



Department of Energy **3424**



Ohio Field Office
Fernald Area Office
P. O. Box 538705
Cincinnati, Ohio 45253-8705
(513) 648-3155

DEC 21 2000

Mr. James A. Saric, Remedial Project Manager
U.S. Environmental Protection Agency
Region V-SRF-5J
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

DOE-0221-01

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF CHANGE PAGES TO THE IMPACTED MATERIALS PLACEMENT PLAN
FOR THE ON-SITE DISPOSAL FACILITY**

Enclosed for your approval are change pages to the Impacted Materials Placement Plan for the On-Site Disposal Facility (OSDF). These change pages modify the definition of Category 4 materials to include only decomposable rather than compressible materials.

If you have any questions regarding these change pages or need further information, please contact Jay Jalovec at (513) 648-3122.

Sincerely,

Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Jalovec

Enclosure

Mr. James A. Saric
Mr. Tom Schneider

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cc w/enclosure:

J. Jalovec, OH/FEMP
R. J. Janke, OH/FEMP
G. Jablonowski, USEPA-V, SRF-5J
T. Schneider, OEPA-Dayton (three copies of enclosure)
F. Bell, ATSDR
M. Schupe, HSI GeoTrans
R. Vandegrift, ODH
F. Hodge, Tetra Tech
AR Coordinator, Fluor Fernald, Inc./78

cc w/o enclosure:

K. Chaney, EM-31/CLOV
N. Hallein, EM-31/CLOV
A. Tanner, OH/FEMP
K. Badu-Tweneboah, GeoSyntec/38
D. Carr, Fluor Fernald, Inc./2
J. Chiou, Fluor Fernald, Inc./52-0
T. Hagen, Fluor Fernald, Inc./65-2
J. Harmon, Fluor Fernald, Inc./90
S. Hinnefeld, Fluor Fernald, Inc./31
M. Jewett, Fluor Fernald, Inc.52-2
U. Kumthekar, Fluor Fernald, Inc./52-2
C. Van Arsdale, Fluor Fernald, Inc./64
T. Walsh, Fluor Fernald, Inc./65-2
ECDC, Fluor Fernald, Inc./52-7

**IMPACTED MATERIALS PLACEMENT PLAN
ON-SITE DISPOSAL FACILITY**

**20100-PL-007
Revision 1, PCN 1
December 19, 2000**

United States Department of Energy

**Fernald Environmental Management Project
Fernald, Ohio**

Prepared by

GeoSyntec Consultants
1100 Lake Hearn Drive, NE, Suite 200
Atlanta, Georgia 30342

Under

**Fluor Daniel Fernald
Subcontract 95PS005028**

REVISION SUMMARY

<u>Revision</u>	<u>Dated</u>	<u>Description of Revision</u>
0	1/19/98	Initial issuance of Revision 0, <i>Impacted Material Placement Plan, On-Site Disposal Facility</i> (20100-PL-007)
0 PCN 1	7/7/98	Added Revision Summary page and revised physical waste acceptance criteria for debris (Page 4-1) to reflect that transite panels will not be size reduced before disposal in the On-Site Disposal Facility
0 ADD 1	2/17/99	Addendum 1: Issuance of Revision 0, <i>Specialized Placement Plan for Bagged Impacted Material</i> to discuss placement of bagged material into the On-Site Disposal Facility
1	10/11/99	Issuance of Revision 1 based on page changes approved by the U.S. EPA and OEPA. Addendum 1 incorporated into Appendix C
1 ADD 1&2&3	3/31/00	Addendum 2: Issuance of Revision 1, <i>Specialized Placement Plan for Thorium and Non-Bagged Impacted Material</i> to discuss placement of thorium debris and non-bagged material into the On-Site Disposal Facility Addendum 3: Issuance of Revision 1, <i>Alternative Trenching Method for Placement of Category 2 Impacted Material</i> to discuss placement of Category 2 items by trenching method into the On-Site Disposal Facility Added <i>Placement Restrictions for Specialized Placement Plans</i> table to be inserted in front of Addendum 1 of Appendix C
1 PCN 1	12/19/00	Revised Category 4 material definition to replace the words "very compressible" with "prone to decomposition" (Page 5-2 and 8-5)

5.0 IMPACTED MATERIAL DESCRIPTIONS

5.1 General

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The OSDF will be the final repository for a majority of the impacted material from the five operable units of the integrated FEMP remediation. Construction debris (*i.e.*, waste originating during the construction of the OSDF) will also be disposed in the OSDF. The materials requiring OSDF disposal are expected to vary considerably in their composition, handling, placement, and compaction characteristics. Given this variability, it is useful to develop a categorization framework wherein materials with similar characteristics are assigned to the same category. The purpose of this section of the IMP Plan is to describe and categorize the various impacted materials using a common categorization framework.

