |  | <input type="checkbox"/> Tetrachloroethylene                  |  |
|   |  |   |  |   |  | <input type="checkbox"/> 1,1,1-Trichloroethane                |  |
|   |  |   |  |   |  | <input type="checkbox"/> 2,4,5-TP (Silver)                    |  |
|   |  |   |  |   |  | <input type="checkbox"/> 2,4,5-Trichlorophenol                |  |
|   |  |   |  |   |  | <input type="checkbox"/> 2,4,6-Trichlorophenol                |  |
|   |  |   |  |   |  | <input type="checkbox"/> Toxaphene                            |  |
|   |  |   |  |   |  | <input type="checkbox"/> Trichloroethylene                    |  |
|   |  |   |  |   |  | <input type="checkbox"/> Unknown                              |  |
|   |  |   |  |   |  | <input type="checkbox"/> Vinyl Chloride                       |  |
|   |  |   |  |   |  | <input type="checkbox"/> Xylene                               |  |
|   |  |   |  |   |  | <input type="checkbox"/> Oil                                  |  |
| 16. A. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY: Possible contamination from release on Plant 1 Pad  |  |   |  |   |  |   |  |
| 16. B. SOURCE FOR REASON AND QUANTITY: (Attach MSDS if Available)   |  |   |  |   |  |   |  |
| <input type="checkbox"/> Personnel Interviews   |  | <input type="checkbox"/> AEDO Log                                     |  | <input type="checkbox"/> MSDS   |  | <input type="checkbox"/> Prior Evaluation of Similar Material |  |
| <input checked="" type="checkbox"/> Historical Records  |  | <input type="checkbox"/> Physical Evidence                            |  | <input type="checkbox"/> Container Label  |  | What Material: _____  |  |
| <input type="checkbox"/> FMPCC Lot Code   |  | <input type="checkbox"/> Process Information                          |  | <input checked="" type="checkbox"/> Soil Database   |  | SRC: _____ MTC: _____   |  |
| 16. C. HEALTH AND SAFETY CONCERNS/REQUIREMENTS:   |  |   |  | 16. D. SIGNATURE AND DATE: <i>Frank Guelch</i> 8-25-92  |  |   |  |
| 17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED?<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |  | 18. NUMBER OF PHASES: ONE   |  | 18. BP (IF KNOWN): (Attach Lab Results) N/A   |  | 20. FLASH POINT (IF KNOWN): (Attach Lab Results) N/A          |  |
| 21. HAS A PAINT FILTER TEST BEEN COMPLETED?<br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |  |   |  |   |  |   |  |
| 22. IS IT REACTIVE? EXPLAIN: <i>Soil matrix</i><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO  |  |   |  |   |  |   |  |
| 22. IS IT IGNITABLE? EXPLAIN: <i>Soil matrix</i><br><input type="checkbox"/> YES <input checked="" type="checkbox"/> NO   |  |   |  |   |  |   |  |
| 24. OTHER INFORMATION (Example: Is this Material a Product or Waste?) <i>Waste</i>  |  |   |  |   |  |   |  |
| 25. ADDITIONAL SOURCES OF INFORMATION: <i>S/A results from Treatability Study Project</i>   |  |   |  |   |  |   |  |
| 26. PRIMARY CONTACT INDIVIDUAL: <i>Maria HK Akpomeding</i>  |  | EXTENSION: <i>9341</i>  |  | DATE COMPLETED: <i>8/11/92</i>  |  |   |  |

NOTE: Form shall be completed using ink or a typewriter.  
NOTE: Only WACO employees shall sign this form.

See Attachment A for applicable inventory

97 8/25/92

(Continued on Reverse)

FMPG MATERIAL EVALUATION FORM (Continued)

MEF NO: 1795

MEF REV. NO:

SECTION II - FACILITY AND MATERIALS EVALUATION

1. IS MATERIAL A WASTE? 2. IS IT EXCLUDED UNDER 261.4(a)? 3. IS IT EXCLUDED UNDER 261.4 (b)? 4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART (7)? 5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART (7)? 6. IS IT A NO HAZARDOUS SUBSTANCE? 7. CLASSIFICATION AS A WASTE: RCRA Hazardous Waste, Source Exempt, Non-RCRA Waste, Radioactive. 8. PRIMARY BASIS FOR CLASSIFICATION: Generics for Information, Prior material evaluation. 9. IS IT SUBJECT TO LAND BAN RESTRICTIONS? NO

See Sr A results

10. DISTRIBUTE PER SECTION IV, ITEM B. 11. OTHER INFORMATION SOURCES USED: Spill report logs, POCO determinations. 12. PRIMARY CONTACT INDIVIDUAL: John Muckelth. 13. IS SAMPLING REQUIRED? NO. 14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED? NO. 15. INFORMATION ACTION COMPLETION DATE: 8-25-92. 16. HEALTH AND SAFETY CONCERNS REQUIREMENTS: #. 16. SIGNATURE AND DATE: #

SECTION III - ENVIRONMENTAL ENGINEERING

1. RECOMMENDED STORAGE CONTAINER MATERIAL: Carbon Steel, Stainless Steel, Polyethylene, Other. 2. APPLICABLE REACTIVITY GROUP CODES: A, B, C, D, E, F, G, H. 3. OTHER INFORMATION SOURCES USED. 4. PRIMARY CONTACT INDIVIDUAL: J. Stoffer. EXTENSION: 6148. DATE COMPLETED: 8-25-92.

SECTION IV - TOXIC AND SOLID WASTE PROGRAMS

1. PROPER D.O.T. SHIPPING NAME: Radioactive material, limited quantity, n.p.s. 2. D.O.T. HAZARD CLASS: Radioactive material. 3. D.O.T. IDENTIFICATION NO.: UN, NA, 12910. 4. APPLICABLE REACTIVITY GROUP CODES: (COPY FROM SECTION II, ITEM 3). 5. EPA WASTE NO.: None. 6. FMPG SAC AND MTC: SAC, MTC.

8. IS A REVISION TO MEF REQUIRED? YES NO

Table with 3 columns: Distribution Role, Name, Date. Rows include Material Generator, Environmental Engineering (J. Stoffer), Environmental Monitoring, NCEA (H. J. Knue), PR&T (R. L. Kruchan), Facilities and Warehousing (B. S. Perkins), FIME (L. L. Honigford), and Controlled Holding Area (C. J. Stafford).

18. PRIMARY CONTACT INDIVIDUAL: Betty Brubaker. EXTENSION: 9074. DATE COMPLETED: 8/25/92.

ATTACHMENT A

Inventory

MEF # 1795

Inventory ID

Container Count

158166  
158206  
158249  
158316  
158300  
158307

1 WMB  
1 WMB  
1 WMB  
1 WMB  
1 WMB  
1 WMB

W050 176 P011 A360

Drums #s 1-12, 21-24 (16 total)

MEF FORM ITEM #16: RADIOLOGICAL SAFETY CONCERNS:

4057

GENERATED WASTE ITEM MUST BE HANDLED AS A RADIOACTIVE MATERIAL, OR AS BEING POTENTIALLY CONTAMINATED WITH RADIOACTIVE MATERIAL. CONTACT RADIOLOGICAL SAFETY (AN RWP IF DIRECT HANDLING IS REQUIRED. DETERMINATIONS OF REMOVABLE CONTAMINATION (OR OTHER HAZARD) MAY BE REQUIRED BY RADIOLOGICAL SAFETY.

WASTE ITEMS TARGETED FOR OFFSITE DISPOSITION MUST MEET THE ACCEPTANCE CRITERIA OF THE RECEIVING FACILITY, WITH THE FACILITY LICENSED TO HANDLE SAID QUANTITIES OF WASTE RADIOACTIVITY CONTENT. THESE ITEMS MUST ALSO MEET THE TRANSPORTATION REQUIREMENTS OF 49 CFR FOR OVER THE ROAD SHIPMENT.

IF WASTE IS IN BULK FORM (ie. a liquid, powder, concrete, soils, etc.), ANALYTICAL DATA MUST ACCOMPANY EXTERIOR SURFACE CONTAMINATION MEASUREMENTS WHEN TARGETING THIS WASTE FOR UNRESTRICTED RELEASE TO COMMERCIAL TSDs OR THE PUBLIC. SHIPMENT OF THESE WASTE ITEMS MAY REQUIRE APPROVAL BY DOE.

SEALED AEROSOL CANS (completely exhausted of any interior contents), OR OTHER SOLID NON-PROCESS OR NON-RADIOACTIVE ITEMS (not in "bulk" form) CAN BE RELEASED WITHOUT RESTRICTIONS BY DIRECT EXTERNAL SURFACE CONTAMINATION SURVEYS PERFORMED BY RADIOLOGICAL SAFETY. HOWEVER, UNRESTRICTED RELEASE OF THESE WASTE ITEMS MAY REQUIRE FURTHER EVALUATION BY RADIOLOGICAL SAFETY AND NEED APPROVAL BY OTHER SITE AUTHORIZING ORGANIZATIONS.

*Lewis J. Gehrmann 8493*  
Radiological Safety Representative/Ext./date



From: J. P. Erfman (6085)

WEMCO:EM:RCRA(FME):92-143

Date: October 23, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE PLANT 1 PAD  
- TENSION SUPPORT STRUCTURE - RUST W.O. #1354

To : M. B. Thompson, Jr.

- Ref:
1. WEMCO Site Standard Operating Procedure, SSOP-0044, Management of Soil, Debris and Waste from a Project," issued June 19, 1992
  2. WEMCO Safety Procedure SP-P-35-010, "Unrestricted Release of Materials from FMPC," issued March 13, 1990
  3. Environmental Compliance Spill/Release Incident Tracking Report, dated July 21, 1992
  4. Upset Condition Documentation, issued September 18, 1990
  5. WEMCO:E(PM1):92-286, M. B. Thompson to C. G. Rieman, "RCRA Determination and Radiological Characterization for Waste Generated During Installation of Leased Tension Support Structures," dated August 31, 1992.
  6. WEMCO:E(PM1):92-286, M. B. Thompson, Jr. to C. G. Rieman, "RCRA Determination and Radiological Characterization for Waste Generated During Installation of Leased Tension Support Structures," dated August 31, 1992.
  7. Site-Wide Characterization Report, dated August 1992

This memo transmits the RCRA determination and radiological characterization for the waste generated from the Plant 1 Pad - Tension Support Structures, Rust W.O. #1354. The waste generated consisted of treated wood (light poles) (6 poles, 10,000 pounds), and metal (light fixtures, and hangers) (500 pounds). The metal waste is in white metal container number 158408. The treated wood poles are stored at the north end of the west structure.

#### PROCESS KNOWLEDGE

This project was located on the Plant 1 Storage Pad in Operable Unit 3. The Plant 1 Storage Pad is a Hazardous Waste Material Unit (HWMU). This pad was used for the storage of various wastes from the other plants at the FEMP site. There has been numerous spills/releases on the pad recorded in References 3 and 4. However, these spills occurred at ground level and did not contact the metal located on the light poles.

This construction work entailed the erecting of two tension support structures over stored drums and securing them onto the pad. Anchoring the structures to the pad was completed utilizing a hydraulic drilling mechanism, generating no waste. At the initiation of this project, it was determined that no waste would be generated since the structures would only be anchored to the pad. However, to provide adequate access between the two structures to meet fire protection requirements, six (6) abandoned light poles with associated light fixtures on the east side of the pad had to be removed. The poles were cut off approximately four feet above ground level per reference number 6.

### **SAMPLING AND ANALYSIS**

Due to the nature of the waste material, and the data in Attachment I, no sampling was required.

### **RADIOLOGICAL CHARACTERIZATION**

The Radiological Survey Report, dated February 21, 1992 of the wooden light post indicate that these post will be low level waste. The metal waste will have to be monitored by the Radiological Safety Group for proper disposal per References 1 and 2.

### **RCRA DETERMINATION**

The metal waste (light fixtures and hangers) in container number 158408 is RCRA non-hazardous (a.k.a. non-RCRA). This determination is based upon process knowledge of the waste. The wood waste (light poles) are also RCRA non-hazardous (a.k.a. non-RCRA) based upon the data in Attachment Number 1.

There has been no constituents identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

### **SUMMARY**

The waste materials (metal and wood) generated for this project is RCRA nonhazardous (a.k.a. non-RCRA). The wood waste as shown in the Radiological Survey Report, dated February 21, 1992 can be disposed of as low level waste. The Radiological Safety Group will have to monitor the metal for proper disposal per Reference 1 and 2.

If any other waste is generated or identified from this project, an additional RCRA determination will be required.

M. B. Thompson, Jr.

-3-

WEMCO:EM:RCRA(FME):92-143

If there are any questions please contact me at extension 6085 or  
C. S. Waugh at extension 6777.



J. P. Erfman  
Facilities and Materials Evaluation  
RCRA Programs

JPE/bbs

w/attachment

- c: J. E. Clements
- M. L. Frost
- C. L. Griffin
- F. R. Hertweck
- L. A. Hurst
- D. L. Howe
- H. J. Knue
- L. M. March
- B. S. Perkins
- C. G. Rieman
- S. G. Schneider
- R. A. Thiel
- J. L. Trujillo
- T. J. Walsh
- C. S. Waugh
- K. N. Wintz

Central Files  
FME Files  
RCRA Operating Record

ATTACHMENT NUMBER I  
PENTACHLOROPHENOL-TREATED WOOD POLES  
SAMPLING AND ANALYSIS FOR THE TCLP

# Technical Brief

ENVIRONMENT DIVISION

DEC 3 1990

## Pentachlorophenol-Treated Wood Poles: Sampling and Analysis for the TCLP

### Introduction

Recent EPR-supported research (RP2485-9) has shown that the concentrations of pentachlorophenol (PCP) in extracts derived from application of the U.S. Environmental Protection Agency's Toxicity Characteristic Leaching Procedure (TCLP) to PCP-treated wood poles and crossarms are well below levels that would cause these materials to be classified as hazardous wastes under the Resource Conservation and Recovery Act (RCRA). This finding is important to the electric utility industry because, absent knowledge of expected TCLP results for treated wood materials, utilities would need to apply the TCLP to poles and crossarms removed from service, or run the risk that these treated wood products would be disposed as non-hazardous waste and later find that they were in fact hazardous wastes under RCRA. Thus, these new results provide the basis for utilities to continue managing poles and crossarms as ordinary (non-hazardous) solid wastes, and to forego the expense and operational hindrances associated with TCLP testing.

In addition, the EPR research provides utilities with practical information on methods for sampling and analyzing treated wood materials. The purpose of this Technical Brief is to present results of testing conducted to date, outline suitable methods for sampling and analysis, and summarize research currently underway.

### Background

Electric utilities use several types of wood poles and crossarms in transmission and

distribution systems. The precise volume of these materials currently in service is uncertain, but substantial. A recent estimate suggests that, for investor-owned utilities alone, on the order of 60 million wood poles and 54 million crossarms are currently in service. Approximately 3 percent of these are removed from service annually, and typically are either given away for landscaping or other purposes, or disposed of as ordinary solid waste.

Because the cost of frequent replacement of these structural members is very high, a variety of chemical treatments are used to preserve the wood from rotting and decay. A common preservation method applied to poles and crossarms is pressure treatment with an oil-borne solution of pentachlorophenol. The same properties of PCP that result in protection of wood from fungal decay and termite attack also render it toxic to other organisms, and PCP is therefore subject to regulation by the EPA.

The current regulatory status of PCP-treated wood poles and crossarms under RCRA is of significant interest to utilities, since classification as a hazardous waste could result in increased disposal costs in the range of billions of dollars annually for the electric utility industry alone. Moreover, anticipated revisions to regulatory levels for PCP under the Safe Drinking Water Act, upon which RCRA regulatory limits often are set, may cause the RCRA limits to be revised downward, and it is important for the industry to know how this would affect future pole and crossarm management.

### Analysis of PCP-Treated Poles and Crossarms

#### Mean Concentrations of PCP

Forty-seven bulk samples of PCP-treated wood derived from 13 utility poles and 9 crossarms have been subjected to the TCLP extraction, and the resultant leachates analyzed for the presence of PCP and other organic compounds (Figure 1). PCP concentrations ranged from 7.8 mg/L to below detection limits (i.e., less than 0.065 mg/L). The mean concentration of PCP in leachates for all 47 samples was 1.82 mg/L, well below

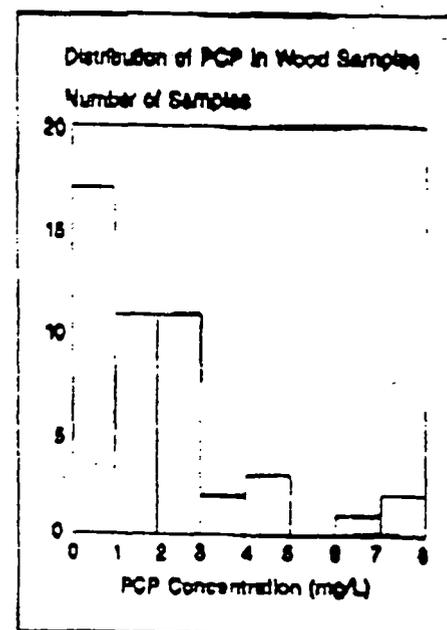


Figure 1. Histogram of PCP concentrations in treated wood samples.

**Sampling and Analysis Methods**

**Sample Acquisition**

Sections of used, PCP-treated wood poles and crossarms were obtained from thirteen utilities. The utilities are located in the northeast, mid-Atlantic, southeast, mid-west, north central, and western United States. Wood species in the sample population include southern pine, Douglas fir, lodgepole pine, and red cedar. The poles had been subjected to a variety of PCP treatment processes, and had been treated between 1952 and 1989.

Participating utilities were asked to collect sections one foot in length from three locations along the length of the pole:

- from the butt section (2 feet from the butt end);
- from the basal section (2 feet above the ground line); and
- from the upper section (2 feet from the top of the pole).

In addition, participants were asked to submit a sample of crossarm wood if available.

A total of 47 bulk wood samples were shipped to the EPRI contractor for analysis.

**Sample Preparation**

Upon receipt of bulk samples, laboratory personnel trimmed the ends from the foot-long wood sections with a band saw to provide a fresh surface (Figure 4). Cross-sections approximately one inch thick were cut randomly from each section, and wedge-shaped subsamples were then cut from the cross-sections. These subsamples were then reduced to a particle size of less than 1 cm at its narrowest dimension by cutting the material on a band saw. This resulted in a consistent particle size of approximately 0.25 inch by 1.0 inch, so that the pieces would pass a 9.5 mm (0.375 inch) standard sieve (Figure 5). Sufficient material was reduced in particle size to provide the quantity of material (100 grams) specified by the TCLP protocol.

This approach in subsampling provides a sample that fairly represents, on a mass basis, the wood at each distance from the pole surface (Figure 6).

To determine whether subsampling method affects concentrations of PCP in TCLP leachates, an alternative subsampling method was also employed. Subsamples were cut from the pie-shaped sections at depths of 1 inch and 2.5 inches from the exterior of Poles K and M. These subsamples provide information

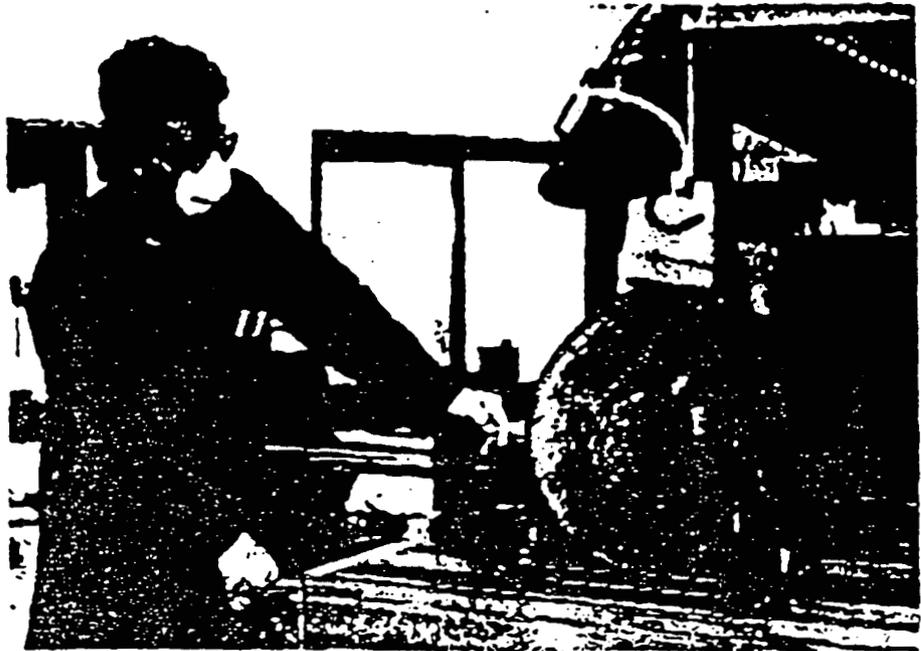


Figure 4. Cutting of cross-sections prior to subsampling.

on TCLP leachate composition as it may be affected by PCP penetration and subsequent weathering.

**Leaching and Analysis**

After size reduction, subsamples were leached according to the TCLP (Method 1311—Appendix of 40 CFR Part 261). The leachates then were extracted for GC/MS analysis by SW-846 Method 3520 (continuous liquid-liquid extraction). These extracts were analyzed for PCP by SW-

846 Method 8270 (GC/MS). Other semi-volatile compounds that were present in the extracts were also quantified (Figure 5).

**Future Research**

The results obtained to date have given useful insight into daily levels of PCP in TCLP leachates of wood poles and crossarms. Further research is planned to obtain samples of used wood for com-

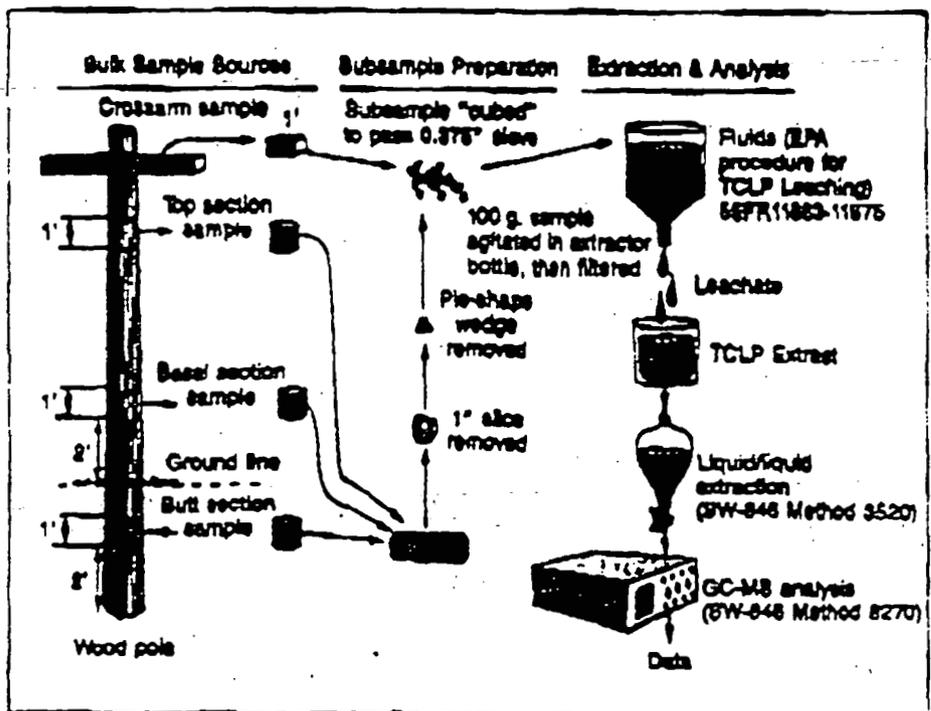


Figure 5. Sample preparation and analysis methods.

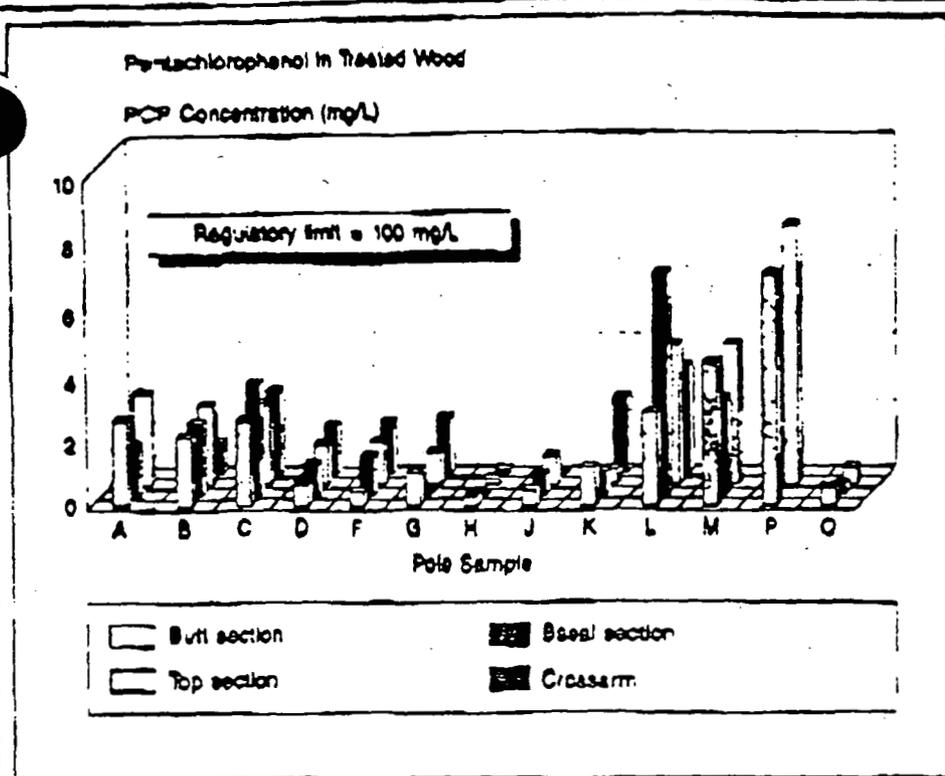


Figure 2. Concentrations of pentachlorophenol in 47 samples of sections of wood poles and crossarms. All concentrations are well below the RCRA TCLP limit of 100 mg/L.

The EPA regulatory limit of 100 mg/L for pentachlorophenol. Eighty-three percent (83%) of the samples had PCP concentrations less than 3.0 mg/L.

Based on these limited sample data, an inspection of the mean concentrations suggests a tendency for the top sections of poles to have retained greater concentrations of PCP than have the lower pole sections (Figure 2). One of the higher values, 6.7 mg/L for the basal sample from Pole L, may reflect secondary grounding treatment; however, information was not available to support this observation. A much larger sample population and detailed treatment information for each sample would be needed in order to make statistically precise conclusions regarding such possible relationships or any patterns of residual PCP with regard to the pole age, treatment, wood species, or environmental factors.

**Variability in Sample Results**

As shown in Figure 2, there is variation in PCP mean concentrations both among poles and among sections of the same pole. This variability can arise as a result of differences in TCLP-derived concentrations within a given pole stemming from sample location on the pole, differences due to the laboratory extraction step, and differences due to analytical imprecision.

Variability associated with the depth of the sample on a given section of pole was evaluated by subsampling at different depths. Samples of poles K and M were taken at depths of 1 inch and 2.5 inches, as well as for an entire cross-section.

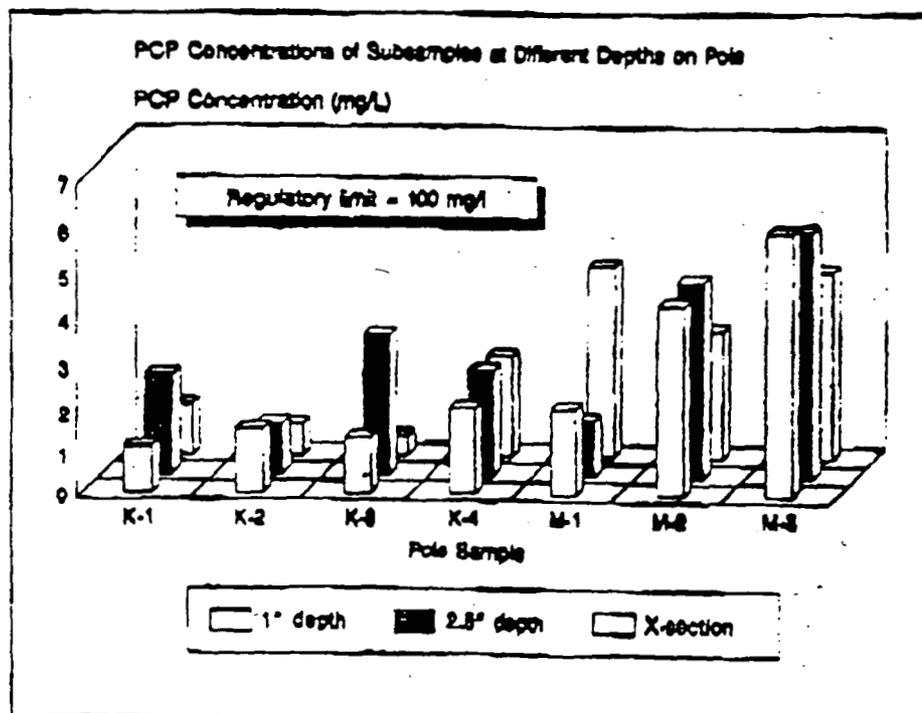


Figure 3. PCP concentrations of subsamples taken at different depths on Poles K and M.

Figure 3 shows that results did not differ substantially as a result of sample depth, especially in the context of the TCLP regulatory level.

To check on the influence of extraction method on PCP concentrations in leeches, a pH 2 extraction (from the March 1990 U.S. EPA Contract Lab Program) was applied to samples from poles A and M. PCP results from these extracts were comparable to those from the previous extraction: sample A-2 had 1.6 mg/L for the standard method, and 2.0 mg/L for the pH 2 extraction, while sample M-2 had PCP at 4.3 mg/L for both extractions.

**Other Organic Compounds**

Of the other semi-volatile compounds detected, the most prevalent were m- and p-cresols. These compounds were found at concentrations less than 1 mg/L, except in sample H-3 (top section of Pole H), in which the concentration of cresols was 2.4 mg/L. These concentrations are small compared to the TCLP regulatory limits for cresols of 200 mg/L. Another chemical of interest is 2,4,6-trichlorophenol, which was detected in less than 10 percent of the samples analyzed; the highest concentration observed was 62 µg/L, far below the regulatory limit of 2000 µg/L. No other organic compounds regulated under the TCLP (e.g., hexachlorobenzene, 1,4-dichlorobenzene, nitrobenzene) were found at levels above detection limits.



Figure 6. Stages in sample preparation (1. to 7.): reduced material ready for extraction; wedge-shaped subsample; cross-section cut from bulk samples.

pleting TCLP analysis that represents a larger statistical evaluation of precision and variability.

Related research will focus on obtaining and analyzing soil samples from pole storage areas to assess the potential for

accumulation in soils. Limited sampling and analysis of soils surrounding "in-service" poles will be carried out to quantify environmental release and migration, if any.

Finally, the Land and Water Quality

Studies Program is designing and conducting research to determine the ability of fungus and microbes to biologically transform PCP contained in soils.

#### References

Pentachlorophenol (PCP) Treated Wood Poles and Crossarms: Toxicity Characteristic Leaching Procedure Results. EPRI Report EN-7062, December 1990.

Test Methods for Evaluating Solid Waste. Office of Solid Waste and Emergency Response. U.S. Environmental Protection Agency, Report #SW-846, Third Edition, November 1988.

Code of Federal Regulations, Volume 40, Part 261, "Identification and Listing of Hazardous Waste." Subsection 261.24, "Toxicity Characteristic," was revised on March 29, 1990 (see 55FR11882).

Additional information on this research is available from Ishwar P. Murarka, Senior Program Manager, Land and Water Quality Studies Program, Environment Division, (415) 855-2150.

**EPRI**  
Electric Power  
Research Institute

Post Office Box 10412, Palo Alto, California 94303 (415) 855-2000

© 1990 Electric Power Research Institute, Inc. (EPRI)  
Electric Power Research Institute and EPRI are registered service marks of the Electric Power Research Institute, Inc.

Risk Analysis, Management & Assessment  
Waste Disposal & Use  
Land & Water Quality—Chemistry & Physics  
Waste & Water Management



From: M. B. Thompson, Jr. (6068)

WEMCO:E(PM1):92-286

Date: August 31, 1992

Subject: **RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR WASTE GENERATED DURING INSTALLATION OF LEASED TENSION SUPPORT STRUCTURES**

- Ref: 1) Letter, WEMCO:PM&A(PM1):91-176, M. B. Thompson to S. Hoskins, "Request for RCRA Determination on Waste Generated During Installation of Two Support Structures (TSS's) on Plant 1 Pad," dated November 19, 1991.
- 2) Letter, WEMCO:EM(FME)92-250, C. G. Rieman to M. B. Thompson, Jr., "RCRA Determination and Radiological Characterization for the Plant 1 Pad Tension Support Structures - RUST W.O. #1354," (draft), dated June 16, 1992.

To: C. G. Rieman

During installation of the Tension Support Structures, CCP #4 was issued to remove six (6) abandoned light poles with associated light fixtures on the east edge of the second structure. This was necessary to provide adequate access between the two structures to meet fire protection requirements. This waste is still located in the construction area pending receipt of the RCRA Determination.

During our conversation on August 31, 1992, you indicated that the RCRA Determination was currently based on the fact that the poles were totally removed from the ground. The poles were actually cut off approximately 4 feet above the ground since the contractor was unable to pull them from the ground. Our ensuing conversation indicated that this fact would aid in the release of the RCRA Determination and allow final disposition of this waste.

The project is currently credited with Deviation Report #91-296 that is unresolved and dependent on final issue of the RCRA Determination (Reference 2). Your attention to final issue of the RCRA Determination is appreciated.

If you should have further questions, please refer them to M. B. Thompson, Jr. at MS 16.

*M. B. Thompson, Jr.*  
M. B. Thompson, Jr.  
Senior Project Engineer  
Project Management 1

MBT:cre

c: C. L. Griffin  
J. G. Rowe

J. E. Wiley



Every Day. Every Way!



From: C. G. Rieman\6828

WEMCO:EM(FME):92-096

Date: March 16, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE WASTE FROM THE PLANT 1 MATERIAL HANDLING UPGRADE PROJECT

To : F. G. Hale

- Ref:
1. FEMP Site Standard Operating Procedure SSOP-00441, "Controlling the Generation of Construction/Maintenance Waste", issued February 19, 1992
  2. AEDO Spill Data Base
  3. Environmental Compliance Spill/Release Incident Tracking Report, dated February 28, 1992
  4. Upset Condition Documentation, issued September 18, 1990
  5. Memo, WEMCO:EC&QA(OU3/FME):91-390, C. S. Waugh to S. J. Lund, "Metal Coated With Lead-Based Paint," dated October 23, 1991

This memo transmits the RCRA-determination and radiological characterization for the construction waste generated during the Plant 1 Material Handling project, Project Number 00-87-502, WBS 1.1.3.3.01.

The waste generated from this project was estimated to consist of 32,430 pounds of process equipment (roller conveyor, pneumatic lid press, sampling apparatus, enclosure, and duct piping), 10,340 pounds (concrete and concrete block), and 8,000 pounds (asbestos). A list of the container numbers containing the generated waste is provided in Attachment Number I.

#### PROCESS KNOWLEDGE

This construction project was located in the controlled area (process area) of the FEMP, inside Plant 1. The area was used to sample drummed materials for further processing. There were no recorded spills or releases in this area per Reference Numbers 2, 3, and 4. Prior to the start of construction the area was cleaned by the FEMP overhead cleaning group. This group removed any loose contamination and residues present.

#### SAMPLING AND ANALYSIS

Two paint samples were collected from the process equipment. One sample was collected from the roller conveyor, the other was taken from the piping in the sampling enclosure. These samples were analyzed for total lead and lead by EP Toxicity.

**RADIOLOGICAL CHARACTERIZATION**

Direct frisk readings were taken of the concrete floor and process equipment. The radiological survey is provided in Attachment Number II. The 100 sq. cm. readings were generally greater than 1000 dpm beta-gamma. Probe readings were generally significantly greater than 1000 dpm for both alpha and beta-gamma. Notable hot spots were found on the floor near the jib hoist (69,250 dpm alpha, 27,378 dpm beta-gamma) and between the conveyors near the sampling enclosure (139,698 dpm beta-gamma by probe). The north-south drum conveyor also showed higher than average contamination. Based on this information, the waste is classified as low level radioactive waste and should be disposed of in accordance with Reference Number 1.

**RCRA DETERMINATION**

Oil stains were found in the area and organic compounds were used for routine maintenance according to process knowledge. Any organics of concern, however, would have volatilized and the oil would have been removed by the overhead cleaning group. TCLP analysis for organics, therefore, is not required. Based upon process knowledge, and Reference Numbers 2, 3, and 4, the concrete waste is RCRA non hazardous (a.k.a. non-RCRA).

Two (2) paint samples were analyzed for total lead and lead by EP Toxicity. The analytical results are:

| <u>LOCATION</u>                           | <u>LEAD BY EP TOXICITY (mg/L)</u> | <u>TOTAL LEAD (ug/g)</u> |
|---|-----------------------------------|--------------------------|
| Conveyor                                  | <1.0                              | 9,050                    |
| Pipe Work<br>(from Sampling<br>Enclosure) | 45.4                              | 10,550                   |

The Toxicity Characteristic Leaching Procedure (TCLP) is the required method for Toxicity Characteristic (TC) determination replacing the EP Toxicity method. A TCLP concentration can be calculated from the total lead data. The determination of Toxicity Characteristic (TC) by the TCLP method is based upon an extract from the solid sample. According to 40 CFR 261 Appendix II - Method 1311 Toxicity Characteristic Leaching Procedure (TCLP) Section 2.2, the extract is a 20 times dilution of the sample weight and therefore the sample concentration. Assuming the total detected lead concentration of 10,550 ppb which equals 10.55 ppm is completely extractable, and dividing by the dilution factor of 20, the calculated TCLP concentration is 0.53 ppm. This concentration is significantly below the TCLP regulatory level of 5.0 ppm.

The results of paint samples analysis by the EP Toxicity method, however, indicated a maximum lead concentration of 45.4 ppm which is higher than the results of the total lead analysis. Since OAC 3745-51-20(C) [in lieu of 40 CFR 261.20(c)] states that the entire waste must be evaluated, the following calculation is employed to mathematically determine the lead concentration taking in account the entire waste and not just the paint (Reference Number 5). The calculation is based upon the thickness ratio of paint to metal.

$$TC > V_{TCLP} * (Q_p * h) / ((H * Q_s) + (h * Q_p)) * S\%$$

Where;

|            |   |   |
|------------|---|---|
| TC         | = | Regulatory level for lead, 5.0 ppm                      |
| $V_{TCLP}$ | = | Analytical value for lead in paint, 45.4 ppm            |
| $h$        | = | Paint thickness, inches                                 |
| $H$        | = | Substrate thickness, inches                             |
| $Q_p$      | = | Paint density, lb./cu.ft.                               |
| $Q_s$      | = | Substrate density, lb./cu.ft.                           |
| $S\%$      | = | Percent of substrate's surface covered with paint, 100% |

Since the density of steel (500 lb./cu.ft.) is approximately the same as the density of paint (482 lb./cu.ft.), the above equation simplifies to the following:

$$TC = (h * TCLP) / (H + h) \quad \text{for 100\% painted surface}$$

The paint has an average thickness of 0.010 inch. Engineering data verified by visual inspection indicates that the thinnest metal is 11 gauge sheet metal with a thicknesses of 0.1196 inches. The highest detected lead concentration was 45.4 ppm and can be assigned as the maximum TCLP value. The lead concentration for the whole waste is calculated to be 3.50 ppm which is below the TCLP regulatory level of 5.0 ppm.

This methodology for characterizing waste coated with lead based paint has been submitted to Ohio EPA for review Reference Number 5. A verbal approval for use of this method in RCRA determinations has been received.

Based upon the both the total lead and EP Toxicity lead analysis, the painted metal waste is considered RCRA non hazardous (a.k.a. non-RCRA). The generated waste will be regulated as solid waste pursuant to OAC 3745-51-02(A)(2)(a) [in lieu of 40 CFR 261.2(a)(2)(i)].

F. G. Hale

-4-

WEMCO:EM(FME):92-096

Based upon process knowledge the asbestos waste is RCRA non hazardous (a.k.a. non-RCRA) low level radioactive waste. Asbestos material are not controlled under RCRA regulations. Asbestos should be handled in accordance with WEMCO procedures OS&H-P-41-006 and IH&S-IH-03 and disposed of in accordance with Reference Number 1.

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

#### SUMMARY

The metal sampling enclosure, duct piping, roller conveyor, pneumatic lid press, sampling apparatus concrete and asbestos, are RCRA non hazardous (a.k.a. non-RCRA) low level radioactive wastes and may be disposed of in accordance with Reference Number 1.

This determination applies only to the materials listed on the Construction Waste Identification/Disposition (CWID) form dated December 27, 1988 and stored in the containers listed in Attachment Number I. If any additional waste is generated from this project, an additional RCRA determination will be required.

If there are any questions please contact me at extension 6828, or C. S. Waugh at extension 6777.



C. G. Rieman  
Facilities and Materials Evaluation  
Environmental Management

DAL/tmk

F. G. Hale

WEMCO:EM(FME):92-096

- c: J. E. Clements
- L. S. Farmer
- R. W. Hairston
- S. W. Heisler Jr.
- J. P. Hopper
- S. C. Hoskins
- L. A. Hurst
- H. J. Knue
- L. B. Ko
- S. J. Lund
- L. M. March
- T. M. Patterson
- B. S. Perkins
- J. M. Sattler
- S. G. Schneider
- A. C. Snider
- R. A. Thiel
- F. B. Thompson
- J. L. Trujillo
- T. J. Walsh

Central Files  
FME Files

**ATTACHMENT I**  
**WASTE CONTAINER NUMBERS**

WASTE CONTAINER NUMBERS

4057

CONTAINER NUMBER

CONTAINER TYPE

CONTENTS

1843  
1565  
1852  
33424  
129673

white metal box  
white metal box  
white metal box  
sea/land  
sea/land

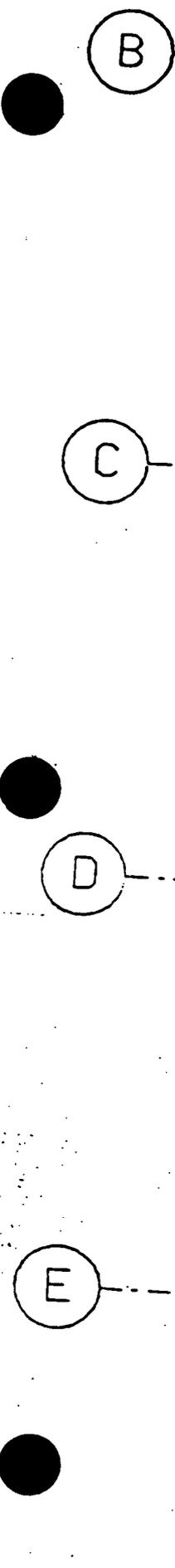
concrete  
concrete  
concrete  
metal  
metal/wood

ATTACHMENT II  
RADIOLOGICAL SURVEY



OPERATIONS SAFETY & HEALTH RADIOLOGICAL SAFETY  
**RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)**

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION    | CORRECTED DOSE RATE (mrem/hr) |         |       |       | DPM ALPHA |         | DPM BETA-GAMA |         |
|-------------|------------------|----------------|-------------------------------|---------|-------|-------|-----------|---------|---------------|---------|
|             |                  |                | CONTACT                       | CONTACT | 3 FT. | 3 FT. | 100 CPM   | 100 CPM | 100 CPM       | 100 CPM |
| 17          |                  | Monorail Hoist |                               |         |       |       | 25        | 867     | 32            | N       |
| 18          |                  | Conduit        |                               |         |       |       | 23        | 838     | 557           | 35      |
| 19          |                  | Roller         |                               |         |       |       | 30.6      | 1130    | 822           | 140     |
| 20          |                  | Conduit        |                               |         |       |       | 20.9      | 969     | 375           | 140     |
| 21          |                  | Roller         |                               |         |       |       | 322       | 1304    | 1468          | 35      |
| 22          |                  | Conduit        |                               |         |       |       | 128       | 858     | 255           | 140     |
| 23          |                  | Roller         |                               |         |       |       | 5.76      | 1304    | 1017          | 2808    |
| 24          |                  | Conduit        |                               |         |       |       | 160       | 843     | 399           | 2100    |
| 25          |                  | Roller         |                               |         |       |       | 47        | 2042    | 115           | 2106    |
| 26          |                  | Conduit        |                               |         |       |       | 24.1      | 2692    | 473           | 4212    |
| 27          |                  | Roller         |                               |         |       |       | 95        | 1304    | 1716          | 2106    |
| 28          |                  | Conduit        |                               |         |       |       | 144       | 1304    | 445           | 1404    |
| 29          |                  | Roller         |                               |         |       |       | 265       | 1304    | 552           | 1404    |
| 30          |                  | Fence          |                               |         |       |       | 184       | 1038    | 352           | 4563    |
| 31          |                  | Fence          |                               |         |       |       | 39        | 1732    | 152           | 6218    |
| 32          |                  | Fence          |                               |         |       |       | 298       | 1304    | 543           | 2808    |
| 33          |                  | Fence          |                               |         |       |       | 257       | 969     | 589           | 2808    |
| 34          |                  | Roller door    |                               |         |       |       | 331       | 1304    | 157           | 702     |
| 35          |                  | FLOOR          |                               |         |       |       | 103       | 1132    | 139           | 2738    |
| 36          |                  | ↑              |                               |         |       |       | 160       | 2123    | 149.9         | 2106    |
| 37          |                  | ↓              |                               |         |       |       | 160       | 1175    | 166           | 2106    |
| 38          |                  | FLOOR          |                               |         |       |       | 103       | 4510    | 176           | 189698  |
| 39          |                  | Scrub          |                               |         |       |       | 201       | 6518    | 390           | 4914    |
| 40          |                  |                |                               |         |       |       |           |         |               |         |



EXISTING SAMPLING ENCLOSURE AND MECHANISM TO BE REMOVED.

EXISTING DRUM PUSHER TO BE REMOVED (TYP. 2)

ROLLING DOOR

ROLLING DOOR

EXISTING LID PRESS TO BE REMOVED

NORTH-SOUTH DRUM CONY TO BE REMOVED

EXISTING EAST-WEST ROLLER CONVEYOR AT SCALE TO BE REMOVED.

RELOCATED DE-CAPPER

REMOVE FENCING

REMOVE 2 TON HOIST

RELOCATED TUBE SPLITTER

RELOCATED ENCLOSURE

UNIT

RELOCATED 'FITZ

HOIST

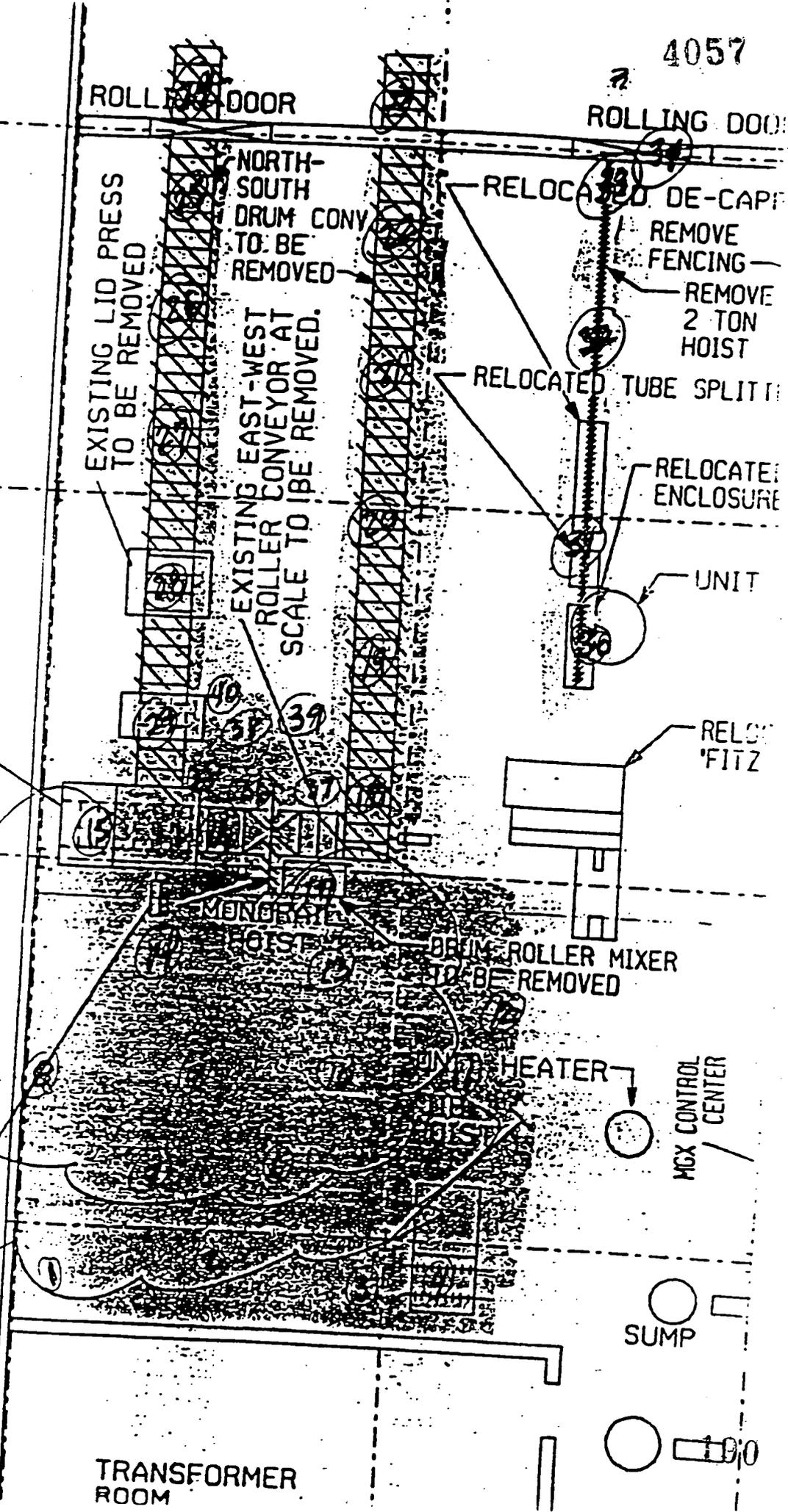
DRUM ROLLER MIXER TO BE REMOVED

HEATER

MGX CONTROL CENTER

SUMP

TRANSFORMER ROOM





From: C. G. Rieman (6828)

WEMCO:EM(FME):92-208

Date: July 14, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE WASTE GENERATED DURING THE LEAKPROOF DIKES CONSTRUCTION PROJECT, PROJECT NUMBER 00-87502

To : J. T. Witzeman

- Ref:
1. WEMCO Site Standard Operating Procedure, SSOP-0044, "Management of Soil, Debris and Waste from a Project", issued June 10, 1992
  2. AEDO Spill Data Base
  3. Environmental Compliance Spill/Release Incident Tracking Report, dated April 1, 1992
  4. Upset Condition Documentation, issued September 18, 1990
  5. Memo, WEMCO:EC(SW):90-287, S. G. Schneider to M. R. Spencer, "RCRA Determination and Radiological Characterization of Rubble From the Leakproof Dikes Project", Dated June 11, 1990

This memo transmits the RCRA Determination and Radiological Characterization for the waste generated from the Leakproof Dikes Project. The waste that was generated for this project consisted of thirty-one (31) containers of Concrete, Masonry, Mortar, Bricks, Red Bricks and Wood. The containers for this project are shown in Attachment Number I, with Lot Numbers, Container Numbers and Container Contents.

This memo also transmits the Re-Evaluation for TC compliance for two containers (60576 and 114468) which were not shipped off site prior to September 25, 1990, Reference 5.

#### PROCESS KNOWLEDGE

This construction project was located in the Controlled Area of the FEMP, at various plant sites. The project involved the repair and leakproofing of existing diked areas at storage tanks throughout the production area. Attachment Number II shows the location, contents, tank capacity and the original construction materials of the dikes that were upgraded during this construction project.

Attachment Number III shows the recommended repair work to be performed. Only the Dike Numbers shown in Attachment Numbers II and III that are circled were repaired.

The repair work included sealing cracks and resurfacing deteriorated concrete with chemical and water resistant coatings, repairing existing acid brick and the replacement of acid brick where required. In addition, the height of the dike walls were raised where needed in order that the entire contents of the tank could be contained in the diked area.

Also, where the dike drain lines tie into the storm water system, in-line valves were installed to prevent immediate release of tank contents into the system.

There were no recorded major spill/releases in these dikes per Reference Numbers 2, 3, and 4 that would have overflowed the dikes and contaminated the concrete walls. The brick waste was chemical resistant material used to line the inside of the dike areas. The concrete was back up material for the brick and the mortar and masonry material was filling between the bricks. The wood waste was all new material (not pressure treated), used for concrete forming and structure support during construction operations.

#### SAMPLING AND ANALYSIS

Six (6) of the 31 boxes were sampled, two samples were taken from three (3) boxes (concrete and brick) and one sample from the other three (3) boxes. The samples were analyzed for total uranium, thorium, and TCLP metals. The TCLP metal analysis were below the regulatory limit. Also the two boxes for re-evaluation for TC compliance were sampled prior to the TC Regulations and analyzed for EP toxicity metals. The EP toxicity metal analytical results were also well below the regulatory limits. Analytical results are shown in Tables 1 (uranium and thorium), and Table 2 TCLP metals. The EP Toxicity metal analytical results are included with Reference 5.

#### RADIOLOGICAL CHARACTERIZATION

The concrete and brick from six containers was sampled for uranium and thorium content. Analysis ranged from 1 ppm to 8597 ppm uranium and less than 18 to 55 ppm thorium. Statistical calculations of the analysis shows that the upper range for uranium in these containers to be 2185 ppm and the thorium to be 34 ppm. Based upon the statistical calculations the 31 containers listed in Attachment Number 1 can be disposed of as low level contaminated waste and disposed of per Reference 1.

**RCRA DETERMINATION**

Based upon process knowledge, References 2, 3, and 4, and analytical data, the concrete, masonry, mortar, bricks, red brick and wood contained in the containers listed in Attachment Number I are RCRA nonhazardous (a.k.a. non RCRA).

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

**SUMMARY**

The waste materials (concrete, masonry, mortar, bricks, red bricks and wood) are RCRA nonhazardous (a.k.a. non-RCRA) and can be disposed of as low level waste per Reference 1. If any additional waste material are generated, they will require a separate RCRA determination and radiological characterization.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.



C. G. Rieman

Facilities and Materials Evaluation  
Environmental Management

CGR/tmk

w/attachment

c: J. E. Clements                      Central Files  
L. S. Farmer                          FME Files  
C. L. Griffin  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
R. A. Thiel  
J. L. Trujillo  
T. J. Walsh  
K. N. Wintz



From: S. G. Schneider

WMCO:R(SW):90-162

Date: April 2, 1990

Subject: RCRA/RADIOLOGICAL DETERMINATION FOR SOIL FROM RAILROAD UPGRADE PROJECT  
(UPDATE)

To :D. A. Nixon

(This determination was originally distributed March 6, 1990 with an error. This copy includes the missing information [page 3] from the original letter.)

- Reference:
1. Letter WMCO:R(SW):90-032, S. G. Schneider to D. A. Nixon, subject "RCRA/Radiological Determination for Soil From Railroad Upgrade Project," dated February 12, 1990
  2. Feed Materials Production Center Site Procedure, FMPC 720, "Control of Construction Wastes", issued November 10, 1988
  3. "Dangerous Properties of Industrial Materials", Sax, N. I., Von Nostrand Reinhold Company, 1979.
  4. Federal Register, Volume 51, No. 7, January 10, 1986.
  5. Encyclopedia of Chemical Technology, Standen, A., Second Edition, Interscience Publishing, 1965.

This memo is a follow up to WMCO:R(SW):90-032 (Reference 1). It transmits the radiological characterization and RCRA determination for soil excavated in the Railroad Upgrade project (Project No. GJF02). The project involved an upgrade of tracks 10 and 11 and the soil removed has been stored north of Building 56 pending this determination. The previous letter transmitted the characterization, however, it did not discuss the creosote issue.

#### Radiological Characterization

As discussed in the previous letter, the soil was sampled on two occasions and analyzed for total uranium. Analysis results are presented in Table 1.



Initially, the soil was stored in two piles and these piles were sampled independently. The analysis results indicated that one of these piles had uranium concentrations meeting the Category 1 requirements, and the other, Category 2 requirements. However at a later date, the two piles were combined and four samples were collected from the combined pile. The analysis results indicate that the combined soil should be considered as Category 2 material in accordance with FMPC-720 (Reference 1). As such, the soil can be used as backfill in the controlled area or stockpiled in the controlled area.

#### RCRA Determination

Based upon information supplied by the project engineer, the spill history of the area, and the lack of processing activities, there appears to be no reason to suspect the presence of any RCRA regulated materials. The only material of concern would be the creosote used on the railroad ties.

Creosote oil is a solution of phenols obtained from distilled coal tars. It is not a listed waste under RCRA. Thus, it would only be considered a RCRA hazardous waste if it met any of the characteristics outlined in 40 CFR 261 Subpart C (i.e. ignitability, reactivity, corrosivity, and EP Toxicity).

The standard closed cup flashpoint of creosote is 165°F. (Reference 2). Thus, it fails to meet the criteria for ignitability. Under normal conditions (STP) creosote is a stable substance. It has an autoignition temperature of 637°F (Reference 2), and is stable when mixed with water (Reference 4). Thus, it fails to meet the characteristic of reactivity. Based on the nature of creosote, there would be no reason to suspect that its pH exceeds 12.5 or is less than 2.0. Therefore, the only concern raised in the RCRA determination would be the possible presence of EP Tox metals. Based on conversations with representatives from the EPA, there is no reason to suspect the presence of any of these metals.

Although creosote (including soils contaminated with creosote) is not a listed waste under RCRA, there are guidelines under FIFRA regulating disposal of treated wood (Reference 3):

"Dispose of [creosote] treated wood by ordinary trash collection or burial. Treated wood should not be burned in open fires or stoves, fireplaces, or residential boilers, because toxic chemicals may be produced as part of the smoke and ashes. Treated wood from commercial or industrial use (e.g. construction sites) may be burned only in commercial or industrial incinerators or boilers in accordance with state and federal regulations."

Creosote oil should not be confused with cresols. Creosote is a blend of phenols obtained from coal tars, while cresol is a mixture of isomeric cresols obtained from coal tar. The latter may be considered RCRA listed wastes (F004) when they are spent solvents.

Conclusion

The soil should be managed as Category 2 material because of uranium activity and does not appear to be regulated as a RCRA hazardous waste. If during removal of the soil pile, unanticipated radiological activity or reason to suspect potential RCRA hazardous waste contamination is encountered, Solid Waste Compliance should be contacted.

There appears to be no RCRA concerns regarding the debris generated from the project. The only restriction would be in disposal of the waste via incineration, which would require an incinerator which meets certain federal standards.

  
S. G. Schneider, Manager  
Solid Waste Compliance

CSW/bs

c: W. M. Benson  
S. L. Bradley  
J. E. Clements  
P. J. Dickman  
S. R. Eleton  
M. J. Galper  
J. T. Grumski  
S. C. Hoskins  
K. A. Solomon  
J. L. Trujillo  
P. C. Weddle  
W. A. Weinreich  
Central Files  
SWC File



From: C. G. Rieman/6828

WEMCO:EM(FME):92-164

Date: April 21, 1992

Subject: RE-EVALUATION OF THE RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE RUBBLE FROM BUILDING 54D PROJECT.

To : R. W. Helmes

- Ref:
1. WEMCO Site Standard Operating Procedure, SSOP-0044I "Controlling the Generation of Construction/Maintenance Waste" issued February 19, 1992
  2. WEMCO:R(SW):89-0119 G. E. Baker to J. E. Curry, "Radiological Characterization/RCRA Determination for the Construction Rubble From Building 54B - Pilot Plant Storage
  3. WEMCO:R:(WM-WT):90-019 Patrick J. Tracy to File, "Memo to File Regarding History of Building 54D, Green Salt Storage", dated February 15, 1990
  4. WEMCO:R(SW):90-130 S. G. Schneider to G. T. Howard, "RCRA Determination and Radiological Characterization of Rubble From Building 54D Project", dated April 11, 1990

This memo transmits the re-evaluation of the RCRA determination for the above-referenced project. The waste generated consists of soil and concrete which is located in containers 118011, 118167, 117840, 117933, and 117964. The waste has been sampled and analyzed in order to characterize the waste in accordance with Toxicity Characteristic (TC) regulations implemented September 25, 1990.

#### PROCESS KNOWLEDGE

This construction project was located in the controlled area of the FEMP, at the Pilot Plant Storage Building 54D. The excavated areas are primarily from the middle of 1st Street and the paved area around building 54D. Concrete was also generated from within the building. The building was used for storage of green salt (UF<sub>6</sub>) Reference 3. Hazardous materials have not been stored at Building 54D.

The original determination (Reference 4) indicated the soil and concrete waste are RCRA nonhazardous (a.k.a. non-RCRA) low level radioactive waste. The RCRA determination was based upon process knowledge of the area. This reevaluation is based on waste sample analysis in accordance with the TC requirements utilizing the TCLP method.

### SAMPLING AND ANALYSIS

Soil and concrete samples were collected from the boxes referenced above. The samples were analyzed for TCLP metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and herbicides. Analytical results are provided in Attachment Number I.

Barium was detected in the soil and concrete samples at concentrations below the TC regulatory level. Chromium was detected at one location and confirmed in a duplicated sample, however, the detected concentration is also below the TC regulatory level for chromium. Volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and herbicides were not detected in any sample. The TCLP analysis of the soil and concrete for the remaining metals (Arsenic, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver) were all below detection limits.

### RCRA DETERMINATION

Based upon analytical results, and References 2, 3, and 4, the soil and concrete waste is RCRA nonhazardous (a.k.a. non-RCRA).

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

### SUMMARY

The soil and concrete waste is RCRA nonhazardous (a.k.a. non-RCRA) waste and may be disposed of in accordance with Reference 1.

This determination applies only to the soil and concrete in Containers 118011, 118167, 117840, 117933, and 117964. Any additional waste generated from this project, will require an additional RCRA determination.

there are any questions please contact me at extension 6828, or  
C. S. Waugh at extension 6777.

*C. G. Rieman*

C. G. Rieman  
Facilities and Materials Evaluation  
Environmental Management

DAL/tmk

w\attachment

c: J. E. Clements  
L. S. Farmer  
R. W. Hairston  
J. E. Harmon  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
T. M. Patterson  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
F. B. Thompson  
J. L. Trujillo  
T. J. Walsh

FME Files  
Central Files



4057

From: C. G. Rieman/6828

WEMCO:EM(FME):92-075

Date: March 9, 1992

Subject: RE-EVALUATION OF THE RCRA DETERMINATION OF WOOD GENERATED DURING THE RENOVATION OF THE COOLING TOWER (PROJECT NO. EP-20-87301) FOR CONFORMANCE WITH REVISED TC REGULATIONS

To : R. R. Moeller

- Ref: 1. WMCO:EC&QA(OU3/FME):91-218, C. S. Waugh to R. R. Moeller, "RE-EVALUATION OF THE RCRA CHARACTERIZATION OF CONSTRUCTION RUBBLE GENERATED DURING THE RENOVATION OF THE COOLING TOWER (PROJECT NO. EP-20-87301) FOR CONFORMANCE WITH REVISED REGULATIONS," dated August 2, 1991
2. WMCO:P:89-326, M. B. Boswell to J. A. Reafsnyder, "DIOXIN FROM PENTACHLOROPHENOL (PCP) TREATED WOOD - FMPC," dated August 24, 1989
3. WMCO:R(SW):90-013, S. G. Schneider to L. Elikan, "RCRA DETERMINATIONS/RADIOLOGICAL CHARACTERIZATION FOR COOLING TOWER RENOVATION (PROJECT NO. EP-20-8730)," dated January 15, 1990
4. WMCO:R:90-470, W. A. Weinreich to G. W. Westerbeck, "DIOXINS AND FURANS IN COOLING TOWER," dated July 9, 1990
5. WMCO:R:90-524, J. P. Hopper to G. W. Westerbeck, "DIOXINS AND FURANS SCRAP WOODS," dated July 9, 1990
6. WEMCO Site Standard Operating Procedure, SSOP-0044I, "Controlling the Generation of Construction/Maintenance Waste," issued February 19, 1992
7. Environmental Compliance Spill/Release Incident Tracking Report, dated February 28, 1992
8. Upset Condition Documentation, issued September 18, 1990
9. AEDO Spill Data Base

This memo transmits the RCRA determination for the wood generated during the Cooling Tower Renovation Project. The waste is packaged in white metal boxes and sea-land containers and is stored on site. Attachment I provides the MC&A inventory list of containers.

As this waste was not shipped prior to September 25, 1990, it must be re-evaluated for conformance with the revised Toxicity Characteristic.

R. R. Moeller

-2-

WEMCO:EM(FME):92-075

Reference Number 1 provided the RCRA determination for metal and asbestos waste resulting from the Cooling Tower Renovation. These materials were determined to be RCRA non hazardous (a.k.a. non-RCRA). Sampling and analysis of the wood from the tower was requested to determine whether the wood would exhibit the Toxicity Characteristic for pentachlorophenol (D037) and thereby be regulated under RCRA as a characteristic hazardous waste.

The list of containers that was provided with Reference Number 1 included sea-land containers that were listed by Sitewide Quality Assurance as containing wood from this project. A reconciliation of inventory conducted by Materials Control & Accountability (MC&A) revealed that four (4) of the seven (7) sea-lands listed were no longer on site, and that one (1) other sea-land (2652326) had also been used to hold scrap wood from other site locations. This container is noted with an asterisk on Attachment I.

#### SAMPLING AND ANALYSIS

Eight (8) of the white metal boxes listed on Attachment I were sampled. Three (3) of the samples (from container Numbers 116790, 117111, 116801) were analyzed by Chem-Nuclear Laboratory Services (CNLS) in South Carolina, while the remaining five (5) (from container Numbers 110234, 110364, 116783, 116807, 118751) were analyzed by TCT - St. Louis. Only one sample, from container Number 118751 (TCT - St. Louis) displayed a level of pentachlorophenol above the detection limits. This sample displayed pentachlorophenol at 0.614 ppm (0.523 ppm in reanalysis of the same sample), well below the regulatory limit of 100 ppm. Therefore, this material does not exhibit the TC for pentachlorophenol. Analytical results are provided in Attachment II.

#### RCRA DETERMINATION

Based upon the process knowledge outlined above and found in Reference Numbers 1 through 4, no hazardous materials were used, stored, or spilled in the construction area during this project. No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

The fifteen (15) containers of wood (including the one container holding both metal and wood) listed on Attachment I may be disposed of as RCRA non hazardous (a.k.a. non-RCRA) in accordance with Reference Number 6. Because one of these containers, sea-land number 2652326, has been partially filled with scrap wood from other locations on site, it must be cleared by the scrap wood checklist.

R. R. Moeller

-3-

WEMCO:EM(FME):92-075

4057

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.

*C. G. Rieman*

C. G. Rieman  
Facilities & Materials Evaluation  
Environmental Management

DAL\tmk

w/attachments:

|    |                   |                 |
|----|-------------------|-----------------|
| c: | J. E. Clements    | S. J. Lund      |
|    | R. L. Gardner     | L. M. March     |
|    | R. W. Hairston    | T. M. Patterson |
|    | J. E. Harmon      | B. S. Perkins   |
|    | S. W. Heisler Jr. | J. M. Sattler   |
|    | T. A. Holstein    | S. G. Schneider |
|    | J. P. Hopper      | A. C. Snider    |
|    | S. C. Hoskins     | R. A. Thiel     |
|    | L. A. Hurst       | J. L. Trujillo  |
|    | H. J. Knue        | T. J. Walsh     |
|    | L. B. Ko          | C. S. Waugh     |
|    | M. J. Krauss      |                 |

Central Files  
FME File

## ATTACHMENT I

4057

## INVENTORY OF COOLING TOWER WOOD

| BOX/SEA-LAND NUMBER | LOT CODE         | CONTAINER NUMBER | CONTENTS   |
|---------------------|------------------|------------------|------------|
| 118751              | W050-765P-3-A354 | 2                | Wood       |
| 116790              | W050-765P-3-A323 | 1                | Wood       |
| 116801              | W050-765P-3-A323 | 2                | Wood       |
| 110364              | W050-761P-3-A323 | 1                | Wood       |
| 110234              | W050-761P-3-A323 | 9                | Wood       |
| 116807              | W050-761P-3-A323 | 3                | Wood       |
| 112330              | W050-765P-3-A323 | 3                | Wood       |
| 110256              | W050-765P-3-A322 | 1                | Wood       |
| 116499              | W050-765P-3-A354 | 1                | Wood       |
| 92559               | W050-765P-3-A353 | 1                | Wood       |
| 117111              | W050-765P-3-A323 | 4                | Wood       |
| 116783              | W050-761P-3-A323 | 5                | Metal/Wood |
| 2518163             | W050-765P-3-A337 | 3                | Wood       |
| 2623445             | W050-400P-3-A356 | 3                | Wood       |
| 2652326*            | W050-105P-3-A360 | 3                | Wood       |

\* Contains wood from Scrap Wood Pile Plant 1

ATTACHMENT II

4057

TCLP ANALYTICAL RESULTS FOR  
COOLING TOWER WOOD (PENTACHLOROPHENOL {D037} ONLY)  
(All results in ppm)

Samples analyzed by CNLS

| <u>Container #</u> | <u>Result</u> | <u>Reanalysis</u> |
|--------------------|---------------|-------------------|
| 116790             | < 0.4         | N/A               |
| 117111             | < 0.4         | N/A               |
| 116801             | < 0.4         | N/A               |

Samples analyzed by TCT - St. Louis

| <u>Container #</u> | <u>Result</u> | <u>Reanalysis</u> |
|--------------------|---------------|-------------------|
| 110234             | < 0.5         | < 0.5             |
| 110364             | < 0.5         | < 0.5             |
| 116783             | < 0.5         | < 0.5             |
| 116807             | < 0.5         | < 0.5             |
| 118751             | 0.614         | 0.523             |

Regulatory limit for pentachlorophenol is 200 ppm.

ANALYTICAL RESULTS  
WAREHOUSE 54D PROJECT

| SAMPLE NUMBER | BOX NUMBER  | SAMPLE MATRIX | BARIUM (ppm) | CHROMIUM (ppm) | VOA (ppb) | SVOA (ppb) | PESTICIDE (ppb) | HERBICIDE (ppb) |
|---------------|-------------|---------------|--------------|----------------|-----------|------------|-----------------|-----------------|
| 92-122-3613   | trip blank  | liquid        | ND           | ND             | ND        | ND         | ND              | ND              |
| 92-122-3614   | field blank | liquid        | 0.141        | ND             | ND        | ND         | ND              | ND              |
| 92-122-3612   | rinseate    | liquid        | 0.126        | ND             | ND        | ND         | ND              | ND              |
| 92-122-3615   | 118011      | soil/concrete | 0.529        | 0.034          | ND        | ND         | ND              | ND              |
| 92-122-3616   | 118167      | soil/concrete | 0.507        | ND             | ND        | ND         | ND              | ND              |
| 92-122-3617   | 117840      | soil          | 0.789        | ND             | ND        | ND         | ND              | ND              |
| 92-122-3618   | 117933      | soil/concrete | 0.823        | ND             | ND        | ND         | ND              | ND              |
| 92-122-3619   | 117964      | soil/concrete | 0.417        | 0.046          | ND        | ND         | ND              | ND              |
| 92-122-3620   | 118011      | duplicate     | 0.694        | ND             | ND        | ND         | ND              | ND              |



WEMCO:EC&amp;QA(OU3/FME):91-506

4057

From: C. S. Waugh

Date: October 2, 1991

Subject: AMENDMENT TO THE RE-EVALUATION OF THE RCRA CHARACTERIZATION OF CONSTRUCTION RUBBLE GENERATED DURING THE RENOVATION OF THE COOLING TOWER (PROJECT NO. EP-20-87301) FOR CONFORMANCE WITH REVISED REGULATIONS

To: R. R. Moeller

- Reference: 1. Memo, WMCO:R:(SW):90-013, S. G. Schneider to L. Elian, "RCRA DETERMINATION/RADIOLOGICAL CHARACTERIZATION FOR COOLING TOWER RENOVATION (PROJECT NO. EP-20-87301)", dated January 15, 1990.
2. Memo, WMCO:E&QA(OU3/FME):91-218, C. S. Waugh to R. R. Moeller, "RE-EVALUATION OF THE RCRA CHARACTERIZATION OF CONSTRUCTION RUBBLE GENERATED DURING THE RENOVATION OF THE COOLING TOWER (PROJECT NO. EP-20-87301) FOR CONFORMANCE WITH REVISE REGULATIONS", dated August 2, 1991.