5.2 Impacted Material Categories

Impacted materials to be disposed in the OSDF shall be assigned to one of five categories, depending on the procedures that will be used to place them into the OSDF:

- Category 1 - Category 1 impacted materials are soils and soil-like materials that do not contain hard agglomerations greater than 12 in. (300 mm) in greatest dimension. If the material is other than till or ash, it must also have at least 80 percent of its particles finer than a 1 in. (25 mm) particle size. If this latter criterion is not met, the material should be classified as a Category 2 material. These impacted materials are expected to be readily compactible using standard construction equipment.
- Category 2 - Category 2 impacted materials are materials that can be transported, placed, spread, and compacted *en masse*. These materials can be spread in loose lifts of 21 in. (533 mm) \pm 3 in. (25 mm) thick and are moderately compactible under the action of equipment similar to the Caterpillar 826 compactor or approved equal. Examples of these materials include broken-up concrete foundations or impacted soil mixed with broken-up concrete. This category also includes general building rubble and debris of irregularly shaped metals or other components of the superstructure or substructure with a maximum length of 10 ft. (3 m) and a maximum thickness of 18 in. (450 mm) which can be transported, placed, spread, and compacted *en masse*.
- Category 3 - Category 3 impacted materials are materials that must be individually handled and placed in the OSDF, and that are suitable for having Category 1 material placed around and against them. These impacted materials have maximum cross-sectional dimension of no more than 4 ft. (1.2 m), are shaped such that Category 1 material to be compacted around and against them, and are essentially incompressible using standard compaction equipment. Examples of these materials include bundles of transite panels, and broken concrete foundation members that meet the physical criteria defined in Section 4.3 of this IMP Plan.

- Category 4 - Category 4 impacted materials are high in organic content and/or prone to decomposition. Examples of these materials are municipal solid wastes from the Solid Waste Landfill, and green waste from clearing, stripping, and grubbing operations around the FEMP.
- Category 5 - Category 5 impacted materials are materials that require special handling due to their specific nature. Examples of these materials include double-bagged asbestos and sludges.

The categories given above shall be used by the Subcontractor to categorize each load of impacted material to be brought to the OSDF for disposal. The CM will use this categorization in establishing disposal limitations and instructions for each truck load of material destined for the OSDF.

5.3 Specific Impacted Materials

5.3.1 General

This section of the IMP Plan contains background information on the types and approximate quantities of specific impacted materials that may require special handling and/or placement activities. These impacted materials primarily consist of landfill waste, water treatment plant sludge, and demolition debris. The purpose of this section of the IMP Plan is to provide the Subcontractor with a physical description of these specific materials.

5.3.2 Solid Waste Landfill

The Solid Waste Landfill is a rectangular disposal area of approximately 1 acre (0.4 ha) that has been inactive since 1986. A soil cover has been placed over the disposal area. A drainage ditch serving the northwest portion of the former production area is located in the northern portion of the Solid Waste Landfill. The volume of waste material in the landfill is estimated to be approximately 14,400 yd³ (11,000m³).

The operational history of the Solid Waste Landfill is not well documented. It is thought that the landfill was organized with one to five individual waste disposal cells and an evaporation pond which also served as a surface-water management basin. Materials reportedly buried at the Solid Waste Landfill include non-burnable and nonradioactive solid waste generated on FEMP property, nonradioactive construction-related rubble, and double-bagged and bulk quantities of nonradioactive asbestos. Field investigation results, however, indicate that some process waste may have been placed in the landfill. The following wastes were encountered during a trenching investigation in 1992:

- burnable wastes - bagged trash and wood;
- potentially burnable wastes - respirator cartridges, asphalt roofing materials, medical wastes, fire hoses, and rubber hoses/belts; and

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8.5 Category 4 Materials

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8.5.1 Placement Procedures

Soil (Category 1 material) berms which are a minimum of 12in. (300 mm) high shall be placed around Category 4 material. The lateral extent of each Category 4 material placement shall not exceed 100 ft. (30 m). Category 4 material shall be placed adjacent to the berms to a loose thickness of approximately 18 in. (450 mm). Green waste shall be reduced in size, as necessary, to enable placement in the lift. Initial compaction shall be accomplished as the material is spread by tracking with a bulldozer of a minimum total weight of 50,000 lbs (220 kN) producing a ground pressure of at least 10 psi (70 kPa). Prior to placement of the succeeding lifts of Category 4 material, a minimum 12-in. (300-mm) thick loose lift of soil (Category 1 material) shall be placed over the Category 4 material and compacted as indicated below. Compaction of the second lift of Category 4 materials shall be identical to the first lift. Not more than two lifts of Category 4 material shall be placed in a horizon. Category 4 horizons shall not be in the same vertical plane as previously placed Category 4 horizons.