This memo transmits an additional container of waste, for the Construction Project "Cooling Tower Renovation (Project No. EP-20-87301)". This container was not included on the Sitewide Quality Assurance inventory when reference number 2 was issued. The following container (white metal box and content) shown below can be disposed of as RCRA non hazardous (a.k.a. non RCRA).

CONTAINER NUMBER  
113263

CONTENTS  
Metal

If there are any questions, please contact Glenn Rieman at extension 6828, or myself at extension 6777.

C. S. Waugh, Manager  
Facilities and Materials Evaluation  
Operable Unit Compliance

CGR:tmk

c:

S. D. Brown  
J. E. Clements  
R. L. Gardner  
R. W. Hairston  
J. E. Harmon  
S. W. Heisler  
A. T. Holstein  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund

M. L. March  
T. M. Patterson  
B. S. Perkins  
C. G. Rieman  
J. M. Sattler  
S. G. Schneider  
K. A. Solomon  
R. A. Theil  
J. L. Trujillo  
T. J. Walsh

Central Files  
FME Files

4057



**From:** L. L. Honigford **WEMCO:EC&QA(OU3/FME):91-393**  
**Date:** August 28, 1991  
**Subject:** RCRA DETERMINATION FOR CRUSHED DRUMS WITH EMPTY PAINT CANS AT THE FMPC (MEFF 838)

**To :** L. S. Cortina

**REFERENCE:** WMCO:EMT(WM):91-090, L. S. Cortina to C. S. Waugh, "RCRA Determination of Scrap Metal - Crushed Drums with Paint Cans, dated May 10, 1991.

The following determination is provided for crushed drums with empty paint cans and painting equipment generated at the FMPC. This determination is only applicable to the materials as described in the referenced letter. No other materials on-site as of this date are included in this determination.

The painting equipment is not considered to be a concern based on the knowledge that a) the carrier has volatilized and all paint is dried on the equipment, b) the dried paint constitutes only a portion of the total of the painting equipment and c) the dried paint does not contain any organics at levels that would cause it to fail the TC.

Based on the knowledge that paint does not contain acutely toxic constituents, and that the residues in the paint cans do not exceed the empty container criteria as defined under OAC 3745-51-07 (in lieu of 40 CFR 261.7), it is determined that the residues are not subject to regulation. Therefore, the crushed drums with paint cans are determined to be a RCRA non-hazardous (i.e., non-RCRA), low-level waste.

All future waste paint cans may be disposed of in the same manner provided the paint cans and the drums in which they are disposed meet the empty container rule. A member of OU3 Compliance or Quality Assurance must verify that items not covered in this determination are not included in the packaging.

This determination is only valid through August 8, 1992 at which time it is the generators responsibility to re-submit the Material Evaluation Form for re-evaluation of the waste stream.

L. S. Cortina

2 WEMCO:EC&amp;QA(OU3/FME):91-393

If you have any questions please call Matthew Tepe at extension 6453 or myself at extension 6910.

Sincerely,



Larry L. Honigford  
Facilities & Materials Evaluation  
Operable Unit 3 Compliance

c: S. D. Brown  
D. D. Burns  
J. E. Clements  
S. R. Eleton  
J. T. Grumski  
E. H. Henry  
M. J. Krauss

J. Lenarduzzi  
T. J. Walsh

~~C. S. Walsh~~

Central Files  
FME Files

20 1991

1 COMPLETED BY GENERATOR:

Waste Stream Description: Scrap Metal - Baled Drums

4057

Lot Mark Code: \_\_\_\_\_

Reason for RCRA Determination: All waste streams being shipped for disposal require a RCRA determination.

Ignitable \_\_\_\_\_ Flashpoint \_\_\_\_\_
Corrosive \_\_\_\_\_ PH<2 \_\_\_\_\_ PH>12 \_\_\_\_\_
EP Toxic \_\_\_\_\_ Aq \_\_\_\_\_ As \_\_\_\_\_ Ag \_\_\_\_\_ Se \_\_\_\_\_ Ba \_\_\_\_\_
Reactive \_\_\_\_\_ Cd \_\_\_\_\_ Cr \_\_\_\_\_ Pb \_\_\_\_\_

Physical Characteristics: Rusted scrap metal.

Accumulation Area: Decontamination pad.

Other Area: \_\_\_\_\_

Signature/Extension Number/Date: [Signature] 3-19-91 2.6173

2 TO BE COMPLETED BY SOLID WASTE COMPLIANCE:

PSN: RADIOACTIVE MATERIAL, LSA, SNC# 323
EPA Waste No.: None
Land Ban: Yes No
Hazard Class: RADIOACTIVE
UN/NA Number: 2912
Comments: Drums must meet the definition of an empty container as defined in 40 CFR 261.7. Drums must have been generated as described in SOP's 1-C-301; 8-C-901

MARKING: RADIOACTIVE - LSA
[Signature] 6910 3-22-91
[Signature] 6469 3/22/91

Signature/Extension Number/Date

3 TO BE COMPLETED BY WASTE TECHNOLOGY:

Received 3-25-91

Sampling Plan Available: Yes No

Recommended Container: \_\_\_\_\_

RGC: N.A.

[Signature] 6148 3-25-91

Signature/Extension Number/Date

4 TO BE COMPLETED BY MATERIALS CONTROL AND ACCOUNTABILITY:

Date Received: \_\_\_\_\_

Storage Location: Building: \_\_\_\_\_ Bay: \_\_\_\_\_

Inventory No.: \_\_\_\_\_

Comments: \_\_\_\_\_

Signature/Extension Number/Date

5 TO BE COMPLETED BY WASTE MANAGEMENT :

Date Received: \_\_\_\_\_

Storage Location: Building: \_\_\_\_\_ Bay: \_\_\_\_\_

Inventory No.: \_\_\_\_\_

Comments: \_\_\_\_\_

Signature/Extension Number/Date 210

Instructions: Items 1, 2, and 3 to be completed before drum is moved. After all five sections are completed distribute one completed copy to each group.



4057

From: [REDACTED]

WMCO:EC&amp;QA(OU3/FME):91-329

Date: July 8, 1991

Subject: ADDITION OF CRUSHED DRUMS FROM THE DRUM CRUSHER ONTO MEF #764

To : L. S. Cortina

REFERENCE: WMCO:EMT(WM):91-131, L. S. Cortina to Carolyn Waugh, "MEF for Drums, Lids, and Rings at Plant 1", dated June 24, 1991.

The referenced letter requested that drums from the drum crushing operation be included on MEF # 764. The letter states that the drum crushing operation no longer exclusively receives drums which have been rinsed first. This is due to the lack of a proper rinseate collection system at the drum rinsing area. However, control measures are in place for the acceptance of drums for crushing. The first control is for empty drums from the RCRA warehouses which formerly contained RCRA hazardous wastes. These drums are transferred to the drum crusher with an "Empty Drum Status and Disposal Evaluation" form, which certifies that the drums are empty (see attached example). The second control measure is stated in SOP 1-C-306, "Crushing Scrap Drums", which states that any empty drum to be crushed must be visually inspected to ensure that it contains no residues. In cases where a drum is discovered to contain residues, the supervisor is to be notified for the proper disposition. These control measures are instrumental for ensuring that empty drums accepted for drum crushing meet the regulatory definition of an empty container (OAC 3745-51-07, 40 CFR 261.7).

The only situation not covered by these safeguards is for containers which formerly held acute hazardous waste. Review of the waste determination files show that acute hazardous wastes were generated in the laboratory and have been labpacked and sent off-site for management. Other than excess chemicals from the laboratory, the only other potential acute hazardous waste identified on-site is beryllium material. Facilities and Materials Evaluation will request that all material determined to be acute hazardous waste have the containers marked to indicate that they held acute hazardous waste. The "Empty Drum Status and Disposal Evaluation" will have to be revised to check for this item. While this situation is anticipated to occur only rarely, we must have measures in place to ensure compliance.

Based on the information above and the existing control measures, it is determined that the drums from the crusher are

RCRA non-hazardous (a.k.a. non-RCRA) waste via the empty container rule. These drums are covered under the determination for baled drums (MEF #764). This determination is dependent upon the control measures referenced above. If these measures change in any manner Facilities and Materials Evaluation must be notified immediately.

If you have any questions please contact me at extension 6910.

*Larry L. Honigford*

Larry L. Honigford  
Facilities and Materials Evaluation  
Operable Unit 3 Compliance

c: S. D. Brown  
D. D. Burns  
J. E. Clements  
S. R. Eleton  
A. Elam  
R. L. Gardner  
E. H. Henry  
L. A. Hurst  
L. B. Ko  
M. J. Krauss  
S. L. Laupola  
J. P. McGrogan  
J. M. Sattler  
S. G. Schneider  
R. A. Thiel  
T. J. Walsh  
C. S. Waugh

FME Files  
Central Files

From: C. G. Rieman\6828

Date: April 9, 1992

Subject: RCRA DETERMINATION FOR THE MAINTENANCE PROJECT SIDEWALK REPAIR - WORK ORDER NUMBER 30-12358

To : M. J. Collins

- REF: 1. WEMCO Site Standard Operation Procedure, SSOP-0044I, "Controlling the Generation of Construction/Maintenance Waste", issued February 19, 1992
2. WEMCO:EM(FME):92-063, C. G. Rieman to T. A. Palmer, "RCRA Determination and Radiological Characterization for the Clean Side Sidewalk Removal - Administration Building to Laboratory Building Project", dated March 6, 1992
3. Environmental Compliance Spill/Release Incident Tracking Report, dated April 1, 1992
4. Upset Condition Documentation, issued September 18, 1990

This memo transmits the RCRA determination for the waste to be generated during the Maintenance Project "Sidewalk Repair", Work Order Number 30-12358. The waste to be generated consists of approximately 90 cu. ft. (10,000 pounds) of concrete sidewalk.

#### PROCESS KNOWLEDGE

This Maintenance project will consist of removing damaged sections of the sidewalk from the Administration Building to the Laboratory Building. This project is located in the uncontrolled area of the FEMP. The project site has never been used to process uranium, thorium or any other materials. There were no reported spills/releases in the area per References 3 and 4. The lawn area surrounding the sidewalk was sprayed with herbicides per Reference 5.

#### SAMPLING AND ANALYSIS

The concrete and soil was sampled for a construction project to replace the sidewalk from the Administration Building to the Laboratory. This project was canceled, however, the TC analytical results from this area were completed and will be used for this project. The tar joint material was also sampled for the Reference 2 Maintenance project.

**RADIOLOGICAL CHARACTERIZATION**

The concrete waste from this project will be surveyed by the Radiological Safety Group for radiological characterization and disposition.

**RCRA DETERMINATION**

The concrete waste from this project is RCRA nonhazardous (a.k.a. non-RCRA) based upon the following data. Analytical results (TCLP metals, volatile organics, semi-volatile organics, and pesticides/herbicides) from Reference 2 and the analytical results from canceled sidewalk replacement project were below detectable limits or below the TC regulatory level. The grass area was sprayed with herbicides to control the weeds in the lawn, however, as stated above, no herbicides were detected in the soil or concrete that was sampled.

There were no materials processed in the construction area, and no spills/releases per Reference 3 and 4. No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

**SUMMARY**

The concrete waste from this Maintenance project can be disposed of as RCRA nonhazardous (a.k.a. non-RCRA) and the radiological characterization will be conducted by the Radiological Safety Group. This determination applies only to the concrete sidewalk material listed on the Construction Waste Identification/Disposition (CWID) form dated February 19, 1992. If any additional waste is generated from this project, an additional RCRA determination will be required.

If there are any questions please contact me at extension 6828, or C. S. Waugh at extension 6777.



C. G. Riemann  
Facilities and Materials Evaluation  
Environmental Management

CGR/tmk

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - WOOD 4057

SECTION I

| WASTE EVALUATION   |   | YES | UNKNOWN | NO | N/A |
|--------------------|---|-----|---------|----|-----|
| 1. Treated:        | a. Material free from creosote treatment .....  | ✓   |         |    |     |
| 2. Residues:       | a. Free from process or waste residues .....  | ✓   |         |    |     |
| 3. Stains:         | a. Stains cover less than 10% of wood surface or<br>Stain covers more than 10% of wood surface caused by green salt,<br>black oxide, white salt, or orange oxide. | ✓   |         |    |     |
| 4. Paint:          | a. Free from lead-based paint   | ✓   |         |    |     |
|                    | b. Paint covers less than 10% of material .....   | ✓   |         |    |     |
| 5. Plastic/Rubber: | a. Material consists of less than 20% by volumes other materials<br>(e.g. plastic or rubber parts/hardware) .....   |     |         |    | ✓   |
| 6. Metal           | If metal constitutes more than 10% by volume, then metal checklist (FS-F-3464) must also be used.   |     |         |    |     |

SECTION II - CONTAINER INFORMATION

1. MATERIAL ORIGIN/DESCRIPTION:  
 170 wood

|                                     |   |                                       |                 |
|-------------------------------------|---|---------------------------------------|-----------------|
| 2. PACKAGING START DATE:<br>3-19-92 | PACKAGING FINISH DATE:<br>4-8-92  | 3. OPERATOR(S) SIGNATURE:<br>Pat Ford | DATE:<br>4-8-92 |
| 4. CONTAINER NUMBER:<br>626955      | 5. CONTAINER TYPE:<br><input checked="" type="checkbox"/> SL <input type="checkbox"/> WHITE METAL BOX |                                       |                 |
| 6. GS CARD NUMBER:<br>126823        | 7. LOCATION PACKAGED:<br>NORTH PAD PLANT 9  |                                       |                 |
| 8. MEF NUMBER:                      | 9. % COMBUSTIBLE:<br>N/A  |                                       |                 |

APPROVED BY:  
 Charles Nadey  
 SUPERVISOR(S) SIGNATURE  
 DATE: 4-8-92

When materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded.

| GENERATOR TO MAKE DISTRIBUTION: |  |      |
|---------------------------------|--|------|
| 1.                              | Original to Facilities and Material Evaluation | MS65 |
| 2.                              | Copy to Waste Shipping                         | MS63 |
| 3.                              | Copy to Environmental Compliance               | MS65 |
| 4.                              | Copy to Materials Control and Accountability   | MS28 |



WEMCO:EM(FME):92-141

4057

From: C. G. Rieman (6828)

Date: April 5, 1992

Subject: RE-EVALUATION OF THE RCRA DETERMINATION FOR THE PLANTWIDE ROOFING PROJECT FOR CONFORMANCE TO TC REGULATION

To : J. P. Platania

- Ref: 1. WEMCO Site Standard Operating Procedure SSOP-0044I, "Controlling the Generation of Construction/Maintenance Waste," issued February 19, 1992
2. WEMCO:OSH(SW):89-013, G. E. Baker to L. W. Bunk, "Radiological Characterization/RCRA Determination for Rubble From the Plant 6 Roof Repairs - North End (W.O. #1192)," dated January 20, 1989
3. WEMCO:OSH(SW):89-016, G. E. Baker to L. W. Bunk, "Radiological Characterization/RCRA Determination for Rubble From the Plant 6 Roof Repairs - South East (Engineering Project No. 00-88307)," dated January 20, 1989
4. WEMCO:OSH(SW):89-015, G. E. Baker to L. W. Bunk, "Radiological Characterization/RCRA Determination for Rubble From the KC-2 Warehouse Roof Repairs (Engineering Project No. 00-88307)," dated January 20, 1989

This memo transmits the re-evaluation of the RCRA determinations for the construction waste generated during the Plantwide Roofing Project. The waste material consists of roofing material, metal, and wood. The container numbers for the waste roofing material are provided in Attachment Number I.

#### PROCESS KNOWLEDGE

This construction project was located in the controlled area of the FEMP, at Plant 6 and KC-2 Warehouse. The waste was generated during the removal of the flat roofs at the buildings in preparation of planned roof repairs. RCRA determinations and radiological characterizations were performed at the time of the waste generation (Reference Numbers 2, 3, and 4), however, because the waste was not shipped off-site prior to September 25, 1990, the waste has to be re-evaluated for the new TC Regulatory constituents.

The Material Safety Data Sheets for roofing materials used at the site indicate that these materials contained asphalt (benzene), Mineral Spirits, Methyl Isobutyl Ketone, and other volatiles. However, all volatile and semi-volatile sample results were below regulatory limits.

**SAMPLING AND ANALYSIS**

Samples were collected from 10 of the 15 containers and were analyzed for TCLP volatile organics and semi-volatile organics. Volatile and semi-volatile organics were all below the TC Regulatory levels. Sample results are summarized in Tables I and II.

**RCRA DETERMINATION**

Based upon process knowledge (References 2, 3, and 4), and analytical results, the roofing, wood, and metal waste from this project in containers shown in Attachment Number 1, are RCRA nonhazardous (a.k.a. non-RCRA) and can be disposed of per Reference 1.

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24. The waste is therefore considered RCRA nonhazardous (a.k.a. non-RCRA).

**SUMMARY**

The roofing material wood and metal waste stored in the containers listed in Attachment Number I is RCRA nonhazardous (a.k.a. non-RCRA) waste and may be disposed of in accordance with Reference Number 1.

This determination applies only to the waste stored in the containers listed in Attachment I. Any additional waste generated from this project will require an additional RCRA determination.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.

  
C. G. Rieman

Facilities and Materials Evaluation  
Environmental Management

CGR:bbs

**Attachments**

c w/att:

R. W. Hairston  
J. P. Hopper  
S. G. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March

T. M. Patterson  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
F. B. Thompson

J. L. Trujillo  
T. J. Walsh  
Central Files  
FME File

TABLE I

## VOLATILE ORGANICS ANALYTICAL RESULTS

| VOLATILE ORGANICS    | MATRIX | SAMPLE RESULTS AND CONTAINER NUMBER |        |        |        |        |       |
|----------------------|--------|-------------------------------------|--------|--------|--------|--------|-------|
|                      |        | PPM                                 | PPM    | PPM    | PPM    | PPM    | PPM   |
|                      |        | 115803                              | 115804 | 115814 | 115047 | 115696 |       |
| VINYL CHLORIDE       | SOLID  | <0.15                               | <0.15  | <0.15  | <0.15  | <0.15  | <0.15 |
| 1,1-DICHLOROETHYLENE | SOLID  | <0.12                               | <0.12  | <0.12  | <0.12  | <0.12  | <0.12 |
| 2-BUTANONE (MEK)     | SOLID  | <0.25                               | <0.25  | <0.25  | <0.25  | <0.25  | <0.25 |
| CHLOROFORM           | SOLID  | <0.12                               | <0.12  | <0.12  | <0.12  | <0.12  | <0.12 |
| CARBON TETRACHLORIDE | SOLID  | <0.15                               | <0.15  | <0.15  | <0.15  | <0.15  | <0.15 |
| BENZENE              | SOLID  | <0.09                               | <0.09  | <0.09  | <0.09  | <0.09  | <0.09 |
| 1,2-DICHLOROETHANE   | SOLID  | <0.10                               | <0.10  | <0.10  | <0.10  | <0.10  | <0.10 |
| TRICHLOROETHYLENE    | SOLID  | <0.22                               | <0.22  | <0.22  | <0.22  | <0.22  | <0.22 |
| CHLOROBENZENE        | SOLID  | <0.19                               | <0.19  | <0.19  | <0.19  | <0.19  | <0.19 |
| TETRACHLOROETHYLENE  | SOLID  | <0.50                               | <0.50  | <0.50  | <0.50  | <0.50  | <0.50 |
| 1,4-DICHLOROBENZENE  | SOLID  | <0.35                               | <0.35  | <0.35  | <0.35  | <0.35  | <0.35 |

4057

## VOLATILE ORGANICS ANALYTICAL RESULTS

| VOLATILE ORGANICS    | MATRIX | SAMPLE RESULTS AND CONTAINER NUMBER |        |        |        |     |     |
|----------------------|--------|-------------------------------------|--------|--------|--------|-----|-----|
|                      |        | PPM                                 | PPM    | PPM    | PPM    | PPM | PPM |
|                      |        | 115839                              | 115812 | 115794 | 115837 |     |     |
| VINYL CHLORIDE       | SOLID  | <0.15                               | <0.15  | <0.15  | <0.15  |     |     |
| 1,1-DICHLOROETHYLENE | SOLID  | <0.12                               | <0.12  | <0.12  | <0.12  |     |     |
| 2-BUTANONE (MEK)     | SOLID  | <0.25                               | <0.25  | <0.25  | <0.25  |     |     |
| CHLOROFORM           | SOLID  | <0.12                               | <0.12  | <0.12  | <0.12  |     |     |
| CARBON TETRACHLORIDE | SOLID  | <0.15                               | <0.15  | <0.15  | <0.15  |     |     |
| BENZENE              | SOLID  | <0.09                               | <0.09  | <0.09  | <0.09  |     |     |
| 1,2-DICHLOROETHANE   | SOLID  | <0.10                               | <0.10  | <0.10  | <0.10  |     |     |
| TRICHLOROETHYLENE    | SOLID  | <0.22                               | <0.22  | <0.22  | <0.22  |     |     |
| CHLOROBENZENE        | SOLID  | <0.19                               | <0.19  | <0.19  | <0.19  |     |     |
| TETRACHLOROETHYLENE  | SOLID  | <0.50                               | <0.50  | <0.50  | <0.50  |     |     |
| 1,4-DICHLOROBENZENE  | SOLID  | <0.35                               | <0.35  | <0.35  | <0.35  |     |     |

VOLATILE ORGANICS ANALYTICAL RESULTS

| VOLATILE ORGANICS    | MATRIX | SAMPLE RESULTS AND CONTAINER NUMBER |                     |     |     |     |     |
|----------------------|--------|-------------------------------------|---------------------|-----|-----|-----|-----|
|                      |        | PPM                                 | PPM                 | PPM | PPM | PPM | PPM |
|                      |        | 115754                              | 115754<br>DUPLICATE |     |     |     |     |
| VINYL CHLORIDE       | SOLID  | <0.15                               | <0.15               |     |     |     |     |
| 1,1-DICHLOROETHYLENE | SOLID  | <0.12                               | <0.12               |     |     |     |     |
| 2-BUTANONE (MEK)     | SOLID  | <0.25                               | <0.25               |     |     |     |     |
| CHLOROFORM           | SOLID  | <0.12                               | <0.12               |     |     |     |     |
| CARBON TETRACHLORIDE | SOLID  | <0.15                               | <0.15               |     |     |     |     |
| BENZENE              | SOLID  | <0.09                               | <0.09               |     |     |     |     |
| 1,2-DICHLOROETHANE   | SOLID  | <0.10                               | <0.10               |     |     |     |     |
| TRICHLOROETHYLENE    | SOLID  | <0.22                               | <0.22               |     |     |     |     |
| CHLOROBENZENE        | SOLID  | <0.19                               | <0.19               |     |     |     |     |
| TETRACHLOROETHYLENE  | SOLID  | <0.50                               | <0.50               |     |     |     |     |
| 1,4-DICHLOROBENZENE  | SOLID  | <0.35                               | <0.35               |     |     |     |     |

TABLE II

## SEMI-VOLATILE ORGANICS ANALYTICAL RESULTS

| SEMI-VOLATILE ORGANICS | MATRIX | ANALYTICAL RESULTS AND CONTAINER NUMBER |        |        |        |        |       |
|------------------------|--------|---|--------|--------|--------|--------|-------|
|                        |        | PPM                                     | PPM    | PPM    | PPM    | PPM    | PPM   |
|                        |        | 115803                                  | 115804 | 115814 | 115047 | 115696 |       |
| PYRIDINE               | SOLID  | <0.08                                   | <0.08  | <0.08  | <0.08  | <0.08  | <0.08 |
| O-CRESOL               | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| HEXACHLOROETHANE       | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| M,P-CRESOL             | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| NITROBENZENE           | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| HEXACHLOROBUTADIENE    | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| 2,4,6-TRICHLOROPHENOL  | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| 2,4,5-TRICHLOROPHENOL  | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| 2,4-DINITROTOLUENE     | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| HEXACHLOROBENZENE      | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |
| PENACHLOROPHENOL       | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04  | <0.04 |

## TABLE II

## SEMI-VOLATILE ORGANICS ANALYTICAL RESULTS

| SEMI-VOLATILE ORGANICS | MATRIX | ANALYTICAL RESULTS AND CONTAINER NUMBER |        |        |        |       |       |
|------------------------|--------|---|--------|--------|--------|-------|-------|
|                        |        | PPM                                     | PPM    | PPM    | PPM    | PPM   | PPM   |
|                        |        | 115839                                  | 115812 | 115794 | 115837 |       |       |
| PYRIDINE               | SOLID  | <0.08                                   | <0.08  | <0.08  | <0.08  | <0.08 | <0.08 |
| O-CRESOL               | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| HEXACHLOROETHANE       | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| M,P-CRESOL             | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| NITROBENZENE           | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| HEXACHLOROBUTADIENE    | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| 2,4,6-TRICHLOROPHENOL  | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| 2,4,5-TRICHLOROPHENOL  | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| 2,4-DINITROTOLUENE     | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| HEXACHLOROBENZENE      | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |
| PENACHLOROPHENOL       | SOLID  | <0.04                                   | <0.04  | <0.04  | <0.04  | <0.04 | <0.04 |

4057

TABLE II

SEMI-VOLATILE ORGANICS ANALYTICAL RESULTS

| SEMI-VOLATILE ORGANICS | MATRIX | ANALYTICAL RESULTS AND CONTAINER NUMBER |                     |     |     |     |     |
|------------------------|--------|---|---------------------|-----|-----|-----|-----|
|                        |        | PPM                                     | PPM                 | PPM | PPM | PPM | PPM |
|                        |        | 115754                                  | DUPLICATE<br>115754 |     |     |     |     |
| PYRIDINE               | SOLID  | <0.08                                   | <0.08               |     |     |     |     |
| O-CRESOL               | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| HEXACHLOROETHANE       | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| M,P-CRESOL             | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| NITROBENZENE           | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| HEXACHLOROBUTADIENE    | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| 2,4,6-TRICHLOROPHENOL  | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| 2,4,5-TRICHLOROPHENOL  | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| 2,4-DINITROTOLUENE     | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| HEXACHLOROBENZENE      | SOLID  | <0.04                                   | <0.04               |     |     |     |     |
| PENACHLOROPHENOL       | SOLID  | <0.04                                   | <0.04               |     |     |     |     |

4057

ATTACHMENT I  
CONTAINER NUMBERS AND LOT NUMBERS

PLANTWIDE ROOFING PROJECT CONTIANER INFORMATION

4057

|                  |   |               |        |
|------------------|---|---------------|--------|
| W050-705-P3-A335 | 1 | wood          | 60633  |
| W050-705-P3-A322 | 1 | metal/roofing | 112284 |
| W050-705-P3-A323 | 2 | metal         | 112340 |
| W050-705-P3-A326 | 1 | roofing       | 115047 |
| W050-705-P3-A327 | 8 | roofing       | 115696 |
| W050-705-P3-A327 | 7 | roofing       | 115754 |
| W050-705-P3-A328 | 1 | roofing       | 115794 |
| W050-705-P3-A327 | 1 | roofing       | 115803 |
| W050-705-P3-A327 | 4 | roofing       | 115804 |
| W050-705-P3-A327 | 2 | roofing       | 115812 |
| W050-705-P3-A327 | 9 | roofing       | 115814 |
| W050-705-P3-A328 | 2 | roofing/metal | 115834 |
| W050-705-P3-A327 | 5 | roofing       | 115837 |
| W050-705-P3-A327 | 6 | roofing       | 115839 |

SEA/LAND CONTAINERS

|                  |   |         |        |
|------------------|---|---------|--------|
| W050-705-P3-A329 | 0 | roofing | 111359 |
|------------------|---|---------|--------|



From: C. S. Waugh

WMCO:EC&QA(OU3/FME):91-265

Date: July 17, 1991

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE PROCESS WATER BREAK TANK CONSTRUCTION PROJECT - PROJECT NUMBER PA 20-91201

To : J. F. Janes

- Reference:
1. FMPC Site Procedure, FMPC-720, "Control of Construction Waste", issued November 10, 1988.
  2. Facilities Task Force Final Report, WMCO:SR(IA):88-0684, dated August 3, 1989.
  3. AEDO Spill Data Base.
  4. Environmental Compliance Spill/Release Incident Tracking Report, dated April 3, 1991.
  5. Upset Condition Documentation, issued September 18, 1989.
  6. FMPC Weed Control File - 1980 through 1986.

This memo transmits the RCRA Determination and Radiological Characterization for the Process Water Break Tank, Construction Project Number PA 20-91201. The waste to be generated from this project consists of approximately 2,400 cubic feet (264,000 pounds) of soil and approximately 175 cubic feet (26,500 pounds) of concrete.

#### PROCESS KNOWLEDGE

This construction project is located in the Controlled Area of the FMPC, immediately south of the Boiler Plant coal pile.

The coal pile area was investigated in 1988, (reference number 2) with five soil boring samples taken to a depth of three feet. Samples were collected every two inches to a depth of 10 inches, and analyzed for EP Toxicity metals and uranium. The remaining depth was sampled every six inches and analyzed for uranium only. These sample locations, sample identification and analytical results are shown in attachment number 1. Sample numbers 1a through 1j were taken in the construction area where the new tank will be located.

J. F. Janes

-2-

WMCO:EC&amp;QA(OU3/FME):91-265

This area was never used to process uranium, thorium or any other materials. There were no recorded spills or releases in this construction site per reference numbers 3, 4, and 5.

The immediate areas of the construction site was not sprayed with herbicides, per reference number 6, however, the area east and west of the construction site were sprayed. Soil and concrete samples were analyzed for herbicides/pesticides, to rule out any runoff into the construction area.

#### **SAMPLING AND ANALYSIS**

Thirteen soil samples and two concrete samples were taken in the construction area. The surface soil samples were analyzed for TCLP Metals, pesticide/herbicide and radiological. The one foot soil samples were analyzed for radiological only. The two concrete samples were analyzed for TCLP metals, and radiological. These sample results are shown in Table Number 1 (Radiological) and 2 (TCLP). Sample locations are shown in attachment number 2.

#### **RADIOLOGICAL CHARACTERIZATION**

The radiological analytical results are shown in Table Number 1. The uranium results were all within Category 1 limits (less than 35 pCi/g) except for sample locations numbers 2, 4 and 14 (surface samples) these areas were Category 2 (greater than 35 pCi/g). The Thorium analytical results were all within Category 2 limits of less than 10 pCi/g. The soil and concrete from this construction project may be disposed of as Category 1 and Category 2 materials per reference number 1.

#### **RCRA DETERMINATION**

Process knowledge of the area shows that no materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, subpart D), or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

The process knowledge gained from EP Toxicity analytical results (attachment number 1) indicates that there is no concern for characteristic hazardous metals in the area.

The TCLP analytical results of the soil and concrete for metals were all below the regulatory limits, and the herbicides/pesticides were below detectable limits.

J. F. Janes

-3-

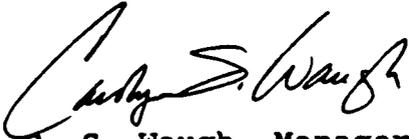
WMCO:EC&amp;QA(OU3/FME):91-265

**SUMMARY**

The soil and concrete generated from this construction project can be disposed of as non RCRA, Category 1 and 2 material.

If additional waste is generated during the construction of this project an additional RCRA determination will be required.

If there are any questions please contact Glenn Rieman at extension 6828 or myself at extension 6777.