8.5.2 Compaction Procedures

After spreading and initial compaction, the Category 4 material shall be compacted by minimum of four passes of a self-propelled, static pad-foot compactor having a nominal weight of at least 45,000 pounds (*e.g.*, Caterpillar 815C, or equivalent). After each sequence of Category 4 material compaction and covering soil (Category 1 material) placement, the cover soil shall be compacted as required for the soil cover of Category 2 material. The soil cover shall then be proof-rolled. The proofrolling equipment shall have a minimum gross vehicle weight of 20 tons (180 kN) and exert a ground pressure of at least 65 psi (450 kPa). Soft spots indicated by tire ruts more than 3 in. (76 mm) in depth or visible deflection under the moving proofrolling equipment shall be stabilized through additional passes of the compactor. Any soft spot that cannot be stabilized with further compactive effort shall be cause for additional treatment to the satisfaction of the CM. This treatment shall consist of removal, replacement, and recompaction of the soil (Category 1 material), and, if needed, infilling soft spots/areas in the Category 4 material with grout or other material approved by the CM.

8.6 Category 5 Materials (Special Handling, Placement and Compaction)

8.6.1 Introduction

Category 5 materials are materials that require special handling, placement and compaction procedures. These materials will be classified and designated in accordance with the approved RODs and the WAC. This section of the IMP Plan establishes procedures for disposal of impacted material that require special handling.

Materials either nominally larger than the physical criteria for the OSDF as identified in Section 4.3 Physical Criteria of this IMP Plan, or not reasonably anticipated by the currently identified categories in this IMP Plan, will require specialized placement plans to be developed on an as needed basis. Such plans would be developed by the OSDF project team with the assistance of the Resident Engineer as appropriate, and submitted to the regulatory agencies for review and approval prior to utilization. It is

anticipated that such plans would be submitted concurrent with remedial action planning documents which identify items for special handling, or following the discovery of unexpected materials outside the current categorizations. Once approved, these specialized placement plans either would become addenda to this IMP Plan, or the appropriate section(s) of this IMP Plan would be revised accordingly.

8.6.2 General

Impacted materials suitable for placement in the OSDF that require special handling include:

- highly-compressible impacted materials not suitable for lateral spreading as a Category 4 material (e.g., double-bagged asbestos);
- piping insulated with asbestos containing material (ACM); and
- sludges.

Placement and compaction procedures for these types of impacted materials are presented below.

8.6.3 Highly Compressible Materials

Placement

The volume of highly compressible material, such as double-bagged asbestos, requiring OSDF disposal is very limited. The primary criterion regarding the placement of asbestos is that the material be placed and compacted in a manner protective of the health of OSDF personnel and the public. A secondary criterion is to prevent significant differential settlement of the OSDF final cover system resulting from compression of this material.

Prior to placement of any highly compressible material in the OSDF, a trench shall be dug into previously placed and compacted Category 1 material. Material excavated from this trench shall be stockpiled at least 6 ft. (1.8 m) away from the trench opening. No trenches shall be dug into layers containing Category 2 through 5 material, nor through the protective, contouring, or select impacted material layers. Trenches shall be of uniform width (between 2.0 and 3.0 ft. (0.6 and 0.9 m) wide) and of a uniform depth (between 3.0 and 4.0 ft. (0.9 and 1.2 m) deep). The final sizing of the trench shall depend on the nature and size of the material to be disposed. Highly compressible material, such as double-bagged asbestos, shall be deposited in the lower half of the trench.

Compaction

An initial soil (Category 1 material) cover between 12 and 18 in. (300 and 450 mm) loose thickness shall be placed on top of the highly-compressible material in the trench. The initial soil cover layer shall be compacted with a minimum of four passes of a portable flat-plate or miniature roller compactor. Intermediate 6- to 12-in. (0.15- to 0.3-m) thick loose soil lifts shall be placed in the trench and compacted to at least 90 percent of the standard Proctor dry density determined as described in Section 7.4.2 of this IMP Plan. A final trench soil lift shall be placed to a compacted height (at least