C. S. Waugh, Manager  
Facilities and Materials Evaluation  
Operable Unit 3 Compliance

CGR:vlr

Attachments 1, 2, and 3

|    |                 |                  |
|----|-----------------|------------------|
| c: | w/att.          | B. S. Perkins    |
|    | S. L. Bradley   | C. G. Rieman     |
|    | S. D. Brown     | J. M. Sattler    |
|    | J. E. Clements  | E. D. Savage     |
|    | S. J. Dechter   | S. G. Schneider  |
|    | R. L. Gardner   | R. A. Shircliffe |
|    | S. W. Heisler   | T. J. Stone      |
|    | J. P. Hopper    | J. L. Trujillo   |
|    | S. C. Hoskins   | J. J. Volpe      |
|    | L. A. Hurst     | T. J. Walsh      |
|    | H. J. Knue      | P. C. Weddle     |
|    | L. B. Ko        |                  |
|    | S. J. Lund      | Central Files    |
|    | T. M. Patterson | FME Files        |

TABLE NUMBER 1  
RADIOLOGICAL ANALYTICAL RESULTS - SOIL AND CONCRETE

| SAMPLE NUMBER | URANIUM ANALYSIS |             |            |                |                   |          |          |          |          |          | THORIUM ANALYSIS |                   |             |             |             |
|---------------|------------------|-------------|------------|----------------|-------------------|----------|----------|----------|----------|----------|------------------|-------------------|-------------|-------------|-------------|
|               | LOCATION         | ALPHA pCi/g | BETA pCi/g | Total Conc ppm | Total Actv. pCi/g | U233 w1% | U234 w1% | U235 w1% | U236 w1% | U238 w1% | Total Conc ppm   | Total Actv. pCi/g | Th228 pCi/g | Th230 pCi/g | Th234 pCi/g |
| EM2401        | 1-0              | <17         | <28        | 17             | 13                | 0.002    | 0.006    | 0.56     | 0.011    | 99.43    | <18              | 3.4               | 1.0         | 1.5         | 0.91        |
| EM2405        | 1-1              |             |            | 29             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2406        | 1-1              |             |            | 25             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2404        | 2-0              | 26          | 37         | 52             | 40                | 0.001    | 0.007    | 0.62     | 0.009    | 99.36    | <18              | 3.3               | 0.95        | 1.7         | 0.62        |
| EM2409        | 2-1              |             |            | 34             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2410        | 3-0              | <18         | <25        | 20             | 13                | 0.001    | 0.005    | 0.68     | 0.004    | 99.32    | <18              | 2.3               | 0.38        | 1.3         | 0.65        |
| EM2415        | 3-1              |             |            | 30             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2402        | 4-0              | <16         | <25        | 12             | 68                | <0.001   | 0.003    | 0.62     | 0.012    | 99.36    | <18              | 2.3               | 0.7         | 1.1         | 0.57        |
| EM2407        | 4-1              |             |            | 30             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2403        | 5-0              | <17         | <26        | 15             | 9.1               | 0.001    | 0.004    | 0.69     | 0.008    | 99.30    | <18              | 3.1               | 0.67        | 1.6         | 0.82        |
| EM2408        | 5-1              |             |            | 15             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2417        | 6-0              | 9.0         | 14.0       | 20             | 13                | 0.001    | 0.005    | 0.68     | 0.032    | 99.28    | <18              | 3.4               | 0.92        | 1.8         | 0.67        |
| EM2418        | 6-1              |             |            | 16             |                   |          |          |          |          |          | <18              |                   |             |             |             |
| EM2412        | 7-0              | <17         | <26        | <11            | 5.2               | <0.001   | 0.002    | 0.67     | 0.006    | 99.33    | <18              | 2.7               | 0.72        | 1.2         | 0.84        |
| EM2413        | 7-1              |             |            | <11            |                   |          |          |          |          |          | <18              |                   |             |             |             |

4057

TABLE NUMBER 1  
 RADIOLOGICAL ANALYTICAL RESULTS - SOIL AND CONCRETE

| SAMPLE NUMBER | LOCATION | URANIUM ANALYSIS |            |                |                    |         | THORIUM ANALYSIS |         |         |         |         |         |                |              |       |             |             |             |
|---------------|----------|------------------|------------|----------------|--------------------|---------|------------------|---------|---------|---------|---------|---------|----------------|--------------|-------|-------------|-------------|-------------|
|               |          | ALPHA pCi/g      | BETA pCi/g | Total Conc ppm | Total Activ. pCi/g | U238 w% | U235 w%          | U234 w% | U233 w% | U238 w% | U235 w% | U234 w% | Total Conc ppm | Activ. pCi/g | Total | Th228 pCi/g | Th230 pCi/g | Th234 pCi/g |
| EM2411        | 8-0      | <14              | <22        | <11            | 6.0                | <0.001  | 0.003            | 0.59    | 0.007   | 89.40   | <18     | 2.9     | 0.87           | 1.3          | 0.68  |             |             |             |
| EM2414        | 8-1      |                  |            | 16             |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2419        | 9-0      | 17               | 17         | 33             | 20                 | <0.001  | 0.004            | 0.71    | 0.005   | 99.28   | <18     | 5.6     | 1.0            | 3.4          | 1.2   |             |             |             |
| EM2420        | 9-1      |                  |            | 16             |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2431        | 9-1      |                  |            | 19             |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2421        | 10-0     | 22               | 24         | 34             | 16                 | <0.001  | 0.002            | 0.67    | 0.006   | 99.32   | <18     | 3.2     | 0.97           | 1.5          | 0.68  |             |             |             |
| EM2422        | 10-1     |                  |            | 24             |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2423        | 11-0     | 14               | 23         | 41             | 21                 | <0.001  | 0.002            | 0.69    | 0.006   | 99.30   | <18     | 3.8     | 0.88           | 2.2          | 0.71  |             |             |             |
| EM2424        | 11-1     |                  |            | 21             |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2426        | 12-0     | <16              | <25        | <11            | <6.8               | <0.001  | 0.004            | 0.69    | 0.007   | 99.30   | <18     | 2.6     | 0.94           | 1.3          | 0.38  |             |             |             |
| EM2427        | 12-1     |                  |            | 11             |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2429        | 13-0     | <16              | <25        | <11            | <5.5               | <0.001  | 0.002            | 0.70    | 0.005   | 99.29   | <18     | 3.1     | 0.79           | 1.5          | 0.79  |             |             |             |
| EM2430        | 13-1     |                  |            | <11            |                    |         |                  |         |         |         | <18     |         |                |              |       |             |             |             |
| EM2425        | 12-0*    | <17              | <26        | <11            | <7.8               | 0.001   | 0.006            | 0.70    | 0.008   | 99.29   | <18     | 2.3     | 1.2            | 0.73         | 0.41  |             |             |             |
| EM2428        | 13-0*    | <17              | <26        | <11            | <7.8               | <0.001  | 0.006            | 0.71    | 0.003   | 99.28   | <18     | 2.4     | 1.2            | 0.82         | 0.41  |             |             |             |

4057

TABLE NUMBER 2

TCLP ANALYTICAL RESULTS - mg/L

METALS - SOIL

| SAMPLE LOCATION | SAMPLE NUMBER | As | Ba    | Cd | Cr | Pb | Se | Ag | Hg |
|-----------------|---------------|----|-------|----|----|----|----|----|----|
| 1-0             | EM2401        | ND | ND    | ND | ND | ND | ND | ND | ND |
| 2-0             | EM2402        | ND | 0.595 | ND | ND | ND | ND | ND | ND |
| 3-0             | EM2410        | ND | 0.309 | ND | ND | ND | ND | ND | ND |
| 4-0             | EM2404        | ND | ND    | ND | ND | ND | ND | ND | ND |
| 5-0             | EM2403        | ND | 0.744 | ND | ND | ND | ND | ND | ND |
| 6-0             | EM2417        | ND | 0.500 | ND | ND | ND | ND | ND | ND |
| 7-0             | EM2412        | ND | 0.701 | ND | ND | ND | ND | ND | ND |
| 8-0             | EM2411        | ND | 0.688 | ND | ND | ND | ND | ND | ND |
| 9-0             | EM2419        | ND | 0.758 | ND | ND | ND | ND | ND | ND |
| 10-0            | EM2421        | ND | 0.487 | ND | ND | ND | ND | ND | ND |
| 11-0            | EM2423        | ND | 0.481 | ND | ND | ND | ND | ND | ND |
| 12-0            | EM2426        | ND | 0.284 | ND | ND | ND | ND | ND | ND |
| 13-0            | EM2429        | ND | 1.099 | ND | ND | ND | ND | ND | ND |

CONCRETE

|      |        |    |       |    |    |    |    |    |    |
|------|--------|----|-------|----|----|----|----|----|----|
| 12-0 | EM2425 | ND | 1.274 | ND | ND | ND | ND | ND | ND |
| 13-0 | EM2428 | ND | 0.508 | ND | ND | ND | ND | ND | ND |

ND = NOT DETECTED

4057

TABLE NUMBER 2

TCLP ANALYTICAL RESULTS - mg/L

HERBICIDES/PESTICIDES - SOIL

| SAMPLE LOCATION | SAMPLE NUMBER | SILVEX 2,4,5-TP | CHLORO-DANE | HEPTACHLOR EPOXIDE | METHOXY-CHLOR | ENDRIN | LINDANE | TOXA-PHENE |
|-----------------|---------------|-----------------|-------------|--------------------|---------------|--------|---------|------------|
| 1-0             | EM2401        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 1-1             |               |                 |             |                    |               |        |         |            |
| 2-0             | EM2404        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 2-1             |               |                 |             |                    |               |        |         |            |
| 3-0             | EM2410        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 3-1             |               |                 |             |                    |               |        |         |            |
| 4-0             | EM2402        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 4-1             |               |                 |             |                    |               |        |         |            |
| 5-0             | EM2403        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 5-1             |               |                 |             |                    |               |        |         |            |
| 6-0             | EM2417        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 6-1             |               |                 |             |                    |               |        |         |            |
| 7-0             | EM2412        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 7-1             |               |                 |             |                    |               |        |         |            |
| 8-0             | EM2411        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 8-1             |               |                 |             |                    |               |        |         |            |
| 9-0             | EM2419        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 9-1             |               |                 |             |                    |               |        |         |            |
| 10-0            | EM2421        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 10-1            |               |                 |             |                    |               |        |         |            |
| 11-0            | EM2423        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 11-1            |               |                 |             |                    |               |        |         |            |
| 12-0            | EM2426        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 12-1            |               |                 |             |                    |               |        |         |            |
| 13-0            | EM2429        | ND              | ND          | ND                 | ND            | ND     | ND      | ND         |
| 13-1            |               |                 |             |                    |               |        |         |            |

ND - NOT DETECTED

ATTACHMENT NO. 1

4057

COAL STORAGE AREA SOIL SAMPLING RESULTS

| TOTAL<br>SAMPLE ID | U ppm | SOIL pH | *SOIL pH | X U 234              | X U 235 | X U 236 | X U 238 | E.P. TOXICITY   |                  |                 |                  |              |                  |                  |
|--------------------|-------|---------|----------|----------------------|---------|---------|---------|-----------------|------------------|-----------------|------------------|--------------|------------------|------------------|
|                    |       |         |          |                      |         |         |         | ARSENIC (5 ppm) | BARIUM (100 ppm) | CADMIUM (1 ppm) | CHROMIUM (5 ppm) | LEAD (5 ppm) | MERCURY (.2 ppm) | SELENIUM (1 ppm) |
| 1A                 | 32    | 7.0     | 7.2      | 0.0030               | 0.4400  | 0.0080  | 99.5500 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 1B                 | 62    | 7.2     | 7.4      | 0.0047               | 0.6900  | 0.0042  | 99.3000 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 1C                 | 38    | 7.9     | 7.6      | 0.0050               | 0.7200  | 0.0030  | 99.2700 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 1D                 | 32    | 7.8     | 7.1      | 0.0058               | 0.7000  | 0.0015  | 99.2900 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 1E                 | 23    | 7.7     | 7.2      | 0.0050               | 0.6900  | 0.0020  | 99.3000 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 1F                 | 13    | 7.9     | 7.5      | 0.0049               | 0.6900  | 0.0022  | 99.3000 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 1G                 | 4     | 8.2     | 7.7      | INSUFFICIENT SAMPLE  | .....   | .....   | .....   | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 1H                 | 3     | 8.2     | 7.9      | INSUFFICIENT SAMPLE  | .....   | .....   | .....   | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 1I                 | 22    | 7.8     | 7.8      | 0.0050               | 0.7000  | 0.0010  | 99.2900 | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 1J                 | 3     | 8.7     | 7.6      | INSUFFICIENT SAMPLE  | .....   | .....   | .....   | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 2A                 | 3     | 7.7     | 7.5      | 0.0090               | 0.9600  | 0.0490  | 98.9800 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 2B                 | 6     | 8.0     | 7.5      | 0.0046               | 0.6700  | 0.0202  | 99.3100 | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 2C                 | 5     | 8.0     | 7.5      | INSUFFICIENT URANIUM | .....   | .....   | .....   | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 2D                 | 4     | 7.7     | 7.5      | INSUFFICIENT URANIUM | .....   | .....   | .....   | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 2E                 | 7     | 7.8     | 7.4      | INSUFFICIENT URANIUM | .....   | .....   | .....   | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 2F                 | 4     | 7.5     | 7.4      | INSUFFICIENT URANIUM | .....   | .....   | .....   | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <1.0             |
| 2G                 | 2     | 5.2     | 6.3      | 0.0050               | 0.7100  | 0.0200  | 99.2600 | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 2H                 | 4     | 6.4     | 7.0      | 0.0050               | 0.5900  | 0.0090  | 99.3900 | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 2I                 | 2     | 8.5     | 7.2      | 0.0080               | 0.7600  | 0.0100  | 99.2200 | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 2J                 | 2     | 8.3     | 7.4      | 0.0060               | 0.7500  | 0.0070  | 99.2400 | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |
| 2K                 | 4     | 8.0     | 7.5      | 0.0052               | 0.7000  | 0.0032  | 99.3000 | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              |

\* 10 g. sample in 50 ml. H2O

COAL STORAGE AREA SOIL SAMPLING RESULTS

| SAMPLE ID | TOTAL U ppm | SOIL pH | *SOIL pH | X U 234 | X U 235 | X U 236 | X U 238 | E.P. TOXICITY   |                  |                 |                  |              |                  |                  |                |      |
|-----------|-------------|---------|----------|---------|---------|---------|---------|-----------------|------------------|-----------------|------------------|--------------|------------------|------------------|----------------|------|
|           |             |         |          |         |         |         |         | ARSENIC (5 ppm) | BARIUM (100 ppm) | CADMIUM (1 ppm) | CHROMIUM (5 ppm) | LEAD (5 ppm) | MERCURY (.2 ppm) | SELENIUM (1 ppm) | SILVER (5 ppm) |      |
| 3A        | 6           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 3B        | 3           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 3C        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 3D        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 3E        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 3F        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 3G        | 2           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 3H        | 2           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 3I        | 2           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 3J        | 2           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 3K        | 2           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
|           |             |         |          |         |         |         |         |                 |                  |                 |                  |              |                  |                  |                |      |
| 4A        | 7           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 4B        | 4           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 4C        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 4D        | 3           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 4E        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 4F        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <1.0             | <0.1             | <0.1           | <1.0 |
| 4G        | 3           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 4H        | 3           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 4I        | 5           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 4J        | 5           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |
| 4K        | 3           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            | N/A  |

COAL STORAGE AREA SOIL SAMPLING RESULTS

| SAMPLE ID | TOTAL U ppm | SOIL pH | *SOIL pH | X U 234 | X U 235 | X U 236 | X U 238 | E.P. TOXICITY   |                  |                 |                  |              |                  |                  |                |
|-----------|-------------|---------|----------|---------|---------|---------|---------|-----------------|------------------|-----------------|------------------|--------------|------------------|------------------|----------------|
|           |             |         |          |         |         |         |         | ARSENIC (5 ppm) | BARIUM (100 ppm) | CADMIUM (1 ppm) | CHROMIUM (5 ppm) | LEAD (5 ppm) | MERCURY (.2 ppm) | SELENIUM (1 ppm) | SILVER (5 ppm) |
| 5A        | 10          |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <0.1             | <1.0           |
| 5B        | 4           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <0.1             | <1.0           |
| 5C        | 4           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <0.1             | <1.0           |
| 5D        | 2           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <0.1             | <1.0           |
| 5E        | 4           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <0.1             | <1.0           |
| 5F        | 4           |         |          |         |         |         |         | <1.0            | <25              | <0.2            | <1.0             | <1.0         | <0.1             | <0.1             | <1.0           |
| 5G        | 5           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            |
| 5H        | 6           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            |
| 5I        | 5           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            |
| 5J        | 2           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            |
| 5K        | 3           |         |          |         |         |         |         | N/A             | N/A              | N/A             | N/A              | N/A          | N/A              | N/A              | N/A            |



4057

**ATTACHMENT NO. 2**

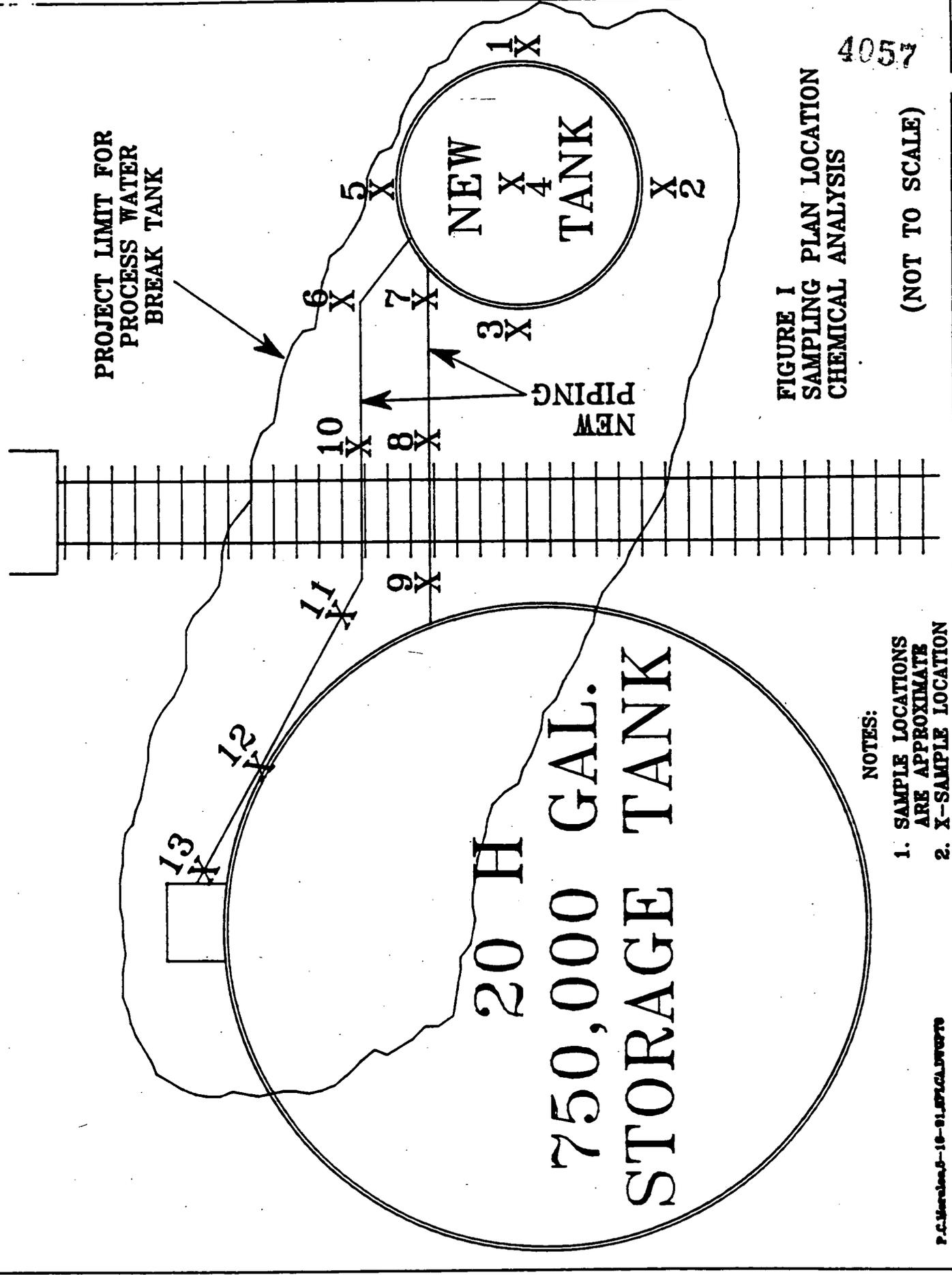


FIGURE 1  
SAMPLING PLAN LOCATION  
CHEMICAL ANALYSIS

(NOT TO SCALE)

NOTES:

- 1. SAMPLE LOCATIONS ARE APPROXIMATE
- 2. X-SAMPLE LOCATION



4057

**From:** C. G. Rieman\6828

WEMCO:EM(FME):92-072

**Date:** March 12, 1992

**Subject:** RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE  
TRANSITIONAL ADDITIONAL CONTRACTOR OFFICE SPACE (TACOS)

**To :** J. R. Butterfield

- Ref:**
1. WEMCO Site Standard Operating Procedure, SSOP-0044I - "Controlling the Generation of Construction\Maintenance Waste", issued February 19, 1992
  2. WEMCO: (EMT/FME):92-004, C. S. Waugh to J. Apple, "RCRA Determination and Radiological Characterization for the Waste to be Generated From the Construction Project Multiplex Office Trailers (EPA/Parsons Office Trailers)", dated February 28, 1992
  3. Environmental Compliance Spill/Release Incident Tracking Report, dated February 28, 1992
  4. Upset Condition Documentation, issued September 18, 1990

This memo transmits the RCRA Determination and Radiological Characteristics for the Transitional Additional Contractor Office Space (TACOS) Project. The waste to be generated includes approximately 8,000 cubic feet of soil weighing an estimated 1,170,000 pounds, and an estimated 5,000 pounds of chain link fencing, and fence posts with concrete.

#### PROCESS KNOWLEDGE

This construction project will be located in the Uncontrolled area of the FEMP, south of the newly installed Multiplex Office Trailers (EPA/Parsons office trailers) designated T-76 and T-77. The project will consist of the installation of 2, 10-plex office trailers and accompanying utilities. Utilities will be domestic water, sanitary, fire protection water, phones, electric and alarm systems.

The area of construction and excavation has never been used for the production of uranium, thorium or used for any other processes. There were no spill/releases in the construction area per Reference Numbers 3, and 4.

The grass area west of the Administration Building Number 14 and south of the Laboratory Building Number 15, was sprayed with Herbicides; however, TCLP analytical results (herbicides/pesticides) summarized in Reference Number 2 show herbicides/pesticides to be well below the regulatory limit. In addition, TCLP analytical results for TCLP Metals from other construction projects in the area summarized in Reference Number 2, are all well below the regulatory limits.

#### **SAMPLING AND ANALYSIS**

Soil samples were collected and analyzed as part of the EPA/Parsons Office Trailer project, Reference Number 2. In addition the EPA/Parsons Office Trailer project RCRA determination included a review of analytical data from other construction projects in the area. The sampling and analysis data collected for the EPA/Parsons Office Trailer project is representative of the soil quality in the area of the TACOS project and therefore no additional sampling and analysis is required.

#### **RADIOLOGICAL CHARACTERIZATION**

Four soil samples were collected from the TACOS construction area as part of the site CERCLA investigation and analyzed for uranium. The location and results of the analysis are shown in Attachment Number I. Uranium was detected at concentrations of 0.034, 0.042, 0.023, and 0.035 ppm at the sample locations. The waste soil to be generated is therefore characterized as Category 1 per Reference Number 1.

The chain link fencing, fence posts with concrete were surveyed by the IRS&T Radiological Safety Department and survey results indicate the above material to be Low Level Waste.

#### **RCRA DETERMINATION**

The construction waste soils to be generated from the TACOS project can be disposed of as a RCRA non hazardous (a.k.a. non-RCRA) in accordance with Reference Number 1. This determination is based upon process knowledge that no uranium, thorium or any other materials were processed in the construction area and upon the results of the EPA/Parsons Office Trailer project RCRA determination (Reference Number 2).

The chain link fencing, fence posts with concrete and miscellaneous metal wire are RCRA non hazardous (a.k.a. non-RCRA) based upon process knowledge of the waste material.

J. R. Butterfield

-3-

WEMCO:EM(FME):92-072

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

SUMMARY

The soil waste described above is RCRA non hazardous (a.k.a. non-RCRA), Category 1 waste and may be disposed of in accordance with Reference Number 1. The metal fence, metal fence posts with concrete and miscellaneous wire is RCRA non hazardous low level waste. This determination applies only to the waste listed on the Construction Waste Identification/Disposition (CWID) form dated November 29, 1991 and Revision 1 dated March 4, 1992. If any additional waste is generated from this project, an additional RCRA determination will be required.

If there are any questions, please contact me at extension 6828 or C. S. Waugh at extension 6777.

*C. G. Riemann*  
C. G. Riemann

Facilities and Materials Evaluation  
Environmental Management

DAL\tmk

w\attachments

- c: J. E. Clements
- R. W. Hairston
- S. W. Heisler Jr.
- J. P. Hopper
- S. C. Hoskins
- L. A. Hurst
- H. J. Knue
- L. B. Ko
- S. J. Lund
- L. M. March
- T. M. Patterson
- B. S. Perkins
- J. M. Sattler
- S. G. Schneider
- R. A. Thiel
- F. B. Thompson
- J. L. Trujillo
- T. J. Walsh

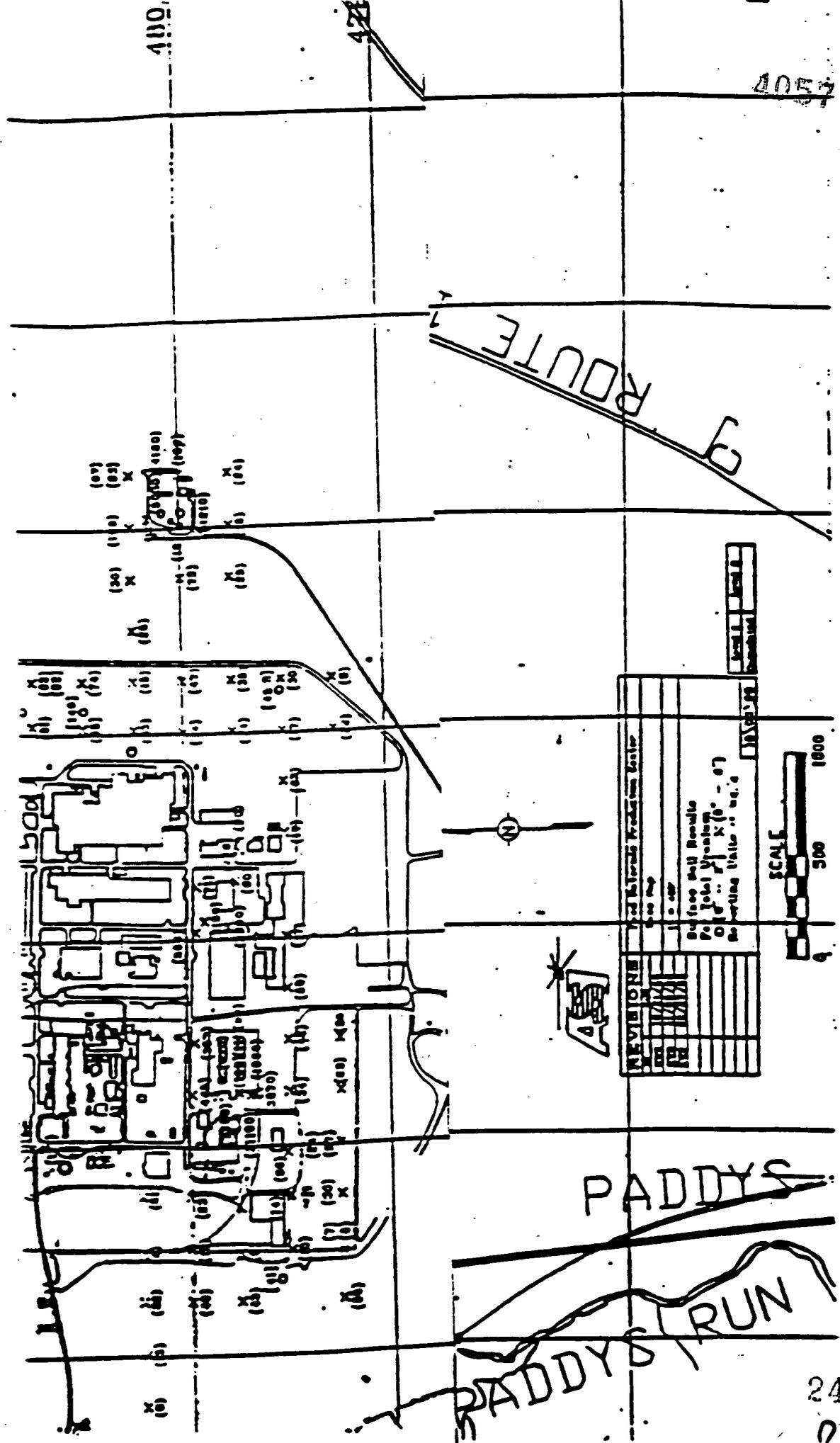
Central Files  
FME Files

Central Files

4057

ATTACHMENT NUMBER I

RADIOLOGICAL SAMPLE LOCATIONS AND SAMPLE ANALYSIS



100

422

4057

ROUTE 3

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| NEVISTONE | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

NEVISTONE  
 Surface Well Results  
 Pol Total Yields  
 Col Total Yields  
 Reporting Value: 0.07



PADDY'S

PADDY'S RUN

LOW-LEVEL RADIOACTIVE WASTE

MATERIALS EVALUATION AND CONTAINER INFORMATION - METAL

4057

SECTION I

| WASTE EVALUATION  | YES | UNKNOWN | NO | N/A |
|---|-----|---------|----|-----|
| Free from the following: a. Grease/oils .....   | ✓   |         |    |     |
| b. Solid residues .....   | ✓   |         |    |     |
| c. Entrapped liquids .....  | ✓   |         |    |     |
| d. Internal fluids .....  | ✓   |         |    |     |
| Material tagged as drained .....  | ✓   |         |    |     |
| Paint: Material free from lead-based paint or<br>Paint covers less than 10% of materials or<br>Material is greater than 1/16 inch thick ..... |     |         |    |     |
| Electrical Equipment: a. Ballasts removed .....   | ✓   |         |    |     |
| b. Starter caps removed .....   | ✓   |         |    |     |
| c. Mercury switches removed .....   | ✓   |         |    |     |
| d. Dielectric fluid removed .....   | ✓   |         |    |     |
| Plastic/Rubber: a. Material consists of less than 20% other materials by volume<br>(e.g. plastic, wood, or rubber parts/hardware) .....       |     |         |    | ✓   |
| a. If wood constitutes more than 20% by volume, then wood checklist (FS-F-3465) must also be used.  |     |         |    |     |

SECTION II - CONTAINER INFORMATION

MATERIAL ORIGIN/DESCRIPTION:  
**SCRAP METAL & PARTS**

|                                       |                                    |  |                   |
|---------------------------------------|------------------------------------|--|-------------------|
| 1. PACKAGING START DATE<br>3-19-92    | 2. PACKAGING FINISH DATE<br>4-8-92 | 3. OPERATOR(S) SIGNATURE<br>Pat Ford     | 4. DATE<br>4-8-92 |
| 5. CONTAINER NUMBER<br>626955-6168342 |                                    | 6. CONTAINER TYPE<br>SEALAND             |                   |
| 7. CARD NUMBER<br>126823              |                                    | 8. LOCATION PACKAGED<br>NORTH END Pkt. 9 |                   |
| 9. MEF NUMBER                         |                                    | 10. % COMBUSTIBLE<br>N/A                 |                   |

APPROVED BY: *[Signature]* SUPERVISOR(S) SIGNATURE  
 DATE: 4-8-92

Materials are packaged that do not meet the criteria established in Section I, but have an approved MEF number, the MEF number and material must be recorded.

GENERATOR TO MAKE DISTRIBUTION:

|  |      |
|--|------|
| Original to Facilities and Material Evaluation | MS65 |
| Copy to Waste Shipping                         | MS63 |
| Copy to Waste Management Compliance            | MS85 |



From: C. S. Waugh

MEMCO:EC&QA(OU3/FME):91-203

Date: September 12, 1991

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE WASTE TO BE GENERATED FROM THE OFFICE RENOVATION, ADMINISTRATION BUILDING, PA 14-90301

To :D. P. Cooper

- Reference:
1. FMPC Procedure, FMPC-720 "Control of Construction Waste", dated August 10, 1988.
  2. AEDO Spill Date
  3. Environmental Compliance Spill/Release Incident Tracking Report, Dated August 27, 1991.
  4. Upset Condition Documentation, issued September 18, 1990.
  5. Memorandum, WMCO:EC&QA(OU3/TSP):91-030, S. K. Kaster to C. D. Batchelor, "TASK 21/PCBs", dated April 18, 1991.

This memo transmits the RCRA determination and Radiological Characterization for the waste to be generated from the Office Renovation, Administration Building, Project Number PA 14-90301. The waste to be generated consists of non asbestos ceiling tile, 175 cu. ft. - 2400 pounds, metal and glass partitions, with stud wall and doors, 232 lin. ft. - 1450 pounds, fluorescent light fixtures 22 - 675 pounds, 10 metal casement windows, miscellaneous material (conduit, light switches, copper wire, steam radiators, and ductwork), and two drums of fluorescent light ballasts (1045 pounds).

#### PROCESS KNOWLEDGE

This construction project was located on the second floor of the Administration Building, which is located in the uncontrolled area of the FEMP. This area was always used for offices and was never used to process, or store uranium, thorium or any other materials. There were no spills or releases of any materials on the second floor of the Administration Building per reference numbers 2, 3, or 4.

The fluorescent light ballasts (non-leaking) were removed and placed in two 55 gallon drums. These drums were identified with lot number R050-735-P050-0350, drum numbers 1 and 2. The two drums were then moved and stored in building number 79C. Under federal regulations, fluorescent light ballasts are excluded unless they are found to contain leaks. The FEMP, however, treats all PCB fluorescent light ballasts as regulated items. The Westinghouse corporate and Office of Counsel policy in regard to PCB lighting ballasts states: PCB ballasts fall into the small

D. P. Cooper

-2-

WEMCO:EC&amp;QA(OU3/FME):91-203

capacitor category as defined in 40 CFR 761.3. While the federal regulations do not have any requirements for disposal unless you manufacture PCB equipment, Westinghouse takes a more conservative approach, all of the accumulation, labeling, and storage requirements for PCB materials must also be satisfied, reference number 5.

#### SAMPLING AND ANALYSIS

Five paint samples were taken in the construction area, two (2) from the steel window frames, one (1) from the metal partitions and two (2) from the concrete block walls. These samples were analyzed for TCLP Lead and Alpha, Beta Activity. Analytical results are shown in Table Number I.

Three samples of the wallboard and three samples of the ceiling tile were analyzed for percent asbestos, other fibers and nonfibrous materials. Analytical results are shown in attachment number 1.

#### RADIOLOGICAL CHARACTERIZATION

Based upon analytical results below 35 pCi/g and the radiological survey and smear analysis performed by the Industrial, Radiological Safety & Training-Radiological Safety Department, attachment number 2, the construction waste from this project can be disposed of as Category I material per reference number 1.

#### RCRA DETERMINATION

The construction waste generated from this project (ceiling tile, metal and glass partitions with stud wall and doors, fluorescent light fixtures, and miscellaneous materials (conduit, light switches, copper wire, steam radiators, and duct work), can be disposed of as RCRA non-hazardous (a.k.a., non RCRA) material in accordance with reference number 1. This determination is based upon analytical data, process knowledge that no uranium, thorium, or any other materials were processed, spilled, or released in the construction area. No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

The fluorescent light ballasts are to be stored as PCB material per 40 CFR 761.65.

#### SUMMARY

The construction waste described above is RCRA non-hazardous (a.k.a., non RCRA) material, and may be disposed of in accordance reference number 1 except the fluorescent light ballasts.

D. P. Cooper

-3-

WEMCO:EC&QA(OU3/FME):91-203

The fluorescent light ballasts will have to be drummed and stored per 40 CFR 761.65.

If there are any questions please contact Glenn Rieman at extension 6828, or myself at extension 6777.

*Carolyn S. Waugh*  
 Carolyn S. Waugh, Manager  
 Facilities and Materials Evaluation  
 Operable Unit 3 Compliance

CGR:vlr

- |    |                 |                 |
|----|-----------------|-----------------|
| c: | S. D. Brown     | C. G. Rieman    |
|    | J. E. Clements  | J. M. Sattler   |
|    | R. L. Gardner   | S. G. Schneider |
|    | R. W. Hairston  | K. A. Solomon   |
|    | S. W. Heisler   | R. A. Thiel     |
|    | A. T. Holstein  | J. L. Trujillo  |
|    | J. P. Hopper    | T. J. Walsh     |
|    | S. C. Hoskins   |                 |
|    | L. A. Hurst     | Central Files   |
|    | H. J. Knue      | FME Files       |
|    | S. K. Kaster    |                 |
|    | L. B. Ko        |                 |
|    | S. J. Lund      |                 |
|    | M. L. March     |                 |
|    | T. M. Patterson |                 |
|    | B. S. Perkins   |                 |

**TABLE NUMBER I**  
**ANALYTICAL RESULTS**

**TCLP LEAD**  
**CONCRETE AND PAINT**

|             | LEAD mg/l |
|-------------|-----------|
| 9101024-081 | 0.2       |
| 9101024-082 | 0.2       |

**METAL PORTITION - PAINT**

| SAMPLE I.D. | LEAD mg/l |
|-------------|-----------|
| 900823-028  | <0.150    |

**METAL WINDOWS - PAINT**

| SAMPLE I.D. | LEAD mg/l |
|-------------|-----------|
| 900822-007  | <0.030    |

**RADIOLOGICAL DATA**  
**ALPHA ACTIVITY BETA ACTIVITY**

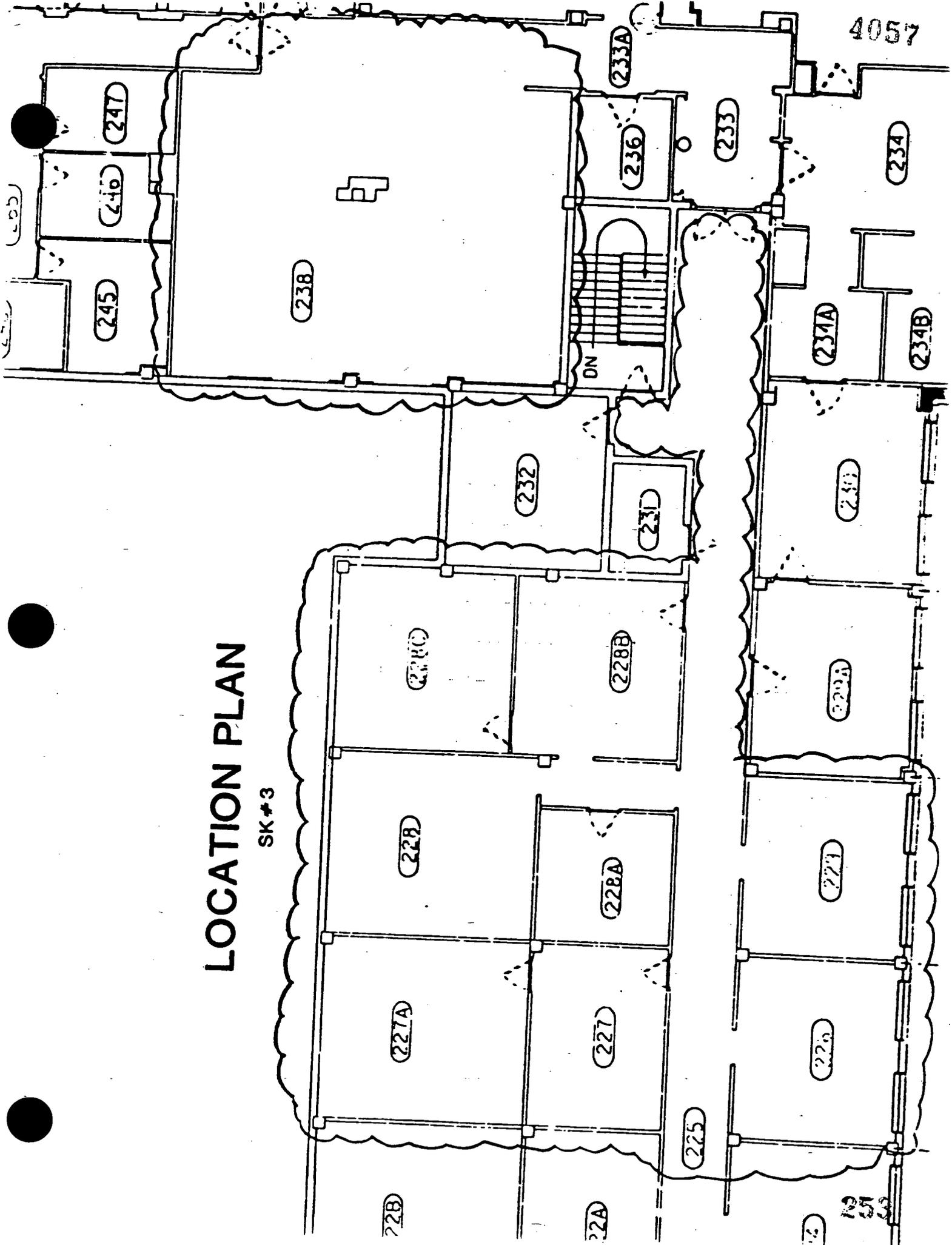
| NUMBER  | LOCATION         | pCi/g | pCi/g |
|---------|------------------|-------|-------|
| EM 1690 | METAL PARTITIONS | <26   | <47   |
| EM 1692 | WINDOW FRAME     | <36   | <46   |
| EM 2102 | CONCRETE BLOCK   | <32   | <79   |
| EM 2103 | CONCRETE BLOCK   | <44   | <83   |

**ATTACHMENT I**  
**ANALYTICAL DATA SHEET**



# LOCATION PLAN

SK #3



**ATTACHEMENT 2**  
**RADIOLOGICAL SURVEY REPORT**

**FMPC**  
**INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY**  
**RADIOLOGICAL SURVEY REPORT**

4057

Date: 6/28/90 LOCATION: Administration RST: Ardena Berlin Page 1 of 1

Time: 10:00 LEVEL: \_\_\_\_\_

FOR SURVEY:  ROUTINE  SPECIAL REQUEST  RWP  INCIDENT

COMMENTS:  
Survey of Room 206  
Prior to Demolition

FOLLOW-UP SURVEY ATTACHED  YES  NO  
 SURVEY MAP ATTACHED  YES  NO

| INSTRUMENTS   |               |                  |              |            |
|---------------|---------------|------------------|--------------|------------|
| MODEL         | SERIAL NUMBER | CALIBRATION DATE | BKRD.        | EFF.       |
| <u>BAICEN</u> | <u>4301P</u>  | <u>Oct 90</u>    | <u>46</u>    |            |
| <u>177</u>    | <u>59209</u>  | <u>Aug 90</u>    | <u>10</u>    |            |
| <u>LB5100</u> | <u>12</u>     | <u>July 90</u>   | <u>26.16</u> | <u>172</u> |

ANALYZE FOR:  ALPHA  BETA-GAMMA  OTHER

TYPE OF SURVEY:  CONTAMINATION  RADIATION  OTHER

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION           | CORRECTED DOSE RATE (mRem/hr) |     |       |     | DPM ALPHA           |           | DPM BETA-GAMMA      |       |
|-------------|------------------|-----------------------|-------------------------------|-----|-------|-----|---------------------|-----------|---------------------|-------|
|             |                  |                       | CONTACT                       |     | 3 FT. |     | 100 CM <sup>2</sup> | PROBE     | 100 CM <sup>2</sup> | PROBE |
|             |                  |                       | γ                             | B/γ | γ     | B/γ |                     |           |                     |       |
|             |                  | <u>WINDOW FRAMES</u>  |                               |     |       |     | <u>5 KIK</u>        | <u>ND</u> | <u>ND</u>           |       |
|             |                  | <u>HEATING VENTS</u>  |                               |     |       |     | <u>ND KIK</u>       | <u>ND</u> | <u>ND</u>           |       |
|             |                  | <u>WINDOW FRAMES</u>  |                               |     |       |     | <u>ND KIK</u>       | <u>ND</u> | <u>ND</u>           |       |
|             |                  | <u>HEATING VENTS</u>  |                               |     |       |     | <u>ND KIK</u>       | <u>ND</u> | <u>ND</u>           |       |
|             |                  | <u>GLASS WALL</u>     |                               |     |       |     | <u>ND KIK</u>       | <u>8</u>  | <u>KIK</u>          |       |
|             |                  | <u>GLASS WALL</u>     |                               |     |       |     | <u>22 KIK</u>       | <u>3</u>  | <u>KIK</u>          |       |
|             |                  | <u>Light fixtures</u> |                               |     |       |     | <u>14 KIK</u>       | <u>ND</u> | <u>KIK</u>          |       |
|             |                  | <u>Light Fixtures</u> |                               |     |       |     | <u>ND KIK</u>       | <u>13</u> | <u>KIK</u>          |       |
|             |                  | <u>Ceiling Tile</u>   |                               |     |       |     | <u>ND KIK</u>       | <u>3</u>  | <u>KIK</u>          |       |
|             |                  | <u>Ceiling Tile</u>   |                               |     |       |     | <u>ND KIK</u>       | <u>3</u>  | <u>KIK</u>          |       |
|             |                  | <u>Duct Vent</u>      |                               |     |       |     | <u>ND KIK</u>       | <u>3</u>  | <u>KIK</u>          |       |
|             |                  | <u>FLOOR</u>          |                               |     |       |     | <u>ND KIK</u>       | <u>ND</u> | <u>KIK</u>          |       |
|             |                  | <u>FLOOR</u>          |                               |     |       |     | <u>ND KIK</u>       | <u>8</u>  | <u>KIK</u>          |       |
|             |                  | <u>FLOOR</u>          |                               |     |       |     | <u>14 KIK</u>       | <u>ND</u> | <u>KIK</u>          |       |
|             |                  | <u>FLOOR</u>          |                               |     |       |     | <u>ND KIK</u>       | <u>3</u>  | <u>KIK</u>          |       |
|             |                  | <u>FLOOR</u>          |                               |     |       |     | <u>5 KIK</u>        | <u>13</u> | <u>KIK</u>          |       |

**DISTRIBUTION OF COPIES**

|       |   |
|-------|---|
| _____ | Radiological Safety Technician Supervisor |
| _____ | Radiological Safety Engineer              |
| _____ | Facility Supervisor                       |

**NOTIFICATION OF SURVEY RESULTS**

| SUPERVISOR NOTIFIED | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|---------------------|------|------|-------------|-------------|------|
|                     |      |      |             |             |      |

**FMPC**  
**INDUSTRIAL RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY**  
**RADIOLOGICAL SURVEY REPORT**

4057

Date: 6/25/90 LOCATION: Administration RST: Andrew Kirschin Page 1 of 1

FOR SURVEY:  ROUTINE  SPECIAL REQUEST  RWP  INCIDENT

COMMENTS:  
Survey of Room 209  
to Demolition

| INSTRUMENTS   |               |                  |             |             |
|---------------|---------------|------------------|-------------|-------------|
| MODEL         | SERIAL NUMBER | CALIBRATION DATE | BKRD.       | EFF.        |
| <u>Bicron</u> | <u>3301P</u>  | <u>Oct 90</u>    | <u>10</u>   |             |
| <u>177</u>    | <u>59205</u>  | <u>Aug 90</u>    | <u>10</u>   |             |
| <u>1B5100</u> | <u>#2</u>     | <u>7/22/90</u>   | <u>0.10</u> | <u>0.10</u> |

ANALYZE FOR:  ALPHA  BETA-GAMMA  OTHER

TYPE OF SURVEY:  CONTAMINATION  RADIATION  OTHER

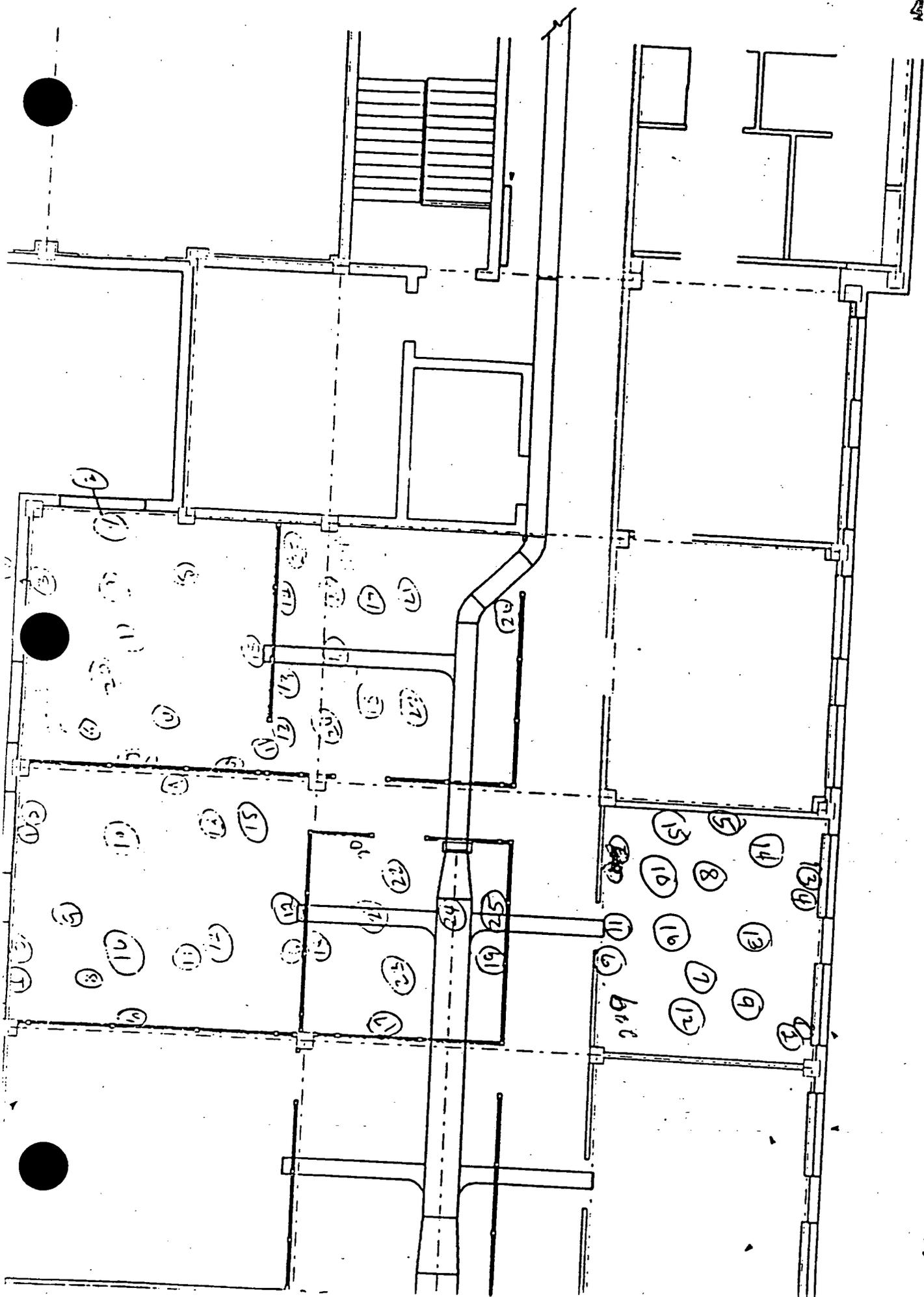
FOLLOW-UP SURVEY ATTACHED  YES  NO  
 SURVEY MAP ATTACHED  YES  NO

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION    | CORRECTED DOSE RATE (mRem/hr) |     |       |     | DPM ALPHA           |       | DPM BETA-GAMMA      |       |
|-------------|------------------|----------------|-------------------------------|-----|-------|-----|---------------------|-------|---------------------|-------|
|             |                  |                | CONTACT                       |     | 3 FT. |     | 100 CM <sup>2</sup> | PROBE | 100 CM <sup>2</sup> | PROBE |
|             |                  |                | Y                             | B/Y | Y     | B/Y |                     |       |                     |       |
| 1           |                  | WINDOW FRAME   |                               |     |       |     | ND KIK              | 13    | 2000                |       |
| 2           |                  | Hanging lights |                               |     |       |     | ND KIK              | 3     | <1000               |       |
| 3           |                  | WINDOW FRAME   |                               |     |       |     | ND KIK              | 3     | 1520                |       |
| 4           |                  | Hanging lights |                               |     |       |     | 5 KIK               | 24    | <1000               |       |
| 5           |                  | Chaise wall    |                               |     |       |     | 5 KIK               | 13    | <1000               |       |
| 6           |                  | Chaise wall    |                               |     |       |     | 5 KIK               | 8     | <1000               |       |
| 7           |                  | Light Fixtures |                               |     |       |     | 14 KIK              | 3     | <1000               |       |
| 8           |                  | Light Fixtures |                               |     |       |     | 31 KIK              | 5     | <1000               |       |
| 9           |                  | Ceiling Tile   |                               |     |       |     | 5 KIK               | ND    | <1000               |       |
| 10          |                  | Ceiling Tile   |                               |     |       |     | ND KIK              | 8     | <1000               |       |
| 11          |                  | Duct vent      |                               |     |       |     | ND KIK              | 18    | <1000               |       |
| 12          |                  | FLOOR          |                               |     |       |     | ND KIK              | 8     | <1000               |       |
| 13          |                  | FLOOR          |                               |     |       |     | 14 KIK              | ND    | <1000               |       |
| 14          |                  | FLOOR          |                               |     |       |     | 5 KIK               | 3     | <1000               |       |
| 15          |                  | FLOOR          |                               |     |       |     | ND KIK              | 3     | <1000               |       |
| 16          |                  | FLOOR          |                               |     |       |     | ND KIK              | 3     | <1000               |       |

DISTRIBUTION OF COPIES

|                          |  |
|--------------------------|--|
| <input type="checkbox"/> | Radiochemical Safety Technician Supervisor |
| <input type="checkbox"/> | Radiochemical Safety Engineer              |
| <input type="checkbox"/> | Facility Supervisor                        |

| NOTIFICATION OF SURVEY RESULTS |      |      |             |             |      |
|--------------------------------|------|------|-------------|-------------|------|
| SUPERVISOR NOTIFIED            | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|                                |      |      |             |             | 256  |



**FMPC**  
 INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY  
**RADIOLOGICAL SURVEY REPORT**

4057

Date: 6/28/90 LOCATION: Administration RST: Andrew Benton Page 1 of 1  
 Time: 1730 LEVEL: \_\_\_\_\_

FOR SURVEY:  ROUTINE  SPECIAL REQUEST  RWP  INCIDENT

COMMENTS:  
Survey of Room 227 + 227A  
Admin. Building  
...

| INSTRUMENTS |               |                  |       |      |
|-------------|---------------|------------------|-------|------|
| MODEL       | SERIAL NUMBER | CALIBRATION DATE | BKRD. | EFF. |
| Bioron      | A301P         | Oct 90           | 40    |      |
| 177         | 59509         | July 90          | 10    |      |
| LB5100      | #2            | July 90          | 10    |      |

ANALYZE FOR:  ALPHA  BETA-GAMMA  OTHER \_\_\_\_\_  
 TYPE OF SURVEY:  CONTAMINATION  RADIATION  OTHER \_\_\_\_\_

FOLLOW-UP SURVEY ATTACHED  YES  NO  
 SURVEY MAP ATTACHED  YES  NO

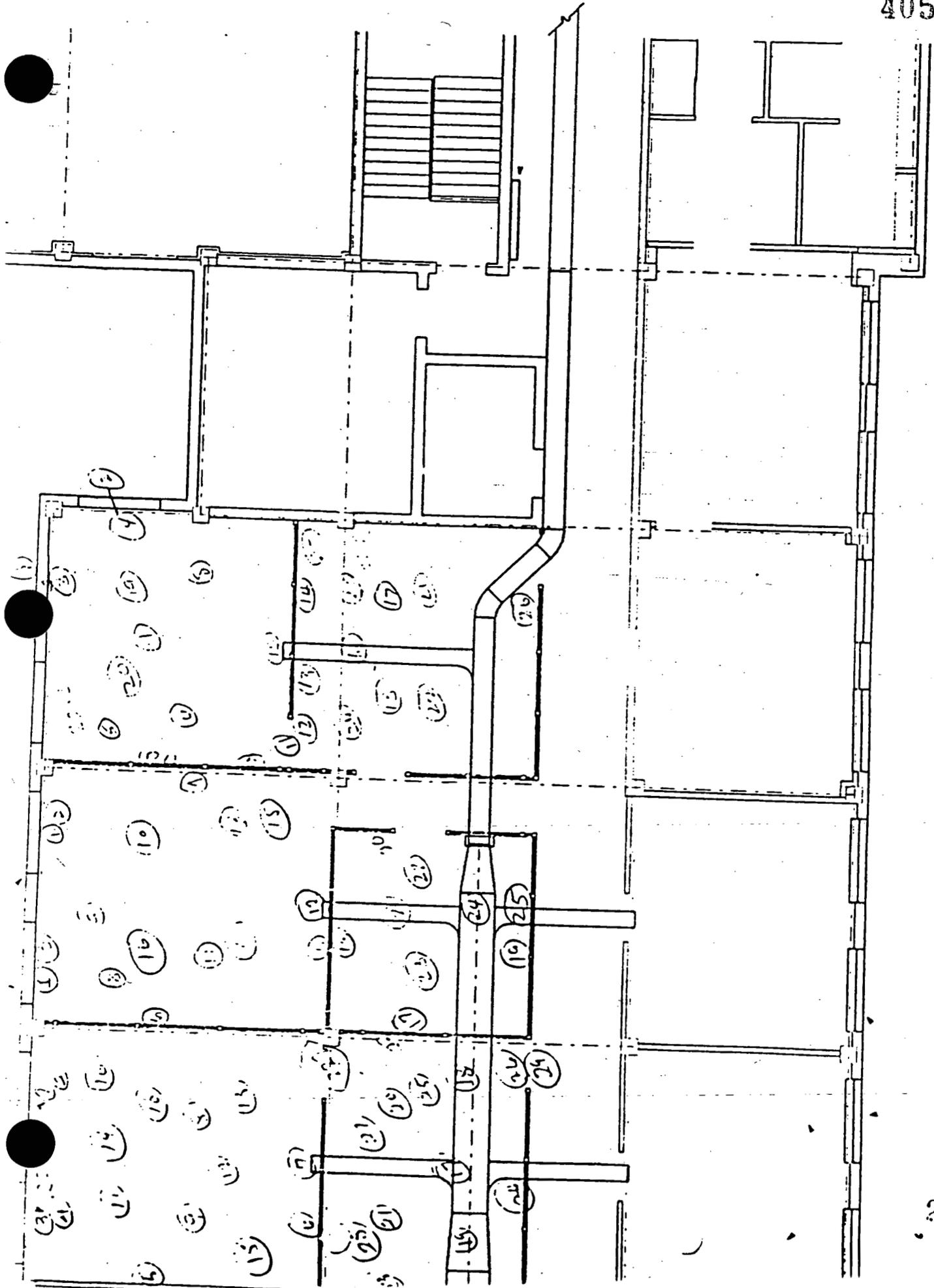
| ITEM NUMBER | GRID COORDINATES | DESCRIPTION        | CORRECTED DOSE RATE (mRem/hr) |     |       |     | DPM ALPHA           |       | DPM BETA-GAMMA      |       |
|-------------|------------------|--------------------|-------------------------------|-----|-------|-----|---------------------|-------|---------------------|-------|
|             |                  |                    | 1 FT.                         |     | 3 FT. |     | 100 CM <sup>2</sup> | PROBE | 100 CM <sup>2</sup> | PROBE |
|             |                  |                    | Y                             | D/Y | Y     | D/Y |                     |       |                     |       |
| 1           | 227A             | WINDOW FRAME       |                               |     |       |     | 5                   | <1K   | 13                  | 3500  |
| 2           |                  | HEATING VENT       |                               |     |       |     | 14                  | <1K   | 13                  | 4100  |
| 3           |                  | WINDOW FRAME       |                               |     |       |     | 14                  | <1K   | 18                  | 3000  |
| 4           |                  | HEATING VENT       |                               |     |       |     | 5                   | <1K   | 13                  | <1000 |
| 5           |                  | WEST CHAIRSE WALL  |                               |     |       |     | 5                   | <1K   | 13                  | <1000 |
| 6           |                  | SOUTH CHAIRSE WALL |                               |     |       |     | 5                   | <1K   | 3                   | <1000 |
| 7           |                  | VENT (DUCT)        |                               |     |       |     | ND                  | <1K   | ND                  | <1000 |
| 8           |                  | LIGHT FIXTURES     |                               |     |       |     | 5                   | <1K   | 3                   | <1000 |
| 9           |                  | LIGHT FIXTURES     |                               |     |       |     | ND                  | <1K   | ND                  | <1000 |
| 10          |                  | CEILING TILE       |                               |     |       |     | 5                   | <1K   | ND                  | <1000 |
| 11          |                  | CEILING TILE       |                               |     |       |     | 31                  | <1K   | ND                  | <1000 |
| 12          |                  | FLOOR              |                               |     |       |     | ND                  | <1K   | 3                   | <1000 |
| 13          |                  | FLOOR              |                               |     |       |     | ND                  | <1K   | 3                   | <1000 |
| 14          |                  | FLOOR              |                               |     |       |     | ND                  | <1K   | ND                  | <1000 |
| 15          |                  | FLOOR              |                               |     |       |     | ND                  | <1K   | ND                  | <1000 |
| 16          |                  | FLOOR              |                               |     |       |     | ND                  | <1K   | ND                  | <1000 |

**DISTRIBUTION OF COPIES**  
 Radiological Safety Technician Supervisor \_\_\_\_\_  
 Radiological Safety Engineer \_\_\_\_\_  
 Facility Supervisor \_\_\_\_\_

**NOTIFICATION OF SURVEY RESULTS**

| SUPERVISOR NOTIFIED | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|---------------------|------|------|-------------|-------------|------|
|                     |      |      |             |             |      |





**FMPC**  
**INDUSTRIAL, RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY**  
**RADIOLOGICAL SURVEY REPORT**

**4057**

Date: 6/11/90 LOCATION: Administration RST: Andrea Norton Page 1 of 2

LEVEL: \_\_\_\_\_

OR SURVEY:  ROUTINE  SPECIAL REQUEST  RWP  INCIDENT

COMMENTS:  
Room 208 & 208A  
to Demolition  
Windows

| INSTRUMENTS |               |                  |       |      |
|-------------|---------------|------------------|-------|------|
| MODEL       | SERIAL NUMBER | CALIBRATION DATE | BKRD. | EFF. |
| Bicron      | A 301P        | Oct 90           | 20    |      |
| 177         | 59209         | Aug 90           | 10    |      |
| LB5100      | # 2           | Nov 90           | 0.16  |      |

ANALYZE FOR:  ALPHA  BETA-GAMMA  OTHER

TYPE OF SURVEY:  CONTAMINATION  RADIATION  OTHER

FOLLOW-UP SURVEY ATTACHED  YES  NO  
 SURVEY MAP ATTACHED  YES  NO

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION   | CORRECTED DOSE RATE (mRem/hr) |         |       |       | DPM ALPHA           |       | DPM BETA-GAMMA      |       |
|-------------|------------------|---------------|-------------------------------|---------|-------|-------|---------------------|-------|---------------------|-------|
|             |                  |               | Y                             | B/y     | Y     | B/y   | 100 CM <sup>2</sup> | PROBE | 100 CM <sup>2</sup> | PROBE |
|             |                  |               | CONTACT                       | CONTACT | 3 FT. | 3 FT. |                     |       |                     |       |
| 1           | 208              | Window Frame  |                               |         |       |       | ND <1K              | 24    | <1000               |       |
| 2           | 228              | Heated Vent   |                               |         |       |       | 5 <1K               | ND    | <1000               |       |
| 3           | 278              | Window Frame  |                               |         |       |       | ND <1K              | 3     | <1000               |       |
| 4           |                  | Heated Lint   |                               |         |       |       | 14 <1K              | 3     | <1000               |       |
| 5           |                  | Chaise Wall   |                               |         |       |       | ND <1K              | 8     | <1000               |       |
| 6           |                  | Chaise Wall   |                               |         |       |       | ND <1K              | 8     | <1000               |       |
| 7           |                  | Chaise Wall   |                               |         |       |       | ND <1K              | 3     | <1000               |       |
| 8           |                  | Floor         |                               |         |       |       | ND <1K              | 3     | <1000               |       |
| 9           |                  | Floor         |                               |         |       |       | 5 <1K               | 13    | <1000               |       |
| 10          |                  | Floor         |                               |         |       |       | ND <1K              | 8     | <1000               |       |
| 11          |                  | Floor         |                               |         |       |       | 14 <1K              | 3     | <1000               |       |
| 12          |                  | Vent          |                               |         |       |       | 5 <1K               | 8     | <1000               |       |
| 13          | 208              | Light Fixture |                               |         |       |       | ND <1K              | 3     | <1000               |       |
| 14          | 218              | Light Fixture |                               |         |       |       | ND <1K              | 34    | <1000               |       |
| 15          |                  | Ceiling Tile  |                               |         |       |       | ND <1K              | ND    | <1000               |       |
| 16          |                  | Ceiling Tile  |                               |         |       |       | ND <1K              | ND    | <1000               |       |

**DISTRIBUTION OF COPIES**

|   |  |
|---|--|
| Radiological Safety Technician Supervisor |  |
| Radiological Safety Engineer              |  |
| Facility Supervisor                       |  |

**NOTIFICATION OF SURVEY RESULTS**

| SUPERVISOR NOTIFIED | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|---------------------|------|------|-------------|-------------|------|
|                     |      |      |             |             |      |



**FMPC**  
**INDUSTRIAL RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY**  
**RADIOLOGICAL SURVEY REPORT**

4057

Date: 6/27/90 LOCATION: Administration REF: Andre Norton  
 Time: 1736 LEVEL: 592 Page 1 of 2

ROUTINE  SPECIAL REQUEST  RWP  INCIDENT

COMMENTS:  
Continuity of Rooms 228 & 228C  
Pre to Demolition  
TEMP - SECURITY  
Control

| INSTRUMENTS |               |                  |        |      |
|-------------|---------------|------------------|--------|------|
| MODEL       | SERIAL NUMBER | CALIBRATION DATE | BIROD. | EFF. |
| Bicron      | A301P         | Oct 90           | 46     | 10.1 |
| 177         | 5309          | Aug 90           | ..     | ..   |
| LL5100      | # 2           | Nov 90           | 0.76   | 0.7  |

ANALYZE FOR:  ALPHA  BETA-GAMMA  OTHER  
 TYPE OF SURVEY:  CONTAMINATION  RADIATION  OTHER

FOLLOW-UP SURVEY ATTACHED  YES  NO  
 SURVEY MAP ATTACHED  YES  NO

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION       | CORRECTED DOSE RATE (mRem/hr) |         |       |       | DPM ALPHA           |       | DPM BETA-GAMMA      |       |
|-------------|------------------|-------------------|-------------------------------|---------|-------|-------|---------------------|-------|---------------------|-------|
|             |                  |                   | 1 Y                           |         | 3 Y   |       | 100 CM <sup>2</sup> | PROBE | 100 CM <sup>2</sup> | PROBE |
|             |                  |                   | CONTACT                       | CONTACT | 3 FT. | 3 FT. |                     |       |                     |       |
| 1           | 225C             | WINDOW FRAME      |                               |         |       |       | 5                   | <1K   | 18                  | <1000 |
| 2           | 275C             | WINDOW FRAME      |                               |         |       |       | 5                   | <1K   | ND                  | <500  |
| 3           | 225C             | HEATING VENT      |                               |         |       |       | 5                   | <1K   | 13                  | <1000 |
|             | 225C             | HEATING VENT      |                               |         |       |       | ND                  | <1K   | ND                  | <1000 |
| 5           | 225C             | FLOOR             |                               |         |       |       | ND                  | <1K   | 13                  | <1000 |
| 6           |                  | FLOOR             |                               |         |       |       | ND                  | <1K   | 3                   | <1000 |
| 7           |                  | FLOOR             |                               |         |       |       | ND                  | <1K   | 13                  | <1000 |
| 8           |                  | FLOOR             |                               |         |       |       | 5                   | <1K   | 13                  | <1000 |
| 9           | 225C             | CHAISE WALL       |                               |         |       |       | 5                   | <1K   | 13                  | <1000 |
| 10          |                  | CHAISE WALL       |                               |         |       |       | ND                  | <1K   | ND                  | <1000 |
| 11          |                  | DOOR              |                               |         |       |       | ND                  | <1K   | 3                   | <1000 |
| 12          |                  | DOOR JAMB         |                               |         |       |       | 5                   | <1K   | ND                  | <1000 |
| 13          | 225B             | OUTER CHAISE WALL |                               |         |       |       | ND                  | <1K   | 3                   | <1000 |
| 14          | 225B             | CHAISE WALL       |                               |         |       |       | 5                   | <1K   | 18                  | <1000 |
| 15          |                  | DUCT VENT         |                               |         |       |       | ND                  | <1K   | 3                   | <1000 |
| 16          |                  | TOP DUCT          |                               |         |       |       | 5                   | <1K   | ND                  | <1000 |

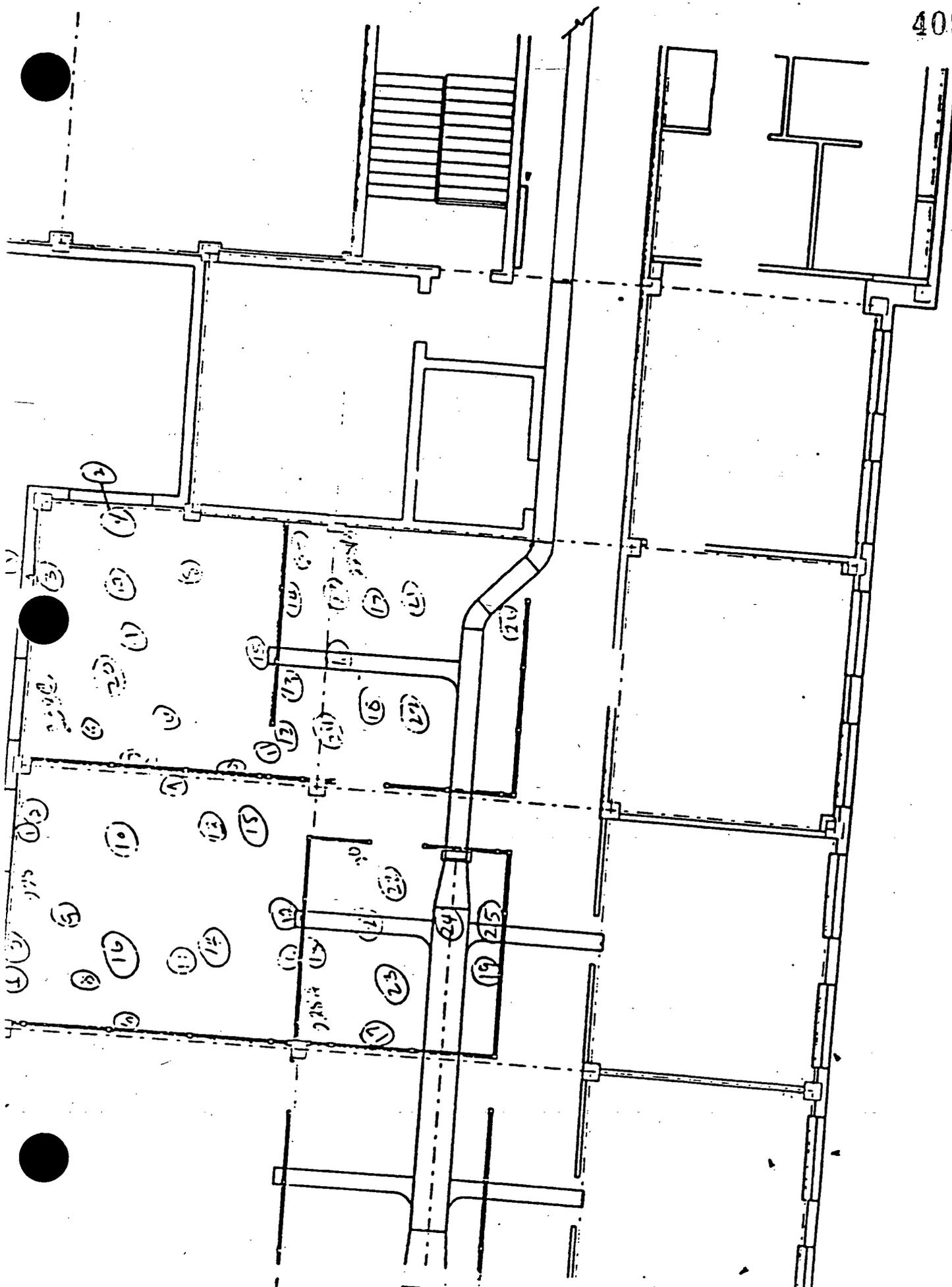
**DISTRIBUTION OF COPIES**

|   |   |
|---|---|
| 1 | Radiological Safety Technician Supervisor |
| 2 | Radiological Safety Engineer              |
| 3 | Facility Supervisor                       |

**NOTIFICATION OF SURVEY RESULTS**

| SUPERVISOR NOTIFIED | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|---------------------|------|------|-------------|-------------|------|
|                     |      |      |             |             |      |







From: C. G. Rieman\6828

WEMCO:EM(FME):92-154

Date: May 11, 1992

Subject: RCRA DETERMINATION FOR THE OFFICE RENOVATION, ADMINISTRATION BUILDING,  
1ST FLOOR

To : D. P. Cooper

- REF: 1. WEMCO:EC(SW/FS):91-161, C. S. Waugh to T. Voelkerding, "RCRA Determination and Radiological Characterization for the Maintenance Project Window Replacement Adm. Bldg. Lobby", Work Order Number 0030-004584, dated May 16, 1991
2. WEMCO:EC&QA(OU3/FME):91-203, C. S. Waugh to D. P. Cooper, "RCRA Determination and Radiological Characterization for the Waste to be Generated from the Office Renovation, Administration Building PA 14-90301", dated September 12, 1991
3. WEMCO:EC&QA(OU3/FME):91-205, C. S. Waugh to D. P. Cooper, "RCRA Determination and Radiological Characterization for the Waste to be Generated from the Construction Project HVAC Administration Office Renovation", dated September 12, 1991
4. WEMCO:EM(FME):92-092, C. S. Waugh to D. B. Katz, "RCRA Determination and Radiological Characterization for the Renovation of Administration Building Lobby - First Floor", dated March 16, 1992
5. Upset Condition Documentation, issued September 18, 1990
6. Environmental Compliance Spill/Release Incident Tracking Report, Dated April 1, 1992

This memo transmits the RCRA determination and radiological characterization for the Office Renovation - Administration Building Number 14 - First Floor Construction Project. The waste to be generated includes, paint scrapings from windows, rubble (concrete blocks) (300 pounds), metal and glass partitions w/stud walls and doors, 126 linear feet (1166 pounds), A/C ductwork, 71 linear feet, floor carpet, 294 square yards, floor tile, 15 square yards, two eight foot long fluorescent light fixtures, three cloth window drapes, seventeen venetian blinds, cardboard and paper packing materials.

## PROCESS KNOWLEDGE

This construction area is located inside the Administration Building (Building Number 14) which is in the uncontrolled area of the FEMP.

This building <sup>has been</sup> ~~was~~ always used as an office building, no hazardous materials were process or stored in the construction area. There were no spills/releases in the construction area per Reference 5 and 6.

There has been four (4) construction projects located in the Administration Building within the past year. The waste from these projects was determined to be RCRA nonhazardous (a.k.a. non-RCRA) References 1 through 4. The waste from References 1 through 4 is similar to the waste that will be generated from this project. The paint scrapings from the windows was sampled for the construction project, Reference Number 2. The TCLP analytical result from the paint sample was <0.150 mg/l, Attachment Number I indicates that the paint sample from the wall partition was also from painted windows.

## SAMPLING AND ANALYSIS

Because of previous sampling from References 1 through 4, and process knowledge of the waste from this project, no samples were required.

## RADIOLOGICAL CHARACTERIZATION

The Radiological Safety Group will have to monitor the waste generated to determination the radiological characterization for proper disposal.

## RCRA DETERMINATION

The paint scrapings, rubble (concrete blocks), metal and glass partions w/stud walls and doors, A/C duct work floor carpet, floor tile, fluorescent light fixtures, cloth window drapes, venetian blinds, cardboard and paper packing material are RCRA nonhazardous (a.k.a. non-RCRA). These determinations are based, process knowledge and analytical data from References 1 through 4, and <sup>o</sup>data from Reference 5, that no materials were spilled/released in the construction area.

No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

The ballast from the fluorescent light fixtures are not controlled under RCRA regulations, however, the ballast should be removed and handle per Attachment Number II.

#### SUMMARY

The paint scrapings, windows, rubble (concrete blocks), metal and glass partitions w/stud walls and doors, A/C duckwork, fluorescent light fixtures, cloth window drapes, venetian blinds, cardboard and paper are RCRA nonhazardous (a.k.a. non-RCRA). Monitoring by the Radiological Safety Group will be required for proper disposition. This determination applies only to the waste materials listed on the Construction Waste Identification/Disposition (CWID) dated March 11, 1992. If any additional materials are generated an additional RCRA determination will be required.

If there are any questions please contact me at extension 6828 or C. S. Waugh at extension 6777.

*C. G. Rieman*

C. G. Rieman  
Facility and Materials Evaluation  
Environmental Management

CGR/tmk

c: J. E. Clements  
L. S. Farmer  
C. L. Griffin  
J. E. Harmon  
J. P. Hopper  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
J. L. Trujillo  
T. J. Walsh

Central Files  
FME Files

ATTACHMENT NUMBER I  
PROCESS KNOWLEDGE PAINT

**NOTE TO FILE**

4057

**ADMINISTRATION BUILDING  
PAINT SAMPLING FOR SECOND FLOOR RENOVATION**

March 20, 1992

During the renovation of the Administration Building 2nd floor, several paint samples were taken and analyzed for TCLP lead content. The paint samples taken from the wall partitions (specifically from the glass of the partition) were found to be below detectable limits for lead. The paint on the first floor of the Administration building appears to be the same paint as existed on the second floor. No reason exists to indicate that the paint on the two floors are different.

4057

ATTACHMENT NUMBER II  
DISPOSAL OF LIGHT BALLASTS

Hotline question, log #4: can light ballasts be separated into PCB and non-PCB materials.

4057

Answer: Yes, an effort should be made to separate non-PCB materials from PCB materials; this would support the concept of waste minimization. There are a couple of options to separate light ballasts into categories of non-PCBs and PCBs. 1) Light ballasts manufactured after July 1, 1978 that do not contain PCBs must be marked with the statement "No PCBs". Also, as of January 1, 1979, all PCB equipment containing a PCB Small Capacitor (and this includes light ballasts) must be marked "This equipment contains PCB Capacitor(s)". Therefore, light ballasts should be examined for these markings and those ballasts marked as "No PCBs" may be considered to be non-PCB material. 2) If the light ballasts do not contain any markings, Toxic and Solid Waste Programs can be contacted with information about the light ballast(s) (such as manufacturer's name, serial number, model number) and they will contact the manufacturer to determine if the light ballast ever contained PCBs. If the light ballast is classified as a non-PCB material, then this classification information should be forwarded to Facilities and Materials Evaluation. Facilities and Materials Evaluation and Radiological Safety will evaluate the light ballasts/waste (as all waste must be characterized) so that the ballasts can best be managed.

As far as a site-wide policy for processing "hot" PCB equipment, the FEMP tries to decontaminate any "hot" PCB equipment if that is possible, so that the PCB equipment can be disposed of at a commercial facility. For the determination of non-PCB/PCB electrical equipment, additional separation criteria for non-PCB/PCB electrical equipment is currently being developed for use at the FEMP.



WEMCO:EM(FME):92-153-4057

From: C. G. Rieman/6828

Date: April 8, 1992

Subject: RCRA DETERMINATION AND RADIOLOGICAL CHARACTERIZATION FOR THE TRUCK  
LOADING DOCK WEATHER SHELTER PROJECT PN: PA 71-91602

To : M. B. Thompson

- Ref: 1. WEMCO Interim Site Standard Operating Procedure, SSOP-00441  
"Controlling the Generation of Construction/Maintenance Waste"  
issued February 19, 1992
2. AEDO Spill Data Base
3. Environmental Compliance Spill/Release Incident Tracking Report,  
dated February 28, 1992
4. Upset Condition Documentation, issued September 18, 1990

This memo transmits the RCRA determination and radiological characterization for the construction waste to be generated for the above-referenced project. The waste to be generated consists of approximately 400 cubic feet (40,000 pounds) of soil, approximately 200 cubic feet (6,500 pounds) of concrete, and approximately 4,500 cubic feet (4,500 pounds) of metal fencing.

#### PROCESS KNOWLEDGE

This construction project is located in the controlled area of the FEMP, south of the Chemical Warehouse (Building Number 71). This area, during the production years, until the late 1960's was a receiving dock for uranium ore from off site. The area was also used for shipping finished uranium products, until the shipping area was constructed north of plant 6. The area was also used to receive uranium metal, UO<sub>3</sub>, UO<sub>2</sub>, UF<sub>4</sub> and residues for processing at the FEMP. Building Number 71 was used for the storage of dry chemicals used in various plants for processing uranium.

This area at the present time is being used for the staging, preparing and shipping waste containers (white metal boxes and sealands) to the Nevada Test Site (NTS).

Subsequent to shipping, dew, frost, and rain collect on the exterior surfaces of the containers. Before these containers can be loaded for shipment, any moisture must be removed. During periods of bad weather, the time spent removing moisture becomes time consuming and creates serious delays in making timely waste shipments, therefore, the waste shipping containers from Building 71 must be protected from the weather during the staging and loading operation.

In order to solve this problem, a new 5,700 square foot weather shelter will be constructed over the staging area south of Building 71.

The area of construction has been a receiving and shipping dock, never used to process any type of materials. There were no recorded spills or releases in this area per References 2, 3, and 4.

### SAMPLING AND ANALYSIS

Soil and concrete samples were collected from 14 boring locations along the sides of the staging area where support columns will be installed. A sample location map is provided in Attachment Number I along with a table of the sample analysis results. At each location a total of 5 samples were submitted for analysis. The samples, designated by depth, are:

|     |                                |  |
|-----|--------------------------------|--|
| n-C | concrete                       |  |
| n-0 | 0" to 6" from ground surface   | (ground surface is considered to begin at the concrete/soil interface) |
| n-1 | 0" to 12" from ground surface  |  |
| n-2 | 12" to 24" from ground surface |  |
| n-3 | 24" to 36" from ground surface |  |
| n-4 | 36" to 72" from ground surface | (composite sample submitted for analysis)                              |

where n is the location designation 1 through 14. For example, sample 3-2 was collected at location 3 at a depth of 12 to 24 inches. The sample location 12 was obstructed and therefore samples were not collected at location 12. All samples collected were analyzed for total uranium, total thorium, isotopic uranium, and isotopic thorium. The samples of the concrete and the first foot of soil at each location were also analyzed for TCLP metals, volatile organics, semi-volatile organics, pesticides, and herbicides. The results are provided in Attachment Number I.

Barium and lead were consistently detected, however, no metal was detected at a concentration above the regulatory limit. Volatile organics were detected at various locations, however, no concentrations are above the regulatory limit for toxicity characteristic. Semi-volatile organics, pesticides, and herbicides were not detected at any sampling location.

### RADIOLOGICAL CHARACTERIZATION

All samples collected from the 13 sample locations were analyzed for total uranium, total thorium, isotopic uranium, and isotopic thorium. The results of the analysis is provided in Attachment Number I.

In addition, a radiological survey of the surface of the concrete was conducted. The results of the Radiological Survey and the survey location map are provided in Attachment Number II.

Soil is considered to be Category 2 waste if uranium is detected at a concentration of between 35 pCi/g and 100 pCi/g (or 52 ppm to 148 ppm). As summarized in Attachment Number I, the following areas of soil are considered Category 2 waste per Reference 1.

| <u>LOCATION</u> | <u>DEPTH (inches)</u> | <u>CONCENTRATION (PPM)</u> |
|-----------------|-----------------------|----------------------------|
| 1               | 0 to 12               | 54                         |
| 4               | 0 to 12               | 64 to 67                   |
| 6               | 0 to 6                | 90                         |
| 7               | 12 to 24              | 74                         |

Soil is considered low level radioactive waste if uranium is detected at a concentration above 100 pCi/g (149 ppm). As summarized in attachment Number I, the following areas of soil are considered low level radioactive waste per Reference 1.

| <u>LOCATION</u> | <u>DEPTH (inches)</u> | <u>CONCENTRATION (PPM)</u> |
|-----------------|-----------------------|----------------------------|
| 7               | 0 to 12               | 675 to 875                 |
| 9               | 0 to 12               | 152                        |

Concrete is considered low level radioactive waste if uranium is detected at a concentration above 35 pCi/g (or above 52 ppm). As summarized in Attachment number I, the following area of concrete is considered low level radioactive waste per Reference 1.

| <u>LOCATION</u> | <u>DEPTH (inches)</u> | <u>CONCENTRATION (PPM)</u> |
|-----------------|-----------------------|----------------------------|
| 13              | concrete              | 104                        |

Based on the analytical results, all remaining soil and concrete waste is considered Category 1 per Reference 1. The results of the concrete radiological survey, however, indicate the surface of the concrete is contaminated (Attachment II). Final radiological characterization of the concrete will have to be determined by the Radiological Safety Group.

The metal fencing will also require monitoring by the Radiological Safety Group for radiological characterization and disposition of the metal fencing.

M. B. Thompson

-4-

WEMCO:EM(FME):92-153

**RCRA DETERMINATION**

Concrete, soil, and metal wastes will be generated during the Truck Loading Dock Weather Shelter Project. The RCRA determination for the concrete and soil is based upon the results of the sample analysis summarized in Attachment Number I. The RCRA determination for the metal fencing is based upon process knowledge.

The soil and concrete waste are considered RCRA nonhazardous (a.k.a. non-RCRA) based upon the analytical results. Based on process knowledge and Reference Numbers 2, 3, and 4, the metal fencing is considered RCRA nonhazardous (a.k.a. non-RCRA).

No materials have been identified that would cause the concrete, soil, or metal waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

**SUMMARY**

The soil concrete and metal fencing to be generated is RCRA nonhazardous (a.k.a. non-RCRA) waste. This waste can be disposed of per Reference 1.

This determination applies only to the concrete, soil, and metal fencing listed on the Construction Waste Identification/Disposition (CWID) form dated January 31, 1992. If any additional waste is generated from this project, an additional RCRA determination will be required.

If there are any questions please contact me at extension 6828, or C. S. Waugh at extension 6777.



C. G. Rieman  
Facilities and Materials Evaluation  
Environmental Management

DAL:tmk

M. B. Thompson

-5-

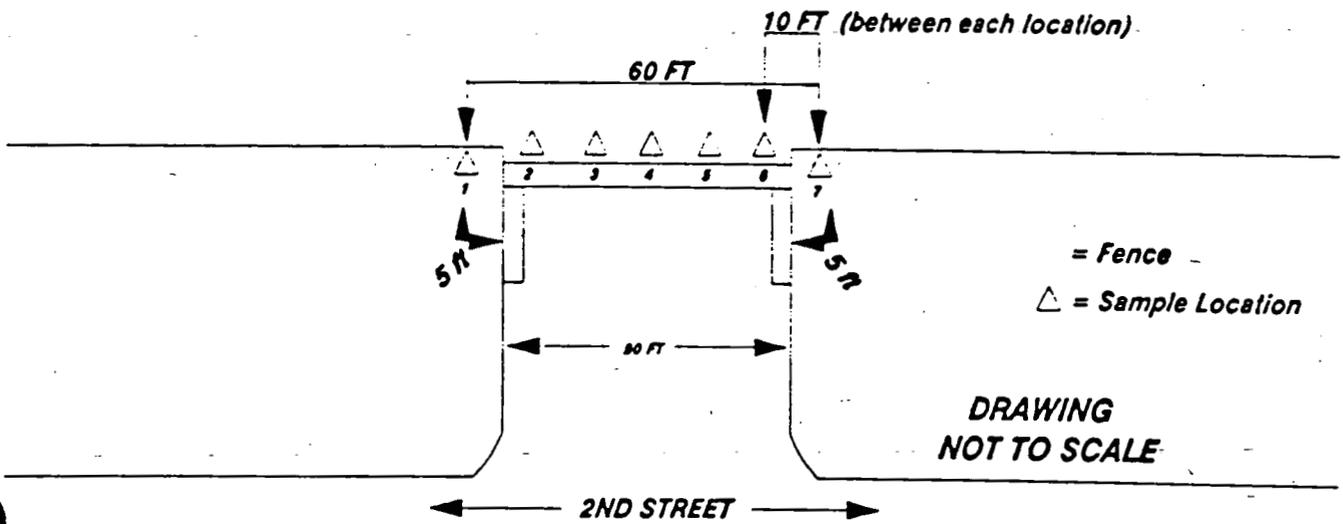
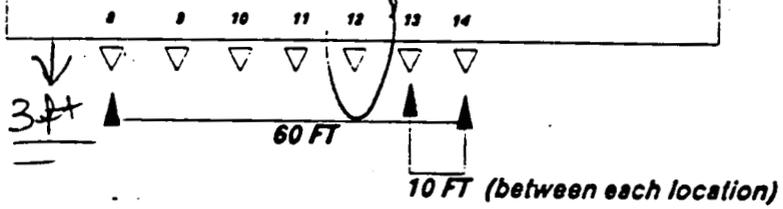
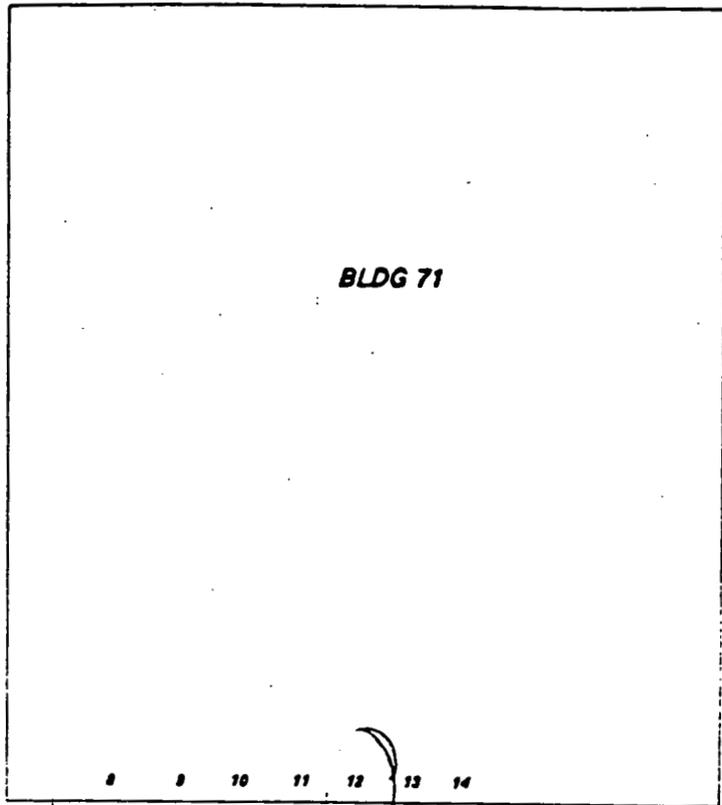
WEMCO:EM(FME):92-153

c: J. E. Clements  
L. S. Farmer  
R. W. Hairston  
S. W. Heisler Jr.  
J. P. Hopper  
S. C. Hoskins  
L. A. Hurst  
H. J. Knue  
L. B. Ko  
S. J. Lund  
L. M. March  
T. M. Patterson  
B. S. Perkins  
M. W. Salisbury  
J. M. Sattler  
S. G. Schneider  
A. C. Snider  
R. A. Thiel  
F. B. Thompson  
J. L. Trujillo  
T. J. Walsh

FME Files  
Central Files

**ATTACHMENT I**  
**ANALYTICAL RESULTS**

4057



ANALYTICAL RESULTS  
TRUCK LOADING DOCK PROJECT

| SAMPLE NUMBER | SAMPLE LOCATION | SAMPLE LOCATION | TOTAL U (ppm) | TOTAL Th (ppm) | ISO U pCi/g | ISO Th pCi/g |
|---------------|-----------------|-----------------|---------------|----------------|-------------|--------------|
| EM-2292       | 1-0             | 1-0             | 54            | <18            | 33          | 12           |
| EM-2293       | 1-1             | 1-1             | 76            | <18            | 45          | 14           |
| EM-2294       | 1-2             | 1-2             | 47            | <18            | 27          | 5.5          |
| EM-2295       | 1-3             | 1-3             | <11           | <18            | <6.9        | 5.0          |
| EM-2296       | 1-4             | 1-4             | <11           | <18            |             |              |
| EM-2333       | 2-C             | 2-C             | <11           | <18            | <6.0        | 2.6          |
| EM-2334       | 2-0             | 2-0             | 13            | <18            | 7.3         | 3.4          |
| EM-2335       | 2-1             | 2-1             | 18            | <18            | 10          | 3.3          |
| EM-2336       | 2-2             | 2-2             | <11           | <18            | <4.8        | 3.5          |
| EM-2337       | 2-3             | 2-3             | <11           | <18            | <5.6        | 4.4          |
| EM-2338       | 2-4             | 2-4             | <11           | <18            |             |              |
| EM-2340       | 3-C             | 3-C             | <11           | <18            | <4.7        | 2.5          |
| EM-2341       | 3-0             | 3-0             | <11           | <18            | <6.2        | 2.6          |
| EM-2342       | 3-1             | 3-1             | 18            | <18            | 10          | 3.7          |
| EM-2343       | 3-2             | 3-2             | <11           | <18            | <7.3        | 4.7          |
| EM-2344       | 3-3             | 3-3             | <11           | <18            | <7.4        | 3.5          |
| EM-2345       | 3-4             | 3-4             | 16            | <18            |             |              |
| EM-2368       | 4-C             | 4-C             | <11           | <18            | <7.2        | <1.6         |
| EM-2369       | 4-0             | 4-0             | 67            | <18            | 39          | <1.9         |
| EM-2370       | 4-1             | 4-1             | 64            | <18            | 33          | <2.1         |
| EM-2371       | 4-2             | 4-2             | 41            | <18            | 27          | 3.0          |
| EM-2372       | 4-3             | 4-3             | 16            | <18            | 10          | 2.4          |
| EM-2373       | 4-4             | 4-4             | <11           | <18            |             |              |
| EM-2346       | 5-C             | 5-C             | <11           | <18            | <5.8        | 3.8          |
| EM-2347       | 5-0             | 5-0             | <11           | <18            | <6.5        | 3.0          |
| EM-2348       | 5-1             | 5-1             | <11           | <18            | <6.4        | 4.4          |
| EM-2349       | 5-2             | 5-2             | <11           | <18            | <4.5        | 3.6          |
| EM-2350       | 5-3             | 5-3             | <11           | <18            | <7.7        | 4.5          |
| EM-2351       | 5-4             | 5-4             | <11           | <18            |             |              |
| EM-2328       | 6-C             | 6-C             | <11           | <18            | <7.0        | 1.5          |
| EM-2329       | 6-0             | 6-0             | 90            | <18            | 43          | 4.2          |
| EM-2330       | 6-1             | 6-1             | 19            | <18            | 12          | 3.5          |
| EM-2331       | 6-2             | 6-2             | <11           | <18            | <6.9        | 4.0          |
| EM-2332       | 6-3             | 6-3             | <11           | <18            | <5.5        | 4.3          |
| EM-2297       | 7-0             | 7-0             | 875           | 64             | 520         | 34           |
| EM-2298       | 7-1             | 7-1             | 675           | 50             | 410         | 30           |
| EM-2299       | 7-2             | 7-2             | 74            | <18            | 49          | 3.8          |
| EM-2300       | 7-3             | 7-3             | 39            | <18            | 26          | 4.6          |
| EM-2306       | 7-4             | 7-4             | <11           | <18            |             |              |
| EM-2322       | 8-C             | 8-C             | <11           | <18            | 7.4         | 2.1          |
| EM-2323       | 8-0             | 8-0             | 5             | <45            | 3.0         | <2.8         |
| EM-2432       | 8-1             | 8-1             | <11           | <18            | <4.3        | 6.0          |
| EM-2433       | 8-2             | 8-2             | <11           | <18            | <3.8        | 5.0          |

ANALYTICAL RESULTS  
TRUCK LOADING DOCK PROJECT

| SAMPLE NUMBER | SAMPLE LOCATION | SAMPLE LOCATION | TOTAL U (ppm) | TOTAL Th (ppm) | ISO U pCVg | ISO Th pCVg |
|---------------|-----------------|-----------------|---------------|----------------|------------|-------------|
| EM-2434       | 8-3             | 8-3             | <11           | <18            | <5.9       | 4.8         |
| EM-2435       | 8-4             | 8-4             | <11           | <18            |            |             |
| EM-2313       | 9-C             | 9-C             | <11           | <18            | <7.2       | 2.5         |
| EM-2314       | 9-0             | 9-0             | 32            | <18            | 22         | 5.2         |
| EM-2315       | 9-1             | 9-1             | 152           | <18            | 100        | 5.3         |
| EM-2316       | 9-2             | 9-2             | <11           | <18            | <7.4       | 4.4         |
| EM-2317       | 9-3             | 9-3             | <11           | <18            | <7.4       | 4.0         |
| EM-2318       | 9-4             | 9-4             | <11           | <18            |            |             |
| EM-2304       | 10-C            | 10-C            | <11           | <18            | <6.9       | 6.6         |
| EM-2305       | 10-0            | 10-0            | 40            | <18            | 27         | 3.5         |
| EM-2307       | 10-1            | 10-1            | <11           | <18            | <7.3       | 3.6         |
| EM-2308       | 10-2            | 10-2            | <11           | <18            | <7.4       | 4.1         |
| EM-2309       | 10-3            | 10-3            | <11           | <18            | <7.4       | 4.1         |
| EM-2310       | 10-4            | 10-4            | <11           | <18            |            |             |
| EM-2320       | 11-C            | 11-C            | <11           | <18            | <7.0       | 2.0         |
| EM-2321       | 11-0            | 11-0            | <11           | <18            | 7.4        | 2.4         |
| EM-2324       | 11-1            | 11-1            | 19            | <18            | 13         | 4.1         |
| EM-2325       | 11-2            | 11-2            | <11           | <18            | <7.3       | 4.5         |
| EM-2326       | 11-3            | 11-3            | <11           | <18            | <7.4       | 5.2         |
| EM-2327       | 11-4            | 11-4            | <11           | <18            |            |             |
| EM-2381       | 13-C            | 13-C            | 104           | <18            | 58         | 2.9         |
| EM-2382       | 13-0            | 13-0            | 24            | <18            | 15         | 4.6         |
| EM-2383       | 13-1            | 13-1            | <11           | <18            | <7.8       | 4.1         |
| EM-2384       | 13-2            | 13-2            | 26            | <18            | 9.3        | 4.0         |
| EM-2385       | 13-3            | 13-3            | <11           | <18            | <7.1       | 6.4         |
| EM-2386       | 13-4            | 13-4            | <11           | <18            |            |             |
| EM-2376       | 14-C            | 14-C            | <11           | <18            | <5.5       | 2.0         |
| EM-2377       | 14-0            | 14-0            | <11           | <18            | <7.5       | 5.9         |
| EM-2398       | 14-1            | 14-1            | <11           | <18            | <6.4       | 4.2         |
| EM-2399       | 14-2            | 14-2            | <11           | <18            | <5.9       | 12.0        |
| EM-2378       | 14-3            | 14-3            | <11           | <18            | <6.0       | 4.9         |
| EM-2379       | 14-4            | 14-4            | <11           | <18            |            |             |
| EM-2391       | rinsate         | rinsate         | <1.0 (a)      | <0.0004 (b)    |            |             |
| EM-2380       | 14-4(D)         | 14-4(D)         | <11           | <18            |            |             |
| EM-2352       | 5-4(D)          | 5-4(D)          | <11           | <18            |            |             |
| EM-2319       | 9-4(D)          | 9-4(D)          | <11           | <18            |            |             |
| EM-2339       | 2-4(D)          | 2-4(D)          | <11           | <18            |            |             |

(a) = mg/L

(b) = g/L

ANALYTICAL RESULTS  
TRUCK LOADING DOCK PROJECT

| SAMPLE NUMBER | SAMPLE LOCATION | ARSENIC (ppb) | BARIUM (ppb) | CADMIUM (ppb) | CHROMIUM (ppb) | LEAD (ppb) | SELENIUM (ppb) | SILVER (ppb) | MERCURY (ppb) | PESTICIDES (ppm) | HERBICIDES (ppm) |
|---------------|-----------------|---------------|--------------|---------------|----------------|------------|----------------|--------------|---------------|------------------|------------------|
| EM-2292       | 1-0             | ND            | 1020         | ND            | ND             | 309        | ND             | ND           | ND            | ND               | ND               |
| EM-2333       | 2-C             | ND            | 662          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2334       | 2-0             | 1310          | 1060         | 1080          | 1290           | 1270       | 676            | 1430         | 1.04          | ND               | ND               |
| EM-2340       | 3-C             | ND            | 624          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2341       | 3-0             | ND            | 649          | ND            | ND             | 211        | ND             | ND           | ND            | ND               | ND               |
| EM-2368       | 4-C             | ND            | 300          | ND            | ND             | 207        | ND             | ND           | ND            | ND               | ND               |
| EM-2369       | 4-0             | ND            | 632          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2346       | 5-C             | ND            | 631          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2347       | 5-0             | ND            | 666          | ND            | ND             | 227        | ND             | ND           | ND            | ND               | ND               |
| EM-2328       | 6-C             | ND            | 665          | ND            | ND             | 218        | ND             | ND           | ND            | ND               | ND               |
| EM-2329       | 6-0             | ND            | 1230         | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2297       | 7-0             | ND            | 1660         | 232           | ND             | 635        | ND             | ND           | ND            | ND               | ND               |
| EM-2322       | 8-C             | ND            | 612          | ND            | ND             | 250        | ND             | ND           | ND            | ND               | ND               |
| EM-2323       | 8-0             | ND            | 451          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2313       | 9-C             |               |              |               |                |            |                |              |               |                  |                  |
| EM-2314       | 9-0             | ND            | 637          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2304       | 10-C            | ND            | 400          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2306       | 10-0            | ND            | 600          | ND            | ND             | ND         | 366            | ND           | ND            | ND               | ND               |
| EM-2310       | 11-C            |               |              |               |                |            |                |              |               |                  |                  |
| EM-2321       | 11-0            | ND            | 311          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2381       | 13-C            | ND            | 415          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2362       | 13-0            | ND            | 239          | ND            | ND             | 258        | ND             | ND           | ND            | ND               | ND               |
| EM-2376       | 14-C            | ND            | 427          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |
| EM-2377       | 14-0            | ND            | 388          | ND            | ND             | 234        | ND             | ND           | 0.20          | ND               | ND               |
| EM-2391       | rinse           | ND            | 330          | ND            | ND             | ND         | ND             | ND           | ND            | ND               | ND               |

ANALYTICAL RESULTS  
TRUCK LOADING DOCK PROJECT

| SAMPLE NUMBER | SAMPLE LOCATION | ACETONE (ppb) | TOLUENE (ppb) | MEK (ppb) | METHYLENE CHLORIDE (ppb) | TETRACHLOROETHENE (ppm) | TOTAL XYLENES (ppb) | SEMI-VOA (ppm) |
|---------------|-----------------|---------------|---------------|-----------|--------------------------|-------------------------|---------------------|----------------|
| EM-2292       | 1-O             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2333       | 2-C             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2334       | 2-O             | ND            | ND            | 18        | ND                       | ND                      | ND                  | ND             |
| EM-2340       | 3-C             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2341       | 3-O             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2368       | 4-C             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2369       | 4-O             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2348       | 5-C             | ND            | ND            | 22        | ND                       | ND                      | ND                  | ND             |
| EM-2347       | 5-O             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2328       | 6-C             | ND            | ND            | 16        | ND                       | ND                      | ND                  | ND             |
| EM-2329       | 6-O             | ND            | ND            | 33        | ND                       | ND                      | ND                  | ND             |
| EM-2297       | 7-O             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2322       | 8-C             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2323       | 8-O             | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2313       | 9-C             | ND            | 200           | ND        | 111                      | 61                      | ND                  | ND             |
| EM-2314       | 9-O             | 616           | 41            | ND        | 63                       | ND                      | ND                  | ND             |
| EM-2304       | 10-O            | ND            | ND            | 888       | ND                       | 6                       | ND                  | ND             |
| EM-2308       | 10-O            | ND            | ND            | ND        | ND                       | 6                       | ND                  | ND             |
| EM-2320       | 11-C            | 116           | 260           | 10        | 6                        | 33                      | 8                   | ND             |
| EM-2321       | 11-O            | 80            | 99            | ND        | ND                       | 6                       | ND                  | ND             |
| EM-2381       | 13-C            | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2382       | 13-O            | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2376       | 14-C            | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2377       | 14-O            | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |
| EM-2391       | rinse           | ND            | ND            | ND        | ND                       | ND                      | ND                  | ND             |

**ATTACHMENT II**  
**RADIOLOGICAL SURVEY**

**FMPC**  
**INDUSTRIAL RADIOLOGICAL SAFETY & TRAINING - RADIOLOGICAL SAFETY**  
**RADIOLOGICAL SURVEY REPORT**

4057

Date: 9/5/90

LOCATION: *Dakota*  
 LEVEL: 520

REMARKS: *FWA*

Page 1 of 2

Time: 1730

REASON FOR SURVEY:  ROUTINE

SPECIAL REQUEST

RWP

INCIDENT

COMMENTS:

*Performed - live - Bag 71  
 South lock area.*

| MODEL  | SERIAL NUMBER | CALIBRATION DATE | BKRD. | EFF. |
|--------|---------------|------------------|-------|------|
| LB5100 | # 2           | 11-90            | 55    | 206  |
| Bicron | A 319 P       | 10-90            | 58    | 267  |
| FM-177 | 59148         | 2-91             | ND    | 246  |

ANALYZE FOR:  ALPHA  
 BETA-GAMMA  OTHER  
 TYPE OF SURVEY:  CONTAMINATION, (Fixed, loose)  
 RADIATION  OTHER

FOLLOW-UP SURVEY ATTACHED  YES  NO  
 SURVEY MAP ATTACHED  YES  NO

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION      | CORRECTED DOSE RATE (mRem/hr) |     |       |     | DPM ALPHA           |       | DPM BETA-GAMMA      |       |
|-------------|------------------|------------------|-------------------------------|-----|-------|-----|---------------------|-------|---------------------|-------|
|             |                  |                  | CONTACT                       |     | 3 FT. |     | 100 CM <sup>2</sup> | PROBE | 100 CM <sup>2</sup> | PROBE |
|             |                  |                  | γ                             | B/γ | γ     | B/γ |                     |       |                     |       |
| 1           | NA               | Concrete Surface |                               |     |       |     | 15                  | 2200  | 7                   | 2K    |
| 2           |                  |                  |                               |     |       |     | NO                  | 2200  | 2                   | 1K    |
| 3           |                  |                  |                               |     |       |     | 15                  | 2200  | 7                   | 1K    |
| 4           |                  |                  |                               |     |       |     | 5                   | 2200  | 15                  | 2K    |
| 5           |                  |                  |                               |     |       |     | 5                   | 2200  | 29                  | 2K    |
| 6           |                  |                  |                               |     |       |     | 5                   | 2200  | 18                  | 2K    |
| 7           |                  |                  |                               |     |       |     | 5                   | 2200  | 23                  | 4K    |
| 8           |                  |                  |                               |     |       |     | NO                  | 2200  | NO                  | 2K    |
| 9           |                  |                  |                               |     |       |     | 15                  | 2200  | 2                   | 2K    |
| 10          |                  |                  |                               |     |       |     | 5                   | 2200  | 7                   | 3K    |
| 11          |                  |                  |                               |     |       |     | 5                   | 2200  | 2                   | 1K    |
| 12          |                  |                  |                               |     |       |     | 15                  | 2200  | 12                  | 1K    |
| 13          |                  |                  |                               |     |       |     | 15                  | 2200  | 7                   | 2K    |
| 14          |                  |                  |                               |     |       |     | 5                   | 2200  | 12                  | 2K    |
| 15          |                  |                  |                               |     |       |     | NO                  | 2200  | 7                   | 5K    |
| 16          |                  |                  |                               |     |       |     | 5                   | 2200  | 23                  | 2K    |

**DISTRIBUTION OF COPIES**  
 Radiological Safety Technician Supervisor  
 Radiological Safety Engineer  
 Facility Supervisor

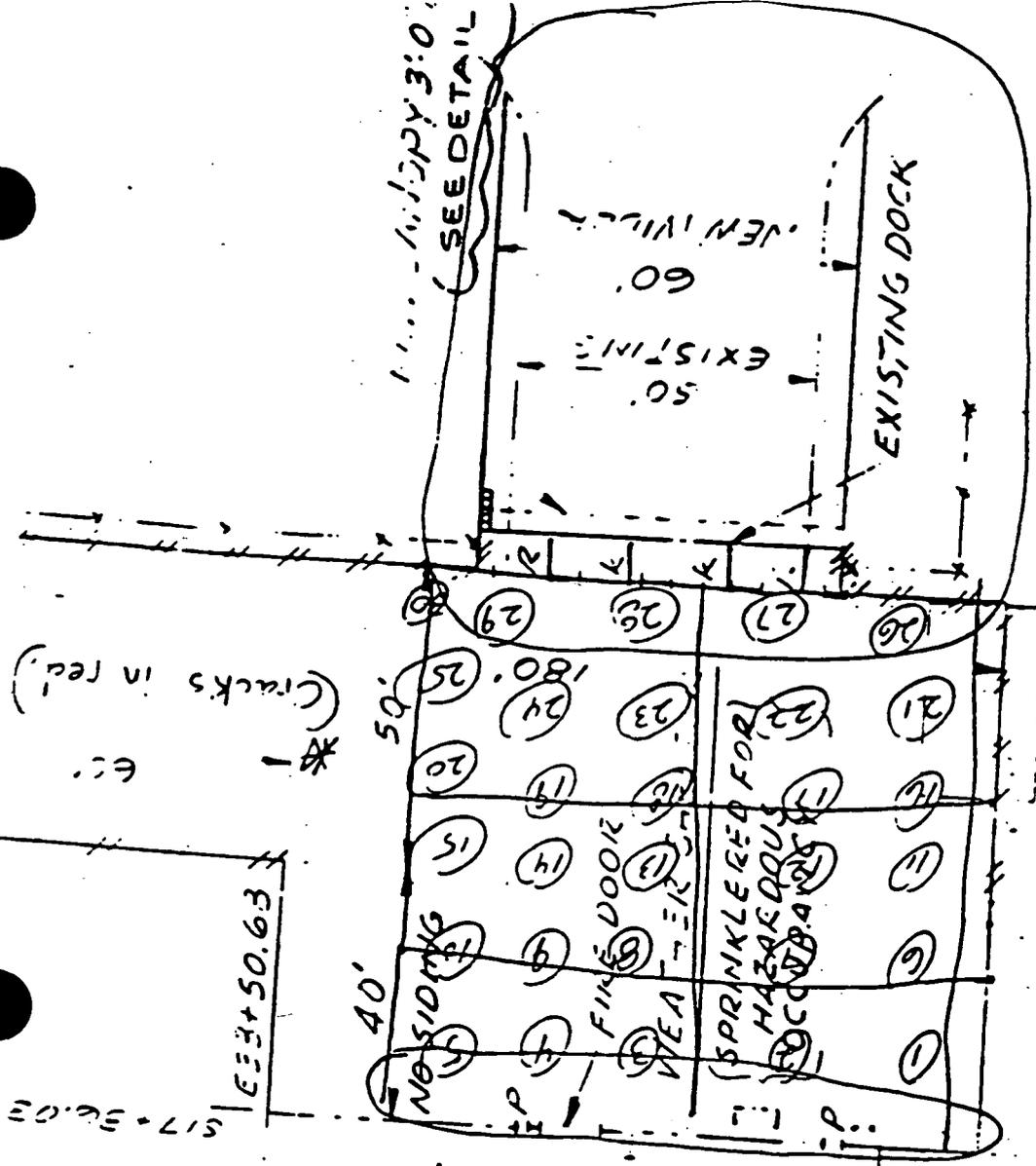
| NOTIFICATION OF SURVEY RESULTS |      |      |             |             |      |
|--------------------------------|------|------|-------------|-------------|------|
| SUPERVISOR NOTIFIED            | TIME | DATE | NOTIFIED BY | REVIEWED BY | DATE |
|                                |      |      |             |             |      |

FMPC  
OPERATIONS SAFETY & HEALTH - RADIOLOGICAL SAFETY  
RADIOLOGICAL SURVEY REPORT (CONTINUATION SHEET)

4057

| ITEM NUMBER | GRID COORDINATES | DESCRIPTION      | CORRECTED DOSE RATE (mRem/hr) |         |       |       | DPM ALPHA |       | DPM BETA-GAMMA |       |
|-------------|------------------|------------------|-------------------------------|---------|-------|-------|-----------|-------|----------------|-------|
|             |                  |                  | γ                             | B/γ     | γ     | B/γ   | 100 CPM   | PROBE | 100 CPM        | PROBE |
|             |                  |                  | CONTACT                       | CONTACT | 3 FT. | 3 FT. |           |       |                |       |
| 17          | NA               | Concrete Surface |                               |         |       |       |           |       |                |       |
| 18          |                  |                  |                               |         |       |       | 5         | 2200  | 18             | 3K    |
| 19          |                  |                  |                               |         |       |       | ND        | 2200  | 2              | 2K    |
| 20          |                  |                  |                               |         |       |       | 24        | 2200  | 7              | 2K    |
| 21          |                  |                  |                               |         |       |       | 5         | 2200  | 29             | 2K    |
| 22          |                  |                  |                               |         |       |       | 5         | 2200  | 2              | 2K    |
| 23          |                  |                  |                               |         |       |       | 15        | 2200  | 34             | 1K    |
| 24          |                  |                  |                               |         |       |       | 24        | 2200  | 7              | 1K    |
| 25          |                  |                  |                               |         |       |       | ND        | 2200  | 12             | 3K    |
| 26          |                  |                  |                               |         |       |       | 5         | 2200  | 12             | 2K    |
| 27          |                  |                  |                               |         |       |       | ND        | 2200  | ND             | 1K    |
| 28          |                  |                  |                               |         |       |       | ND        | 2200  | 23             | 2K    |
|             |                  |                  |                               |         |       |       | ND        | 2200  | 2              | 3K    |
| 30          |                  |                  |                               |         |       |       | ND        | 2200  | 7              | 2K    |
|             |                  |                  |                               |         |       |       | ND        | 2200  | 83             | 4K    |
|             |                  |                  |                               |         |       |       | 15        | 2200  | ND             | 2K    |

\* All major cracks and openings in concrete have 15x readings ranging from 5K to 25K dpm/cm<sup>2</sup> 15x. alpha readings in cracks range from 200 to 900 dpm/cm<sup>2</sup> α



ESS STORAGE WAREHOUSE BLDG N° 71

STORAGE AREA

TEMPERED AIR

EXISTING ISOTHERM VERIFICATION FACILITY

40' NO SIDING

EXISTING SAMPLING PLANT  
BLDG N° 1

BLDG. N° 72



From: C. S. Waugh

WEMCO:EC&QA(OU3/FME):91-365 4057

Date: August 19, 1991

Subject: RE-EVALUATION OF THE RCRA DETERMINATION FOR THE CONSTRUCTION WASTE FROM THE ULTRAVIOLET DISINFECTION UPGRADE, WCMO PROJECT NO. 25-88103 BASED UPON PROCESS KNOWLEDGE FOR CONFORMANCE TO TC REGULATIONS

To : P. J. Juros

- Reference:
1. Memo, WCMO:R(SW):90-024, S. G. Schneider to P. J. Juros, "Radiological Characterization/RCRA Determination for the Ultraviolet Disinfection Upgrade, WCMO Project No. 25-88103", dated January 15, 1990.
  2. Memo, WCMO:EC(SW):90-466, S. G. Schneider to P. J. Juros, "RCRA Determination and Radiological Characterization of Rubble From the Ultraviolet Disinfection Upgrade Project", dated September 4, 1990.
  3. Feed Materials Production Center Site Procedure, FMPC-720, "Control of Construction Waste", issued November 10, 1988.
  4. AEDO Spill Data Base.
  5. Upset Condition Documentation, issued September 18, 1990.
  6. Environmental Compliance Spill/Incident Release Tracking Report, dated May 15, 1991.
  7. FMPC Weed Control Program File - 1980 through 1986.

This memo transmits the re-evaluation of the RCRA determination for compliance to the TC regulation for the construction project Ultraviolet Disinfection Upgrade, WCMO Project No. 25-88103. This determination is for one container of concrete (Container Number 115702).

#### PROCESS KNOWLEDGE

This construction project was located in the uncontrolled area of the FMPC, approximately 1000 feet east of the production area. There were no uranium or thorium processes performed in this area. The concrete waste was removed from a trench approximately two feet below ground level. There were no recorded spills or releases in this area per reference numbers 4, 5, and 6. This area of the FMPC was never sprayed with herbicides per reference number 7.

EP Toxicity metal analyses of the soil above the concrete and the concrete itself, were well below the regulatory levels.

RCRA DETERMINATION

4057

Based upon process knowledge, knowledge of the waste gained through EP Toxicity metal analytical results, and process knowledge from reference numbers 1, 2, 4, 5, 6, and 7, there is no reason to suspect the waste to meet any of the hazardous waste listings under OAC 3745-51-31 to 33, (in lieu of 40 CFR 261, subpart D), or exhibit any of the characteristics of hazardous waste under OAC 3745-51-21 to 24, (in lieu of 40 CFR 261, subpart C), including the revised toxicity characteristic (TC) under 40 CFR 261.24.

Based upon the information above, the concrete waste in container number 115702, may be disposed of as RCRA non-hazardous (a.k.a non RCRA) per reference number 3.

If there are any questions, please contact Glenn Rieman at extension 6828, or myself at extension 6777.

  
Carolyn S. Waugh, Manager  
Facilities and Materials Evaluation  
Operable Unit 3 Compliance

CGR:vlr

- c:
- |                             |                 |
|-----------------------------|-----------------|
| S. D. Brown                 | B. S. Perkins   |
| J. E. Clements              | C. G. Rieman    |
| R. L. Gardner               | J. M. Sattler   |
| R. W. Hairston              | S. G. Schneider |
| S. W. Heisler               | K. A. Solomon   |
| A. T. Holstein              | R. A. Thiel     |
| J. P. Hopper                | J. L. Trujillo  |
| <del>S. C. [REDACTED]</del> | T. J. Walsh     |
| L. A. Hurst                 |                 |
| H. J. Knue                  | Central Files   |
| L. B. Ko                    | FME Files       |
| S. J. Lund                  |                 |
| L. M. Marsh                 |                 |
| T. M. Patterson             |                 |



From: C. S. Waugh

WEMCO:EC&QA(OU3/FME):91-499

Date: November 25, 1991

4057

Subject: RE-EVALUATION OF THE RCRA DETERMINATION FOR THE SOIL  
GENERATED FROM THE GENERAL SUMP UPGRADE PROJECT FOR  
CONFORMANCE TO TC REGULATIONS

To : R. W. Helmes

- REFERENCE:
1. Letter, WMCO:R(SW):89-0133, S. G. Schneider to R. W. Helmes, "RCRA DETERMINATION FOR SOIL AND RUBBLE FROM THE GENERAL SUMP UPGRADE PROJECT", dated June 5, 1989.
  2. Memo, WMCO:EC&QA(OU3/FME):91-200, C. S. Waugh to R. W. Helmes, "RE-EVALUATION OF THE RCRA DETERMINATION FOR THE CONSTRUCTION RUBBLE FROM THE GENERAL SUMP UPGRADE PROJECT FOR CONFORMANCE TO TC REGULATIONS", dated July 24, 1991.
  3. Feed Materials Production Center, Operations Safety and Health Procedure OSH-P-35-010, "UNRESTRICTED RELEASE OF MATERIALS FROM FMPC", issued October 25, 1988.
  4. Memo, WMCO:P&A:88-196, S. A. Scheer to Distribution, "TIME/SPACE ANALYSIS SUPPLEMENTAL INFORMATION", dated July 26, 1988.
  5. AEDO Spill Data Base.
  6. Upset Condition Document, issued September 18, 1990.
  7. Environmental Compliance Spill/Release Incident Tracking Report, dated August 27, 1991.
  8. FEMP Site Document IN-6015, "DISPOSITION REQUIREMENTS FOR RADIOLOGICALLY CONTAMINATED AND UNCONTAMINATED CONSTRUCTION/MAINTENANCE WASTE", issued September 27, 1991.
  9. FMPC Weed Control Program File - 1980 through 1990.

R. W. HELMES

-2- WEMCO:EC&amp;QA(OU3/FME):91-499

10. Letter, DOE-1918-91, G. W. Westerbeck to P. Pardi, Ohio EPA, "METHODOLOGY FOR ESTIMATING TC HERBICIDES IN SOILS AT THE FMPC", dated August 9, 1991.
11. Conversation Report, N. A. Frink, WEMCO, with M. Hayes, OEPA, August 12, 1991.
12. Memo, C. S. Waugh to R. L. Gardner and P. C. Weddle, WMCO:EC&QA(OU3/FME):91-284, "CONSTRUCTION SOIL AND CONCRETE WASTE PILES", dated July 31, 1991.

This memo transmits the re-evaluation for the RCRA determination for soil wastes generated during the demolition and excavation associated with the General Sump Upgrade Project. As this waste was not shipped off-site prior to September 25, 1990, it must be re-evaluated in light of the revised Toxicity Characteristic.

This determination applies only to the seven (7) containers listed on Attachment 1. It does not apply to the soil pile located on the east side of Plant 2/3 that has been identified as resulting from this project. Because of the length of time this soil pile has been in existence and the lack of controls in this area, the soil in this pile cannot be characterized as the same material that is in the containers on Attachment 1. This soil pile will have to be resampled and, following resampling, will have to be posted and covered as outlined in Reference 12 (Attachment 2). A separate determination will be required for this pile.

Reference 2 provided the re-evaluation of wood, concrete, and metal wastes from this project. These wastes were determined to be RCRA non-hazardous (a.k.a., non-RCRA).

#### PROCESS KNOWLEDGE

This construction project was located in the area of 101st and B-street, on the east side of Plant 2/3 (Refinery) in the controlled area of the FEMP site. Prior to excavation this was a graveled area and was sprayed with herbicides per Reference 9. Based on known rates and frequencies of application taken from Reference 9 and applying the methodology outlined in Reference 10, these soils would not be expected to contain herbicide constituents at levels that would cause the soils to fail the TCLP. This methodology received verbal concurrence from Ohio EPA (see Reference 11).

R. W. HELMES

-2- WEMCO:EC&amp;QA(OU3/FME):91-499

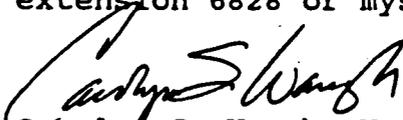
**RCRA DETERMINATION**

Based upon the original process knowledge as well as the additional process knowledge described above, no hazardous materials other than herbicides were used, stored, or spilled in the construction area prior to or during this project. No materials have been identified that would cause the waste to meet any of the hazardous waste listings under OAC 3745-51 (in lieu of 40 CFR 261, Subpart D) or exhibit any of the hazardous waste characteristics under OAC 3745-21 to 24 (in lieu of 40 CFR 261.21 to 24) or the revised Toxicity Characteristic under 40 CFR 261.24.

Based upon the information above, the seven (7) containers of soil mixed with concrete (including the single container of soil, concrete, and wood) generated from this project, listed on Attachment 1, may be disposed of as RCRA non-hazardous (a.k.a., non-RCRA) per Reference 8.

The soil pile on the east side of Plant 2/3 will require resampling in order to determine its RCRA regulatory status.

If there are any questions, contact Glenn Rieman at extension 6828 or myself at extension 6777.



Carolyn S. Waugh, Manager  
Facilities and Materials Evaluation  
Operable Unit 3 Compliance

DJS:djs

|    |                |                 |
|----|----------------|-----------------|
| c: | S. D. Brown    | M. L. March     |
|    | J. E. Clements | T. M. Patterson |
|    | R. L. Gardner  | B. S. Perkins   |
|    | R. W. Hairston | C. G. Rieman    |
|    | J. E. Harmon   | J. M. Sattler   |
|    | S. W. Heisler  | S. G. Schneider |
|    | A. T. Holstein | K. A. Solomon   |
|    | J. P. Hopper   | R. A. Thiel     |
|    | S. C. Hoskins  | J. L. Trujillo  |
|    | L. A. Hurst    | T. J. Walsh     |
|    | H. J. Knue     |                 |
|    | L. B. Ko       | Central Files   |
|    | S. J. Lund     | FME Files       |

## ATTACHMENT 1

4057

CONTAINERS OF SOIL-BEARING WASTE  
FROM GENERAL SUMP UPGRADE

| <u>White Metal<br/>Box #</u> | <u>Lot Code</u>  | <u>Container #</u> | <u>Contents</u>    |
|------------------------------|------------------|--------------------|--------------------|
| 113495                       | W050-761P-3-A338 | 1                  | Concrete/Soil      |
| 113497                       | W050-761P-3-A337 | 2                  | Concrete/Soil      |
| 114522                       | W050-761P-3-A327 | 7                  | Concrete/Soil      |
| 114552                       | W050-761P-3-A327 | 5                  | Concrete/Soil      |
| 114583                       | W050-761P-3-A327 | 6                  | Concrete/Soil      |
| 126904                       | W050-761P-3-A328 | 1                  | Concrete/Soil/Wood |
| 127621                       | W050-761P-3-A338 | 2                  | Concrete/Soil      |

ATTACHMENT 2

4057

MEMO, WEMCO:EC&QA(OU3/FME):91-284  
"CONSTRUCTION SOIL AND CONCRETE WASTE PILES"

FMPG MATERIAL EVALUATION FORM

MEF NO.: 928  
MEF REV. NO.: 4057

SECTION 1 - MATERIAL GENERATOR

1. FMPG SRC: 200 MTC: 1003 2. PLANT AND/OR BUILDING NO.: Sidewalk 3. PROCESS AREA: Trash Bailer

EQUIPMENT NAME(S): Material not generated by equipment 6-27-91 4. MEF NO. DATE: MEF REV. DATE: 5. MATERIAL PHYSICAL STATE:  Liquid  Gas  Wet Solid (Sludge)  Dry Solid

7. APPROXIMATE NET WEIGHT OF FULL CONTAINER?  <100 lbs.  100 to 1000 lbs.  >1000 lbs. 8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE?  YES  NO

9. IS MATERIAL A WASTE?  YES  NO 10. COMMON NAMES: Battered Sea/Hands with Battered Trash and wood 11. CHEMICAL NAMES: N/A

12. COMMON CHEMICAL NAME SOURCE:  Process Information  MSDS  Container Label  FMPG Lot Code OTHER: N/A 13. SIMILAR MATERIAL NAME: N/A

14. SIMILAR MATERIAL LOT CODE(S): N/A

15. SUBSTANCES SUSPECTED:
- |   |   |   |  |   |
|---|---|---|--|---|
| <input type="checkbox"/> Aerosols             | <input type="checkbox"/> Cresol               | <input type="checkbox"/> Endrine                  | <input type="checkbox"/> Methylene Chloride            | <input type="checkbox"/> TBP/Kerosene               |
| <input type="checkbox"/> Arsenic              | <input type="checkbox"/> m-Cresol             | <input type="checkbox"/> Heptachlor               | <input type="checkbox"/> Motor/Engine Oil              | <input type="checkbox"/> Tetrachloroethylene        |
| <input type="checkbox"/> Barium               | <input type="checkbox"/> o-Cresol             | <input type="checkbox"/> Hexachlorobenzene        | <input type="checkbox"/> Nitrobenzene                  | <input type="checkbox"/> 1,1,1-Trichloroethane      |
| <input type="checkbox"/> Benzene              | <input type="checkbox"/> p-Cresol             | <input type="checkbox"/> Hexachloroethane         | <input type="checkbox"/> Other Organics                | <input type="checkbox"/> 2,4,5-TP (Silvex)          |
| <input type="checkbox"/> Cadmium              | <input type="checkbox"/> 2,4-D                | <input type="checkbox"/> Hexachloro-1,3-butadiene | <input type="checkbox"/> Paint Stripper                | <input type="checkbox"/> 2,4,5-Trichloroacetic acid |
| <input type="checkbox"/> Carbon Tetrachloride | <input type="checkbox"/> Degreaser            | <input type="checkbox"/> Hydraulic Oil            | <input type="checkbox"/> Paint Thinner/Mineral Spirits | <input type="checkbox"/> 2,4,6-Trichloroacetic acid |
| <input type="checkbox"/> Chlordane            | <input type="checkbox"/> 1,4-Dichlorobenzene  | <input type="checkbox"/> Ink                      | <input type="checkbox"/> Pentachlorophenol             | <input type="checkbox"/> Toxaphene                  |
| <input type="checkbox"/> Chlorobenzene        | <input type="checkbox"/> 1,2-Dichloroethane   | <input type="checkbox"/> Lead                     | <input type="checkbox"/> Perchloroethylene             | <input type="checkbox"/> Trichloroethylene          |
| <input type="checkbox"/> Chloroform           | <input type="checkbox"/> 1,1-Dichloroethylene | <input type="checkbox"/> Lindane                  | <input type="checkbox"/> Pyridine                      | <input type="checkbox"/> Unknown                    |
| <input type="checkbox"/> Chromium             | <input type="checkbox"/> 2,4-Dinitrotoluene   | <input type="checkbox"/> Mercury                  | <input type="checkbox"/> Selenium                      | <input type="checkbox"/> Vinyl Chloride             |
| <input type="checkbox"/> Coolants             | <input type="checkbox"/> Enamel               | <input type="checkbox"/> Methoxychlor             | <input type="checkbox"/> Silver                        | <input type="checkbox"/> Xylene                     |
|   |   | <input type="checkbox"/> Methyl ethyl ketone      | <input type="checkbox"/> Synthetic oil                 | <input type="checkbox"/> Oil                        |

16. REASON FOR SUSPECTING ALL SUBSTANCES AND QUANTITY: N/A

SOURCE FOR REASON AND QUANTITY: (Attach MSDS if Available)

|   |  |  |   |
|---|--|--|---|
| <input type="checkbox"/> Personnel Interviews | <input type="checkbox"/> AEDO Log            | <input type="checkbox"/> MSDS            | <input type="checkbox"/> Prior Evaluation of Similar Material |
| <input type="checkbox"/> Historical Records   | <input type="checkbox"/> Physical Evidence   | <input type="checkbox"/> Container Label | What Material: _____  |
| <input type="checkbox"/> FMPG Lot Code        | <input type="checkbox"/> Process Information | <input type="checkbox"/> Sump Report     |   |
|   |  | <input type="checkbox"/> Spill Database  |   |

17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED?  YES  NO 18. NUMBER OF PHASES: 19. pH (IF KNOWN): 20. FLASH POINT (IF KNOWN):

21. HAS A PAINT FILTER TEST BEEN COMPLETED?  YES  NO

22. IS IT REACTIVE?  YES  NO EXPLAIN: Material does not exhibit reactivity

23. IS IT IGNITABLE?  YES  NO EXPLAIN: Material does not exhibit ignitability

24. HEALTH AND SAFETY CONCERNS: None

25. OTHER INFORMATION: (Example: Is the Material a Product or Waste?) See attached memo

26. ADDITIONAL SOURCES OF INFORMATION: Jim Campbell

27. PRIMARY CONTACT INDIVIDUAL: Suzette Cortina EXTENSION: 16173 DATE COMPLETED: 7-26-91

**FMPC  
MATERIAL EVALUATION FORM  
(Continued)**

MEF NO.: 928 4057  
MEF REV. NO.: \_\_\_\_\_

**SECTION II - FACILITY AND MATERIALS EVALUATION**

|   |  |  |  |
|---|--|--|--|
| <b>1. IS MATERIAL A WASTE?</b><br><input checked="" type="checkbox"/> YES<br><input type="checkbox"/> NO  | <b>2. IS IT EXCLUDED UNDER 261.4(a)?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO | <b>3. IS IT EXCLUDED UNDER 261.4 (b)?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO  | <b>4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D?</b><br><input type="checkbox"/> k _____<br><input type="checkbox"/> l _____<br><input type="checkbox"/> p _____<br><input type="checkbox"/> u _____<br><input checked="" type="checkbox"/> not listed |
| <b>5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART C?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO   |  | <b>6. IS IT A RC HAZARDOUS SUBSTANCE?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO  |  |
| <b>7. CLASSIFICATION AS A WASTE:</b><br><input type="checkbox"/> RCRA Hazardous Waste<br><input type="checkbox"/> Source Exempt<br><input checked="" type="checkbox"/> Non-RCRA Waste<br><input type="checkbox"/> Radioactive |  | <b>8. PRIMARY BASIS FOR CLASSIFICATION:</b><br><input checked="" type="checkbox"/> Generator Information<br><input type="checkbox"/> Prior material evaluation |  |
| <b>EXPLAIN:</b><br>Based on previous determination for Series Wood (MEF#905) and current approval for P-Baled Trash   |  | <b>9. IS IT SUBJECT TO LAND BAN RESTRICTIONS?</b><br><input checked="" type="checkbox"/> NO <input type="checkbox"/> YES Effective Date: _____                 |  |
| <b>10. DISTRIBUTE PER SECTION IV, ITEM 8.</b>   |  |  |  |
| <b>11. OTHER INFORMATION SOURCES USED:</b><br>Reference WMC01: EMT (Wm): 91-178, WMC02: ECPGA (W3/FME) 91-366   |  |  |  |
| <b>12. PRIMARY CONTACT INDIVIDUAL:</b><br>Larry Amis  |  | <b>EXTENSION:</b><br>6910  | <b>DATE COMPLETED:</b><br>8-5-91   |
| <b>13. IS SAMPLING REQUIRED?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO  |  | <b>14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO                          | <b>15. INFORMATION ACTION COMPLETION DATE:</b><br>N/A  |
| <b>16. HEALTH AND SAFETY CONCERNS REQUIREMENTS:</b>   |  | <b>16. b. SIGNATURE AND DATE</b>   |  |

**SECTION III - ENVIRONMENTAL ENGINEERING**

|   |  |
|---|--|
| <b>1. RECOMMENDED STORAGE CONTAINER MATERIAL</b><br><input type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Polyethylene<br><input type="checkbox"/> Other: _____ | <b>2. APPLICABLE REACTIVITY GROUP CODES:</b><br>A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/><br>E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H<br>N/A |
| <b>3. OTHER INFORMATION SOURCES USED:</b>   |  |
| <b>4. PRIMARY CONTACT INDIVIDUAL:</b><br>J. Stoffer   |  |
| <b>EXTENSION:</b> 6148  |  |
| <b>DATE COMPLETED:</b> 8-15-91  |  |

**SECTION IV - TOXIC AND SOLID WASTE PROGRAMS**

|  |   |
|--|---|
| <b>PER D.O.T. SHIPPING NAME:</b><br>Radioactive material, LSA 0.05 (solid)                                 |   |
| <b>2. D.O.T. HAZARD CLASS:</b><br>Radioactive material   | <b>3. REQUIRED LABELS:</b><br>Radioactive LSA                                     |
| <b>4. D.O.T. IDENTIFICATION NO.:</b><br><input checked="" type="checkbox"/> UN <input type="checkbox"/> NA | <b>5. EPA WASTE NO.:</b><br>None  |
| <b>SUFFIX:</b> 12912   | <b>7. FMPC SRC AND MTC (COPY FROM SECTION I, ITEM 1)</b><br>SRC: _____ MTC: _____ |
| <b>6. APPLICABLE REACTIVITY GROUP CODES: (COPY FROM SECTION III, ITEM 2)</b>                               |   |
| <b>8. IS A REVISION TO MEF REQUIRED?</b><br><input type="checkbox"/> YES <input type="checkbox"/> NO       |   |

|   |  |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
|---|--|---|----------------------|---|-------------------------|--|----------------------|------------------------------|----------------------|-------------------------|--------------------|--|--------------------|-----------------------|--------------------|---------------------------------------|--------------------|--|
| <b>9. DISTRIBUTION:</b>                           | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><b>MATERIAL GENERATOR:</b> SUELETTE Cortina</td> <td><b>DATE:</b> 8-15-91</td> </tr> <tr> <td><b>ENVIRONMENTAL ENGINEERING:</b> Jim Stoffer</td> <td><b>DATE:</b> 8-15-91 ok</td> </tr> <tr> <td><b>ENVIRONMENTAL MONITORING:</b> KEVIN Thiel</td> <td><b>DATE:</b> 8-15-91</td> </tr> <tr> <td><b>MC&amp;A:</b> Harold Knue</td> <td><b>DATE:</b> 8-15-91</td> </tr> <tr> <td><b>IRS&amp;T:</b> _____</td> <td><b>DATE:</b> _____</td> </tr> <tr> <td><b>FACILITIES AND WAREHOUSING:</b> _____</td> <td><b>DATE:</b> _____</td> </tr> <tr> <td><b>F&amp;M:</b> _____</td> <td><b>DATE:</b> _____</td> </tr> <tr> <td><b>CONTROLLED HOLDING AREA:</b> _____</td> <td><b>DATE:</b> _____</td> </tr> </table> | <b>MATERIAL GENERATOR:</b> SUELETTE Cortina | <b>DATE:</b> 8-15-91 | <b>ENVIRONMENTAL ENGINEERING:</b> Jim Stoffer | <b>DATE:</b> 8-15-91 ok | <b>ENVIRONMENTAL MONITORING:</b> KEVIN Thiel | <b>DATE:</b> 8-15-91 | <b>MC&amp;A:</b> Harold Knue | <b>DATE:</b> 8-15-91 | <b>IRS&amp;T:</b> _____ | <b>DATE:</b> _____ | <b>FACILITIES AND WAREHOUSING:</b> _____ | <b>DATE:</b> _____ | <b>F&amp;M:</b> _____ | <b>DATE:</b> _____ | <b>CONTROLLED HOLDING AREA:</b> _____ | <b>DATE:</b> _____ |  |
| <b>MATERIAL GENERATOR:</b> SUELETTE Cortina       | <b>DATE:</b> 8-15-91   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>ENVIRONMENTAL ENGINEERING:</b> Jim Stoffer     | <b>DATE:</b> 8-15-91 ok  |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>ENVIRONMENTAL MONITORING:</b> KEVIN Thiel      | <b>DATE:</b> 8-15-91   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>MC&amp;A:</b> Harold Knue                      | <b>DATE:</b> 8-15-91   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>IRS&amp;T:</b> _____                           | <b>DATE:</b> _____   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>FACILITIES AND WAREHOUSING:</b> _____          | <b>DATE:</b> _____   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>F&amp;M:</b> _____                             | <b>DATE:</b> _____   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>CONTROLLED HOLDING AREA:</b> _____             | <b>DATE:</b> _____   |   |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |
| <b>PRIMARY CONTACT INDIVIDUAL:</b> Betsy Bruckner | <b>EXTENSION:</b> 9074   | <b>DATE COMPLETED:</b> 8/16/91              |                      |   |                         |  |                      |                              |                      |                         |                    |  |                    |                       |                    |                                       |                    |  |

FMPC MATERIAL EVALUATION FORM

MEF NO.: 1338  
MEF REV. NO.: 4057

SECTION I - MATERIAL GENERATOR

1. SRC: ATTACHED LIST MTC: LIST 2. PLANT AND/OR BUILDING NO.: STORAGE #1 3. PROCESS AREA: WATER TREATMENT

4. EQUIPMENT NAME(S): UNKNOWN 5. MEF NO. DATE: MEF REV. DATE: 6. MATERIAL PHYSICAL STATE:  Liquid  Gas  Wet Solid  Dry Solid (Sludge)

7. APPROXIMATE NET WEIGHT OF FULL CONTAINER?  <100 lbs.  100 to 1000 lbs.  >1000 lbs. 8. DOES MATERIAL CONSIST OF MORE THAN ONE SUBSTANCE?  YES  NO

9. IS MATERIAL A WASTE?  YES  NO 10. COMMON NAMES: NON-RECOVERABLE TRASH 11. CHEMICAL NAMES: NONE

12. COMMON/CHEMICAL NAME SOURCE:  Process Information  MSDS  FMPC Lot Code  Container Label OTHER: 13. SIMILAR MATERIAL NAME: NONE 14. SIMILAR MATERIAL LOT CODE(S): NONE

- 15. SUBSTANCES SUSPECTED:  Aerosols  Arsenic  Barium  Benzene  Cadmium  Carbon Tetrachloride  Chlordane  Chlorobenzene  Chloroform  Chromium  Coolants  Cresol  m-Cresol  o-Cresol  p-Cresol  2,4-D  Degreaser  1,4-Dichlorobenzene  1,2-Dichloroethane  1,1-Dichloroethylene  2,4-Dinitrotoluene  Enamel  Endrine  Heptachlor  Hexachlorobenzene  Hexachloroethane  Hexachloro-1,3-butadiene  Hydraulic Oil  Ink  Lead  Lindane  Mercury  Methoxychlor  Methyl ethyl ketone  Methylene Chloride  Motor/Engine Oil  Nitrobenzene  Other Organics  Paint Stripper  Paint Thinner/Mineral Spirits  Pentachlorophenol  Perchloroethylene  Pyridine  Selenium  Silver  Synthetic oil  TBP/Kerosene  Tetrachloroethylene  1,1,1-Trichloroethane  2,4,5-TP (Silvex)  2,4,5-Trichlorophenol  2,4,6-Trichlorophenol  Toxaphene  Trichloroethylene  Unknown  Vinyl Chloride  Xylene  Oil

16. REASON FOR SUSPECTING SUBSTANCES AND QUANTITY:

16. b. SOURCE FOR REASON AND QUANTITY: (Attach MSDS if Available)  Personnel Interviews  AEDO Log  Historical Records  Physical Evidence  FMPC Lot Code  Process Information  MSDS  Container Label  Sump Report  Spill Database  Prior Evaluation of Similar Material What Material: SRC: MTC:

16. c. HEALTH AND SAFETY CONCERNS/ REQUIREMENTS: See attached 16. d. SIGNATURE AND DATE: [Signature] 1-8-92

17. HAS THE "FINGERPRINT" VISUAL INSPECTION BEEN COMPLETED?  YES  NO 18. NUMBER OF PHASES: UNKN 19. pH (IF KNOWN): (Attach Lab Results) 20. FLASH POINT (IF KNOWN): (Attach Lab Results)

21. HAS A PAINT FILTER TEST BEEN COMPLETED?  YES  NO

22. IS IT REACTIVE? EXPLAIN:  YES  NO

23. IS IT IGNITABLE? EXPLAIN:  YES  NO

24. OTHER INFORMATION: (Example: Is the Material a Product or Waste?) NONE

25. ADDITIONAL SOURCES OF INFORMATION: NONE

26. PRIMARY CONTACT INDIVIDUAL: MACK SILVER EXTENSION: 6289 DATE COMPLETED: 12-18-91

OTE: Form shall be completed using ink or a typewriter. OTE: Only WMCO employees shall sign this form.

**FMPC  
MATERIAL EVALUATION FORM**  
(Continued)

MEF NO.: \_\_\_\_\_  
MEF REV. NO.: \_\_\_\_\_ **4057**

**SECTION II - FACILITY AND MATERIALS EVALUATION**

|  |  |  |   |
|--|--|--|---|
| <b>1. IS IT A RCRA HAZARDOUS WASTE?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO   | <b>2. IS IT EXCLUDED UNDER 261.4(a)?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO                    | <b>3. IS IT EXCLUDED UNDER 261.4 (b)?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO   | <b>4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D?</b><br><input type="checkbox"/> k _____ <input type="checkbox"/> f _____ <input type="checkbox"/> p _____ <input type="checkbox"/> u _____ <input type="checkbox"/> not listed |
| <b>5. DOES IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART C?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO   |  | <b>EXPLAIN:</b> _____  |   |
| <b>7. CLASSIFICATION AS A WASTE:</b><br><input type="checkbox"/> RCRA Hazardous Waste<br><input type="checkbox"/> Source Exempt<br><input type="checkbox"/> Non-RCRA Waste<br><input type="checkbox"/> Radioactive |  | <b>8. PRIMARY BASIS FOR CLASSIFICATION:</b><br><input type="checkbox"/> Generator Information<br><input type="checkbox"/> Prior material evaluation<br><b>WHAT MATERIAL?</b> _____<br><b>LOT NUMBER:</b> _____ |   |
| <b>10. DISTRIBUTE PER SECTION IV, ITEM 9.</b>  |  | <b>9. IS IT SUBJECT TO LAND BAN RESTRICTIONS?</b><br><input type="checkbox"/> NO <input type="checkbox"/> YES Effective Date: _____  |   |
| <b>11. OTHER INFORMATION SOURCES USED:</b> _____   |  |  |   |
| <b>12. PRIMARY CONTACT INDIVIDUAL:</b> _____   |  | <b>EXTENSION:</b> _____  | <b>DATE COMPLETED:</b> _____  |
| <b>13. IS SAMPLING REQUIRED?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO  | <b>14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO | <b>DATE:</b> _____   | <b>15. INFORMATION ACTION COMPLETION DATE:</b> _____  |
| <b>16. HEALTH AND SAFETY CONCERNS REQUIREMENTS:</b> _____  |  | <b>16. b. SIGNATURE AND DATE</b> _____   |   |

**SECTION III - ENVIRONMENTAL ENGINEERING**

|   |  |
|---|--|
| <b>1. RECOMMENDED STORAGE CONTAINER MATERIAL</b><br><input type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Polyethylene<br><input type="checkbox"/> Other: _____ | <b>2. APPLICABLE REACTIVITY GROUP CODES:</b><br><input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D<br><input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H |
| <b>3. OTHER INFORMATION SOURCES USED:</b> _____   |  |
| <b>PRIMARY CONTACT INDIVIDUAL:</b> _____  | <b>EXTENSION:</b> _____  |
| <b>DATE COMPLETED:</b> _____  |  |

**SECTION IV - TOXIC AND SOLID WASTE PROGRAMS**

|  |   |                                     |
|--|---|-------------------------------------|
| <b>1. PROPER D.O.T. SHIPPING NAME:</b> _____   |   |                                     |
| <b>2. D.O.T. HAZARD CLASS:</b> _____   | <b>3. REQUIRED LABELS:</b> _____                            |                                     |
| <b>4. D.O.T. IDENTIFICATION NO.:</b><br><input type="checkbox"/> UN <input type="checkbox"/> NA      | <b>5. EPA WASTE NO.:</b> _____                              |                                     |
| <b>6. APPLICABLE REACTIVITY GROUP CODES:</b><br>(COPY FROM SECTION III, ITEM 2)                      | <b>7. FMPC SRC AND MTC</b><br>(COPY FROM SECTION I, ITEM 1) | <b>SRC:</b> _____ <b>MTC:</b> _____ |
| <b>8. IS A REVISION TO MEF REQUIRED?</b><br><input type="checkbox"/> YES <input type="checkbox"/> NO |   |                                     |
| <b>9. DISTRIBUTION:</b>  | MATERIAL GENERATOR:   | DATE: _____                         |
|  | ENVIRONMENTAL ENGINEERING:                                  | DATE: _____                         |
|  | ENVIRONMENTAL MONITORING:                                   | DATE: _____                         |
|  | MC&A:   | DATE: _____                         |
|  | IRS&T:  | DATE: _____                         |
|  | FACILITIES AND WAREHOUSING:                                 | DATE: _____                         |
|  | F&ME:   | DATE: _____                         |
| CONTROLLED HOLDING AREA:   | DATE: _____   |                                     |
| <b>10. PRIMARY CONTACT INDIVIDUAL:</b> _____   | <b>EXTENSION:</b> _____                                     | <b>DATE COMPLETED:</b> _____        |

WATER TREATMENT  
DELINQUENT NEWLY GENERATED WASTE  
SOURCE CODE 765

|                    |    |
|--------------------|----|
| W050-765-P003-1343 | 01 |
| W050-765-P003-1343 | 02 |
| W050-765-P003-1343 | 03 |
| W050-765-P003-1351 | 01 |
| W050-765-P003-5343 | 01 |
| W050-765-P003-A344 | 01 |

MEF FORM ITEM #16: RADIOLOGICAL SAFETY CONCERNS:

4057

GENERATED WASTE ITEM MUST BE HANDLED AS A RADIOACTIVE MATERIAL, OR AS BEING POTENTIALLY CONTAMINATED WITH RADIOACTIVE MATERIAL. CONTACT RADIOLOGICAL SAFETY FOR AN RWP IF DIRECT HANDLING IS REQUIRED. DETERMINATIONS OF REMOVABLE CONTAMINATION (OR OTHER HAZARD) MAY BE REQUIRED BY RADIOLOGICAL SAFETY.

IF WASTE IS IN BULK FORM (ie. a liquid, powder, concrete, soils, etc.), ANALYTICAL DATA MUST ACCOMPANY EXTERIOR SURFACE CONTAMINATION MEASUREMENTS WHEN TARGETING THIS WASTE FOR UNRESTRICTED RELEASE TO COMMERCIAL TSDs OR THE PUBLIC. SHIPMENT OF THESE WASTE ITEMS MAY REQUIRE APPROVAL BY DOE.

SEALED AEROSOL CANS (completely exhausted of any interior contents), OR OTHER SOLID NON-PROCESS OR NON-RADIOACTIVE ITEMS (not in "bulk" form) CAN BE RELEASED WITHOUT RESTRICTIONS BY DIRECT EXTERNAL SURFACE CONTAMINATION SURVEYS PERFORMED BY RADIOLOGICAL SAFETY. HOWEVER, UNRESTRICTED RELEASE OF THESE WASTE ITEMS MAY REQUIRE FURTHER EVALUATION BY RADIOLOGICAL SAFETY AND NEED APPROVAL BY OTHER SITE AUTHORIZING ORGANIZATIONS.

 8493 1-9-92  
Radiological Safety Representative/Ext./date



**Remain Site  
MATERIAL EVALUATION FORM  
(Continued)**

MEF REV. NO.: 4057

**SECTION II - FACILITY AND MATERIALS EVALUATION**

|  |   |   |  |
|--|---|---|--|
| <b>1. MATERIAL WASTE?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO   | <b>2. IS IT EXCLUDED UNDER 261.4(a)?</b><br><input type="checkbox"/> YES<br><input type="checkbox"/> NO | <b>3. IS IT EXCLUDED UNDER 261.4 (b)?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO   | <b>4. DOES IT CONTAIN A LISTED WASTE AS PER 261 SUBPART D?</b><br>k <input type="checkbox"/> l <input type="checkbox"/> p <input type="checkbox"/> u <input type="checkbox"/> not listed |
| <b>5. IT EXHIBIT ANY CHARACTERISTICS AS PER 261 SUBPART C?</b><br><input type="checkbox"/> YES<br><input checked="" type="checkbox"/> NO   |   | <b>6. IS IT A RCRA HAZARDOUS SUBSTANCE?</b><br><input checked="" type="checkbox"/> YES<br><input type="checkbox"/> NO   |  |
| EXPLAIN: <i>Waste must meet criteria in "Attachment 1" see determination worksheets</i>  |   | POUNDS: <i>100</i><br><i>116</i>  |  |
| <b>7. CLASSIFICATION AS A WASTE:</b><br><input type="checkbox"/> RCRA Hazardous Waste<br><input type="checkbox"/> Source Exempt<br><input checked="" type="checkbox"/> Non-RCRA Waste<br><input type="checkbox"/> Radioactive<br><i>*Based on area of generation</i> |   | <b>8. PRIMARY BASIS FOR CLASSIFICATION:</b><br><input type="checkbox"/> Generator Information<br><input type="checkbox"/> Prior material evaluation<br>WHAT MATERIAL? <i>(Friction Asbestos)</i><br>LOT NUMBER: _____ |  |
| <b>9. IS IT SUBJECT TO LAND BAN RESTRICTIONS?</b><br><input checked="" type="checkbox"/> NO <input type="checkbox"/> YES Effective Date: _____   |   |   |  |

**10. DISTRIBUTE PER SECTION IV, ITEM 9.**

**11. OTHER INFORMATION SOURCES USED:** *"MSDS for Asbestos", "Attachment 1", SOP (IH&S-IH-03) "Public Notice" DAC 3745-20*

**12. PRIMARY CONTACT INDIVIDUAL:** *L. Hanford* EXTENSION: *6910* DATE COMPLETED: *3-7-92*

**13. IS SAMPLING REQUIRED?**  YES  NO

**14. IS TRANSFER TO CONTROLLED HOLDING AREA REQUIRED?**  YES  NO DATE: \_\_\_\_\_

**15. INFORMATION ACTION COMPLETION DATE:** \_\_\_\_\_

**16. HEALTH AND SAFETY CONCERNS REQUIREMENTS:** \_\_\_\_\_

**17. SIGNATURE AND DATE:** \_\_\_\_\_

**SECTION III - ENVIRONMENTAL ENGINEERING**

|  |   |
|--|---|
| <b>1. RECOMMENDED STORAGE CONTAINER MATERIAL:</b><br><input type="checkbox"/> Carbon Steel <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Polyethylene<br><input type="checkbox"/> Other: _____ | <b>2. APPLICABLE REACTIVITY GROUP CODES:</b><br><input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D<br><input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> H<br><i>NH</i> |
| <b>3. OTHER INFORMATION SOURCES USED:</b>  |   |
| <b>4. PRIMARY CONTACT INDIVIDUAL:</b> <i>J. Koff</i>   | EXTENSION: <i>6148</i> DATE COMPLETED: <i>4-29-92</i>   |

**SECTION IV - TOXIC AND SOLID WASTE PROGRAMS**

**1. PROPER D.O.T. SHIPPING NAME:** *See Attachment 1*

**2. D.O.T. HAZARD CLASS:** *1*

**3. REQUIRED LABELS:** \_\_\_\_\_

**4. D.O.T. IDENTIFICATION NO. SUFFIX:**  UN  NA

**5. EPA WASTE NO.:** \_\_\_\_\_

**6. APPLICABLE REACTIVITY GROUP CODES: (COPY FROM SECTION III, ITEM 2)** \_\_\_\_\_

**7. FEMP SRC AND MTC (COPY FROM SECTION I, ITEM 1)** SRC: \_\_\_\_\_ MTC: \_\_\_\_\_

**8. IS A REVISION TO MEF REQUIRED?**  
 YES  NO

**9. DISTRIBUTION:**

|  |                      |
|--|----------------------|
| MATERIAL GENERATOR: <i>P. A. Williams</i>        | DATE: <i>4-8-92</i>  |
| ENVIRONMENTAL ENGINEERING: <i>J. Koff</i>        | DATE: <i>4-29-92</i> |
| ENVIRONMENTAL MONITORING: _____                  | DATE: _____          |
| MCSA: <i>H. J. Knue</i>                          | DATE: _____          |
| IRS&T: <i>P. L. Krachan</i>                      | DATE: _____          |
| FACILITIES AND WAREHOUSING: <i>B. S. Perkins</i> | DATE: _____          |
| F&ME: <i>L. L. Hanford</i>                       | DATE: _____          |
| CONTROLLED HOLDING AREA: <i>C. J. Stafford</i>   | DATE: _____          |

**10. PRIMARY CONTACT INDIVIDUAL:** *Betty Beaton* EXTENSION: *9024* DATE COMPLETED: *4/21/92*

ATTACHMENT  
MEF 1572Asbestos - Radiologically Controlled Areas

DOT Proper Shipping Name: RQ RADIOACTIVE MATERIAL, LSA, n.o.s. (Asbestos)  
(Solid)

Hazard Class: RADIOACTIVE MATERIAL

ID #: UN2912

EPA Waste #: None

LABELS/MARKINGS: RADIOACTIVE LSA  
ORM-E  
DANGER ASBESTOS

Asbestos - Non-radiologically Controlled Areas

DOT Proper Shipping Name: RQ HAZARDOUS SUBSTANCE, n.o.s. (Asbestos) (Radioactive  
Limited Quantity)(Solid)

Hazard Class: ORM-E

ID #: NA9188

EPA Waste #: None

LABELS/MARKINGS: RADIOACTIVE LQ (top half of label with words "Radioactive  
Limited Quantity" only)  
ORM-E  
DANGER ASBESTOS

## Attachment 1

April 20, 1992

This attachment clarifies the waste determination for general asbestos (MEF # 1572) and asbestos containing materials which are generated on a site-wide basis. For the purposes of this determination, general asbestos and asbestos containing materials considered to fall under this site-wide determination include:

- ◆ Asbestos or asbestos containing material generated as a result of demolition or renovation activities, including emergency, incidental, minor and major demolition and renovation actions;
- ◆ Personal Protective Equipment (PPE) which was worn or used during the demolition or renovation, and as a result, is contaminated with asbestos; and
- ◆ Demolition and renovation debris, which as a result of the asbestos abatement project, becomes contaminated with asbestos and cannot be decontaminated.

The waste materials described above will be considered asbestos wastes (solid wastes by Ohio's definition) and will be covered by this sitewide waste determination and managed appropriately.

**ASBESTOS WASTES FOR WHICH DETERMINATION IS TO BE MADE ON A CASE BY CASE BASIS**

Asbestos or asbestos containing materials which will be evaluated on a case by case basis are as follows:

- ◆ Asbestos waste containers which contain free liquids of unknown composition and origin;
- ◆ Asbestos wastes generated within the physical limits of a hazardous waste management unit (HWMU);
- ◆ Asbestos wastes generated within the physical limits of a solid waste management unit (SWMU) which has had a (known or suspected), routine and systematic release of hazardous wastes or hazardous constituents. (Contact EC&QA to obtain information on which portions of the FEMP are HWMUs and SWMUs.)
- ◆ Asbestos wastes known or suspected to be contaminated with plant maintenance chemicals or chemical wastes, plant process chemicals or chemical wastes, hazardous wastes or hazardous materials; and
- ◆ Asbestos wastes mixed with other waste materials (solids or liquids) of unknown origin.

Based on the case by case evaluation, the asbestos wastes in question will be either included in the sitewide determination waste stream or a new waste stream MEF will be developed to cover the contaminated asbestos wastes.

**RADIATION CONTAMINATED ASBESTOS**

Due to the nature of the FEMP site activities, all asbestos wastes generated in radiologically controlled areas is assumed to be low level radioactive waste. This classification can be confirmed or refuted with radiation monitoring. The asbestos waste containers should be managed and stored appropriately for low level radioactive wastes. Asbestos wastes generated in non-radiologically controlled areas is to be handled as non-radioactive and treated appropriately.

GENERATED WASTE ITEM MUST BE HANDLED AS A RADIOACTIVE MATERIAL, OR AS BEING POTENTIALLY CONTAMINATED WITH RADIOACTIVE MATERIAL. CONTACT RADIOLOGICAL SAFETY FOR AN RWP IF DIRECT HANDLING IS REQUIRED. DETERMINATIONS OF REMOVABLE CONTAMINATION (OR OTHER HAZARD) MAY BE REQUIRED BY RADIOLOGICAL SAFETY.

WASTE ITEMS TARGETED FOR OFFSITE DISPOSITION MUST MEET THE ACCEPTANCE CRITERIA OF THE RECEIVING FACILITY, WITH THE FACILITY LICENSED TO HANDLE SAID QUANTITIES OF WASTE RADIOACTIVITY CONTENT. THESE ITEMS MUST ALSO MEET THE TRANSPORTATION REQUIREMENTS OF 49 CFR FOR OVER THE ROAD SHIPMENT.

IF WASTE IS IN BULK FORM (ie. a liquid, powder, concrete, soils, etc.), ANALYTICAL DATA MUST ACCOMPANY EXTERIOR SURFACE CONTAMINATION MEASUREMENTS WHEN TARGETING THIS WASTE FOR UNRESTRICTED RELEASE TO COMMERCIAL TSDs OR THE PUBLIC. SHIPMENT OF THESE WASTE ITEMS MAY REQUIRE APPROVAL BY DOE.

SEALED AEROSOL CANS (completely exhausted of any interior contents), OR OTHER SOLID NON-PROCESS OR NON-RADIOACTIVE ITEMS (not in "bulk" form) CAN BE RELEASED WITHOUT RESTRICTIONS BY DIRECT EXTERNAL SURFACE CONTAMINATION SURVEYS PERFORMED BY RADIOLOGICAL SAFETY. HOWEVER, UNRESTRICTED RELEASE OF THESE WASTE ITEMS MAY REQUIRE FURTHER EVALUATION BY RADIOLOGICAL SAFETY AND NEED APPROVAL BY OTHER SITE AUTHORIZING ORGANIZATIONS.

*David J. Schaeffer* 8493  
Radiological Safety Representative/Ext./date



10974

4057

# Asbestos

## SECTION I MATERIAL IDENTIFICATION

Chemical Name Asbestos CAS# 1332-21-4  
 Synonyms Possible Occupational Exposure  
 Amosite Anthrophyllite Miners and millers of ore  
 Actinolite Tremolite Manufacturers and users of asbestos-containing products such as brake shoes  
 Chrysotile UN 2212 (DOT) Repairers and demolishers of structures containing asbestos  
 Crocidolite UN 2509 (DOT)  
 Manufacture- available from several sources.

## SECTION II INGREDIENTS AND HAZARDS

Permissible Exposure Limit  
 0.2 fiber/cc — OSHA TWA (all forms) 2.0 fibers/cc — ACGIH TWA (other forms)  
 0.5 fiber/cc — ACGIH TWA (Amosite) 0.1 fiber/cc — NIOSH-recommended TWA (all forms)  
 2.0 fibers/cc — ACGIH TWA (Chrysotile) 0.5 fiber/cc — NIOSH-recommended 15-minute ceiling (all forms)  
 0.2 fiber/cc — ACGIH TWA (Crocidolite) Human Carcinogen (IARC, NTP, ACGIH); Animal Carcinogen (IARC)  
 CERCLA Hazard Rating — Toxicity 3 - Ignitability 0 - Persistence 3.  
 Immediately Dangerous to Life and Health Concentration — none specified

## SECTION III PHYSICAL DESCRIPTION

Fibrous solid, ranging from long flexible fiber down to dust-like filler powder.  
 Asbestos can be white, gray, brown or blue in color.  
 Molecular Weight: Varies Specific Gravity: 2.5  
 Melting Point: Decomposes Flash Point: Nonflammable  
 Solubility in Water: Insoluble (breaks down slowly in hot water)  
 Lower Explosive Limit in Air, % by volume: nonflammable  
 Upper Explosive Limit in Air, % by volume: nonflammable

## SECTION IV INCOMPATIBILITIES AND STORAGE

Incompatibilities: None  
 Store asbestos in closed containers (dust-tight) in a clean, secure area. Protect containers from damage. Do not open without proper control measures. Ensure containers are properly labeled.

## SECTION V HEALTH HAZARD AND PROTECTION DATA

|                    |                          |                      |                        |                 |
|--------------------|--------------------------|----------------------|------------------------|-----------------|
| Target Organs      | Route of Entry Into Body |                      |                        |                 |
| Lungs              | Inhalation               |                      |                        |                 |
| Respiratory System | Ingestion                |                      |                        |                 |
| Gastrointestinal   | Skin or Eye Contact      |                      |                        |                 |
| Symptoms           |                          |                      |                        |                 |
| Coughing           | Asbestosis               | Mesothelioma         | Respiratory Irritation | Pneumoconiosis  |
| Cyanosis           | Pleuritic Pain           | Respiratory Cancer   | Pleural Thickening     | Finger Clubbing |
| Dyspnea            | Skin Irritation          | Respiratory Distress | Pulmonary Fibrosis     | Weight Loss     |

NOTE: Acute exposure may cause irritation and coughing. Chronic exposure may cause pulmonary fibrosis, a terminal pneumoconiosis called asbestosis which may appear as early as 19 years after exposure, but typically develops over 20-40 years. The incidence of pulmonary fibrosis and lung cancer in asbestos-exposed workers is synergistically increased by smoking.

### Protective Equipment Requirements

29 CFR 1910.133 Asbestos  
 Special clothing: The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole-body clothing, head coverings, gloves and foot coverings for any employee exposed to airborne concentrations of asbestos fibers.

Medical examinations are required for asbestos workers (preplacement, periodic and termination examinations), 30-year recordkeeping required.

Employers are required to provide and ensure that employees use and/or follow these protective devices and measures; employees are required to use and/or follow them:

Posted warning signs.

Employers shall provide and ensure that employees use and/or follow these protective devices and measures; employees are required to use and/or follow them:

**Protective Equipment Requirements (continued)**

Employees who are required to shower do so before breaks, lunch or leaving the contaminated area.

Showering after each shift prior to leaving premises.

Not smoking, eating or drinking in the work area.

\*Contaminated clothing should be sealed in a labeled plastic bag and laundered. Commercial laundries should be notified of the asbestos contamination.

Employers are required to provide engineering controls, i.e., negative-pressure ventilation with high-efficiency particulate air (HEPA) filtration, sealed enclosures for removal projects. (See EPA regulations for guidance.)

**Respirator Selection**

2 fibers/cc

Half-mask air-purifying respirator with a high-efficiency filter.

10 fibers/cc

Full face-piece air-purifying respirator with a high-efficiency filter.

20 fibers/cc

Air-purifying respirators with a high-efficiency filter. Supplied-air respirator operated in continuous-flow mode.

200 fibers/cc

Supplied-air respirator with a full face-piece operated in pressure-demand mode.

Greater than

Supplied-air respirator with a full face-piece operated in pressure-demand mode

200 fibers/cc

equipped with an auxiliary positive pressure self-contained breathing apparatus.

**Firefighting**

Self-contained breathing apparatus with a full face-piece operated in pressure-demand or other positive-pressure mode.

Supplied-air respirator with full face-piece and operated in pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

**First Aid**

**Skin Contact:** Remove contaminated clothing and shoes immediately. Wash affected area with soap and water until no evidence of the substance remains. Get medical attention at once.

**Eye Contact:** Wash eyes immediately with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention at once.

**Inhalation:** Remove from area at once to fresh air. If breathing has stopped, perform artificial respiration. Get medical attention at once.

**Ingestion:** Get medical attention at once.

**SECTION VI REGULATIONS/OSHA**

OSHA Standard 29CFR1910.1200

Hazard Communication

OSHA Standard 29CFR1910.1001

Asbestos

OSHA Standard 29CFR1910.94

Ventilation

OSHA Standard 29CFR1910.134

Respiratory Protection

OSHA Standard 29CFR1910.20

Access to Employee Exposure and Medical Records

OSHA Standard 29CFR1910.132

Personal Protective Equipment

OSHA Standard 29CFR1910.141

Sanitation

OSHA Standard 29CFR1910.151

Medical Services and First Aid

OSHA Standard 29CFR1910.133

Eye and Face Protection

**SECTION VII EMERGENCY HANDLING OF HAZARDOUS MATERIALS**

**If Material Is On Fire or Involved in Fire:**

Extinguish fire using agent suitable for type of surrounding fire (material itself does not burn or burns with difficulty).

**If Material Is Not on Fire and Is Not Involved in Fire:**

Keep material out of water sources and sewers. Build dikes to contain flow as necessary.

**Personal Danger Situation Protection:**

Keep upwind. Wear boots, protective gloves and gas-tight goggles. Avoid breathing dust/vapors/fumes from material.

Wash away any materials which may have contacted the body with copious amounts of water or soap and water.

**SECTION VIII SPILL, LEAK AND DISPOSAL PROCEDURES**

Adequately wet or mix with water to form a slurry. Seal material in a leak-tight container. Label containers as specified in 1910.1001. The SARA Act of 1986 requires that a release equal to or greater than the reportable quantity for this substance must be reported to the Local Planning Commission, the State Emergency Response Commission, and the National Response Center.

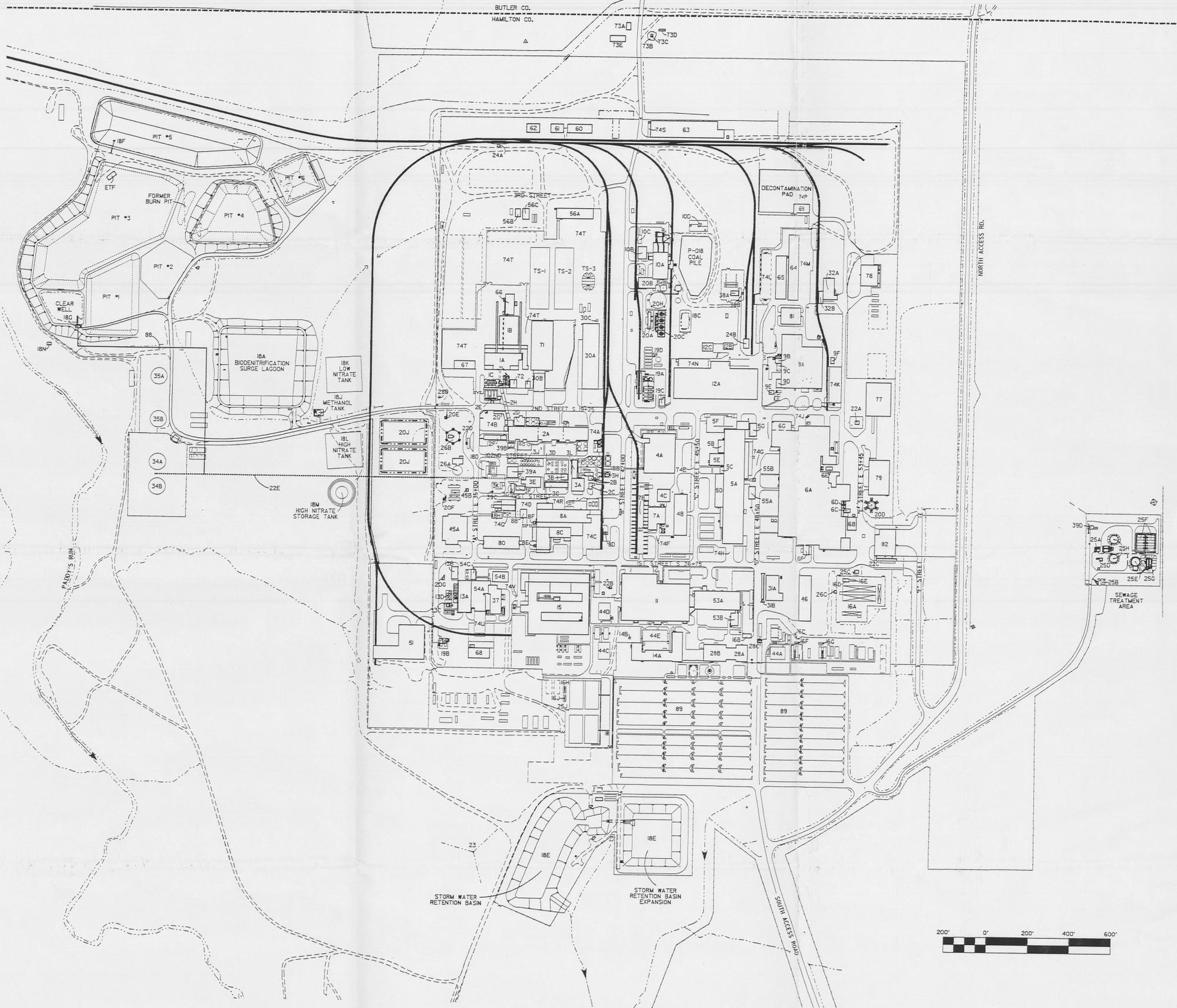
Contact the Ohio EPA for Emergency Spill Information: 1-800-282-9378.

Effective 1/87. For further chemical information contact the Resource Center at 1-800-282-3045, Ext. 7388.



0' 1' 2' 3' 4' 5' 6'

### FEMP SITE IDENTIFICATION



- TS-1 TENSION SUPPORT STRUCTURE #1
- TS-2 TENSION SUPPORT STRUCTURE #2
- TS-3 TENSION SUPPORT STRUCTURE #3
- 1B PREPARATION PLANT
- 1C PLANT 1 STORAGE BLDG.
- 1D PLANT 1 ORE SLOS
- 2A ORE REFINERY PLANT
- 2B GENERAL/REFINERY SLUMP CONTROL BLDG.
- 2C BULK LIME HANDLING BLDG.
- 2D METAL DISSOLVER BLDG.
- 2E NPS STORAGE & PUMP HOUSE
- 2F COLD SIDE ORE CONVEYOR
- 2G HOT SIDE ORE CONVEYOR
- 2H CONVEYOR TUNNEL (FROM PLANT D)
- 2I MAINTENANCE BLDG.
- 3B OZONE BLDG.
- 3C NAR CONTROL HOUSE
- 3D NAR TOWERS
- 3E HOT RAFFINATE BLDG.
- 3F HARRAW SYSTEM
- 3G REFRIGERATION BLDG.
- 3H REFINERY SLUMP
- 3I COMBINED RAFFINATE TANKS
- 3J OLD COOLING WATER TOWER
- 3K ELECTRIC POWER CENTER BLDG.
- 3L GREEN SALT PLANT
- 4A PLANT 4 WAREHOUSE
- 4B PLANT 4 MAINTENANCE BLDG.
- 4C METALS PRODUCTION PLANT
- 4D PLANT 4 FGD/CKLING
- 4E PLANT 4 ELECTRIC SUBSTATION
- 4F WEST DEBY BREAKOUT/SLAG MILLING
- 4G PLANT 4 FILTER BLDG.
- 4H PLANT 4 COVERED STORAGE PAD
- 4I METALS FERRIC PLANT
- 4J PLANT 4 COVERED STORAGE AREA
- 4K PLANT 4 ELECTROSTATIC PRECIPITATOR (SOUTH)
- 4L PLANT 4 ELECTROSTATIC PRECIPITATOR (CENTRAL)
- 4M PLANT 4 SALT OIL HEAT TREAT BLDG.
- 4N PLANT 4 SLUMP BLDG.
- 4O PLANT 4
- 5A PLANT 5 OVERHEAD CRANE
- 5B RECOVERY PLANT
- 5C PLANT 5 MAINTENANCE BLDG.
- 5D ROTARY K&M/DRUM RECONDITIONING
- 5E PLANT 5 RAILROAD FILTER BLDG.
- 5F DRUM CONVEYOR SHELTER
- 5G PLANT 5 OLD DRUM WASHER
- 5H SPECIAL PRODUCTS PLANT
- 5I PLANT 5 SLUMP TREATMENT FACILITY
- 5J PLANT 5 DUST COLLECTOR
- 5K PLANT 5 SUBSTATION
- 5L PLANT 5 CYLINDER SHED
- 5M PLANT 5 ELECTROSTATIC PRECIPITATOR
- 5N BOILER PLANT
- 5O BOILER PLANT MAINTENANCE BLDG.
- 5P WET SALT STORAGE BIN
- 5Q CONTAMINATED OIL/GRAPHITE BURN PAD
- 5R SERVICE BLDG.
- 5S MAIN MAINTENANCE BLDG.
- 5T CYLINDER STORAGE BLDG.
- 5U LUMBER STORAGE BLDG.
- 5V PILOT PLANT WEST SIDE
- 5W PILOT PLANT MAINTENANCE BLDG.
- 5X SLUMP PUMP HOUSE
- 5Y PILOT PLANT THORIUM TANK FARM
- 5Z ADMINISTRATION BLDG.
- 5AA BLDG. 14 EOC GENERATOR SET
- 5AB LABORATORY
- 5AC MAIN ELECTRICAL STATION
- 5AD ELECTRICAL SUBSTATION
- 5AE ELECTRICAL PANELS & TRANSFORMER
- 5AF MAIN ELECTRICAL SWITCH HOUSE
- 5AG MAIN ELECTRICAL TRANSFORMERS
- 5AH TRAILER SUBSTATION #1
- 5AI TRAILER SUBSTATION #2
- 5AJ IO PLEX NORTH SUBSTATION
- 5AK IO PLEX SOUTH SUBSTATION
- 5AL BDN SURGE LAGOON
- 5AM GENERAL SLUMP
- 5AN COAL PILE RUNOFF BASIN
- 5AO BIODENITRIFICATION TOWERS
- 5AP STORM WATER RETENTION BASINS
- 5AQ PIT #5 SLUDGE GATE
- 5AR CLEARWELL PUMP HOUSE
- 5AS BDN EFFLUENT TREATMENT FACILITY
- 5AT METHANOL TANK
- 5AU LOW NITRATE TANK
- 5AV HIGH NITRATE TANK
- 5AW HIGH NITRATE STORAGE TANK
- 5AX WASTE PIT AREA STORM WATER RUNOFF CONTROL
- 5AY MAIN TANK FARM
- 5AZ PILOT PLANT AMMONIA TANK FARM
- 5BA TANK FARM CONTROL HOUSE
- 5BB OLD NORTH TANK FARM
- 5BC PUMP STATION & POWER CENTER
- 5BD WATER PLANT
- 5BE COOLING TOWERS
- 5BF ELEVATED ROTABLE STORAGE TANK
- 5BG WELL HOUSE #1
- 5BH WELL HOUSE #2
- 5BI WELL HOUSE #3
- 5BJ PROCESS WATER STORAGE TANK
- 5BK LIME SHELTER PITS
- 5BL G&S WETTER BLDG.
- 5BM STORM SEWER LIFT STATION
- 5BN TRUCK SCALE
- 5BO SCALE HOUSE & WEIGH SCALE
- 5BP UTILITY TRENCH TO PIT AREA
- 5BQ METEOROLOGICAL TOWER
- 5BR RAILROAD SCALE HOUSE
- 5BS RAILROAD ENGINE HOUSE
- 5BT CHLORINATION BLDG.
- 5BU M&S WTS/EFF. LINE/SAMPLING BLDG.
- 5BV SEWAGE LIFT STATION BLDG.
- 5BW L.V. DISINFECTION BLDG.
- 5BX DIGESTER & CONTROL BLDG.
- 5BY SLUDGE BRYING BED
- 5BZ PRIMARY SETTLING BASINS
- 5C1 TRICKLING FILTERS
- 5C2 IO PLEX SEWAGE LIFT STATION
- 5C3 PUMP HOUSE/FIRE PROTECTION
- 5C4 ELEVATED WATER STORAGE TANK
- 5C5 MAIN ELECTRICAL STRAINER HOUSE
- 5C6 SECURITY BLDG.
- 5C7 HUMAN RESOURCES BLDG.
- 5C8 GUARD POST ON SOUTH END OF "D" STR.
- 5C9 GUARD POST ON WEST END OF "2ND" STR.
- 5CA CHEMICAL WAREHOUSE
- 5CB DRUM STORAGE WAREHOUSE
- 5CC OLD TEN TON SCALE
- 5CD ENGINE HOUSE/GARAGE
- 5CE OLD TRUCK SCALE
- 5CF MAGNESIUM STORAGE BLDG.
- 5CG BLDG. 32 COVERED LOADING DOCK
- 5CH K-65 STORAGE TANK (NORTH)
- 5CI K-65 STORAGE TANK (SOUTH)
- 5CJ METAL OXIDE STORAGE TANK (NORTH)
- 5CK METAL OXIDE STORAGE TANK (SOUTH)
- 5CL PILOT PLANT ANNEX
- 5CM PROPANE STORAGE
- 5CN CYLINDER FILLING STATION
- 5CO INCINERATOR BLDG.
- 5CP WASTE OIL DEWATER SHED
- 5CQ INCINERATOR SPRINKLER RISER HOUSE
- 5CR SEWAGE TREATMENT PLANT INCINERATOR
- 5CS TRAILER COMPLEX (6-PLEX SJ)
- 5CT TRAILER COMPLEX (7-PLEX NJ)
- 5CU TRAILER COMPLEX (10-PLEX)
- 5CV RUST ENGINEERING BLDG.
- 5CW UTILITY SHED EAST OF RUST TRAILERS
- 5CX HEAVY EQUIPMENT BLDG.
- 5CY SIX TO FOUR REDUCTION FACILITY #2
- 5CZ HEALTH & SAFETY BLDG.
- 5D1 IN-W/O BLDG.
- 5D2 SIX TO FOUR REDUCTION FACILITY #1
- 5D3 PILOT PLANT SHELTER
- 5D4 PILOT PLANT DISSOCIATOR SHELTER
- 5D5 SLAG RECYCLING BLDG.
- 5D6 SLAG RECYCLING PIT/ELEVATOR
- 5D7 OP STORAGE WAREHOUSE
- 5D8 STORAGE SHED (WEST)
- 5D9 STORAGE SHED (EAST)
- 5DA QUONSET HLT #1
- 5DB QUONSET HLT #2
- 5DC QUONSET HLT #3
- 5DD KC-2 WAREHOUSE
- 64 THORIUM WAREHOUSE
- 65 OLD PLANT 5 WAREHOUSE
- 66 DRUM RECONDITIONING BLDG.
- 67 PLANT 1 THORIUM WAREHOUSE
- 68 PLANT 1 WAREHOUSE
- 69 DECONTAMINATION BLDG.
- 70 GENERAL IN-PROCESS WAREHOUSE
- 71 DRUM STORAGE BUILDING
- 72 DRUM STORAGE BUILDING
- 73A FIRE BRIGADE TRAINING CENTER BLDG.
- 73B FIRE TRAINING POND
- 73C FIRE TRAINING TANK
- 73D FIRE TRAINING BURN TROUGH
- 73E CONFINED SPACE BURN TANK
- 74A PLANT 2 EAST PAD
- 74B PLANT 2 WEST PAD
- 74C PLANT 2 EAST PAD
- 74D PLANT 2 WEST PAD
- 74E PLANT 4 PAD
- 74F PLANT 5 EAST PAD
- 74G PLANT 5 SOUTH PAD
- 74H PLANT 6 EAST PAD
- 74I PLANT 6 WEST PAD
- 74J PLANT 6 EAST PAD
- 74K PLANT 6 WEST PAD
- 74L BUILDING 65 WEST PAD
- 74M BUILDING 64 EAST PAD & R.R. DOCK
- 74N BUILDING 2 NORTH PAD
- 74P DECONTAMINATION PAD
- 74Q PLANT 8 OLD METAL DISSOLVER PAD
- 74R PLANT 8 NORTH PAD
- 74S BUILDING 63 WEST PAD
- 74T PLANT 1 STORAGE PAD
- 74U PILOT PLANT PAD
- 74V LABORATORY PAD
- 77 FINISHED PRODUCTS WAREHOUSE (4A)
- 78 D & D BUILDING (UNDER CONSTR.)
- 79 PLANT 6 WAREHOUSE
- 80 PLANT 9 WAREHOUSE
- 81 PLANT 9 WAREHOUSE
- 82 RECEIVING/INCOMING MAT'L'S. INSP.
- 83 CLEARWELL LINE
- 89 PARKING LOTS

---INDICATES PROPOSED LOCATIONS OF STRUCTURES.

NOTE: NUMBERING SCHEME DOES NOT REFLECT ACTUAL M.M.I.C. SYSTEM SCHEME. CONTACT SITE SERVICES/MAINTENANCE INFORMATION SYSTEM FOR FURTHER ASSISTANCE.

NOTE: SITE IDENTIFICATION SCHEME PER A.S.I. OPERABLE UNIT 3 PROGRAM REQUIREMENTS.

FIGURE 2-1

| NO. | REVISIONS | DATE/DWN. BY/APPD. NO. | REVISIONS | DATE/DWN. BY/APPD. NO. | REF. DWG. NO. |
|-----|-----------|------------------------|-----------|------------------------|---------------|
|     |           |                        |           |                        |               |
|     |           |                        |           |                        |               |
|     |           |                        |           |                        |               |

NOTE: WEMCO C.A.D. DRAWING NOT TO BE REVISED MANUALLY

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

TOLERANCES ARE:

FRACTIONS ± 1/32

ANGLES ± 0' - 30"

DECIMALS:

XX ± 0.01

XXX ± 0.005

XXXX ± 0.0005

ORC. RELEASE DATE

| APPROVALS    |               |
|--------------|---------------|
| CIVIL & STR. | SAFETY ENG.   |
| ELECTRICAL   | MAINTENANCE   |
| ENGINEER     | G.A.          |
| INS/STRUMENT | FIRE PROTECT. |
| MECHANICAL   | WASTE MANAGE  |
| CHECKED      | I.D.O.E.      |
| APPROVED     | SECURITY      |

WESTINGHOUSE ENVIRONMENTAL MANAGEMENT CO. OF OHIO

FERNALD, OHIO

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

U.S. DEPARTMENT OF ENERGY

4057

PRODUCTION AREA SITEMAP

SCALE: 1" = 200'

DATE: 7/20/92

DRAWN: S.J.SMOCK

109126-1