

**RESPONSES TO OHIO ENVIRONMENTAL PROTECTION AGENCY  
COMMENTS ON ADDENDA NOS. 2, 3, AND 4  
TO THE IMPACTED MATERIALS PLACEMENT PLAN  
(20100-PL-0007)**

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**FERNALD ENVIRONMENTAL MANAGEMENT PROJECT**

**GENERAL COMMENT**

Commenting Organization: Ohio EPA  
Section #: Not Applicable (NA)      Pg. #: NA      Line #: NA      Commentator: OFFO  
Code: general

Original General Comment #: 1

Comment: Throughout this Plan (as an example, see Note 1 Figure 4 of Addendum No. 2) mention is made that the intervening horizon of impacted material should be placed to a compacted thickness of minimum 2 feet or the thickness of an intervening horizon of Category 1 material, whichever is greater. This is in apparent references to recent DOE proposals to reduce the thickness of intervening layers from 4 feet thick to 2 feet thick. The text in this Plan should be simplified to read "... and covered with a 4 feet thick intervening layer of Category 1 material."

Response: References to the thickness of the intervening layers will be removed from the text.

Action: The wording in the addenda, when referring to the intervening layer, will be changed to read "... and covered with an intervening layer of Category 1 material..."

**SPECIFIC COMMENTS**

Commenting Organization: Ohio EPA  
Section #: NA      Pg. #: NA      Line #: NA      Commentator: OFFO  
Code: general

Original Specific Comment #: 2

Comment: The Addenda give criteria for the selection of grids suitable for the various placement schemes. For example, a thorium grid should not be located within 100 feet of a Category 3 grid in the same horizon. The Plan does not specify restrictions on placement of materials subsequent to the thorium grid. A comprehensive list of placement restrictions should be developed. Because the thorium debris will receive only minimal compaction, thorium debris should have placement restrictions similar to Category 4 materials i.e., no two grids of Category 4 or thorium debris should be placed in the same vertical horizon.

Response: Agree. Addendum 2 and Addendum 4 limit thorium debris and transite debris, respectively, to one lift per grid. The minimal compaction of the thorium or transite debris lifts are compensated by the requirement to have an intervening layer of Category 1 material both below and above the lifts of debris.

Action: Restrictions similar to Category 4 are already incorporated into the Addenda.

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: Initial and additional lifts... Pg. #: 4

Line #: NA

Code: general

Original Specific Comment #: 3

Comment: The text states that after placement of the thorium material an initial lift of Category 1 material would be placed and compacted using a minimum of four passes of a self-propelled double-drum compactor, a smooth-drum vibratory compactor or other equipment as approved. The double-drum compactor currently in use is equipped with feet and experience has shown that this machine achieves better compaction than the vibratory roller. Our concern is that the feet of the compactor are more likely to extend through the Category 1 material and bring the thorium-contaminated debris to surface. The text should be revised to indicate that a Cat 826 compactor is the preferred equipment and other equipment may be approved if the Cat 826 causes thorium contamination to rise to the top of the initial lift.

Response: According to page 4 of the text, an initial lift (15 inches +/- 3 inches), shall be placed over the thorium material. This initial lift will not be tested for compaction. This initial lift is to be compacted by a self-propelled double-drum compactor, a smooth-drum vibratory compactor or other equipment as approved. This initial lift is a soil buffer above the potentially contaminated thorium debris so the construction equipment avoids contact with the thorium material. The feet of the double drum-roller are approximately 8 inches long and could possibly extend into a minimum 12-inch thick loose lift. Therefore, in order to use the equipment specified, the initial loose lift thickness will be revised to a minimum of 15 inches.

The self-propelled double-drum compactor and smooth-drum vibratory compactor equipment described above are appropriate equipment to compact the initial lift of Category 1 material above the thorium debris. The weight and chopping blade on the Cat 826 landfill compactor does not make it suitable for compacting the initial lift thickness of 15 inches +/- 3 inches of Category 1 material placed over a lift of thorium contaminated debris. A Cat 826 landfill compactor may be used to compact additional lifts of Category 1 material over the initial lift.

Action: References to the initial lift thickness of 15 inches +/- 3 inches of Category 1 material will be revised to, "... minimum lift thickness of 15 inches..."

Commenting Organization: Ohio EPA

Commentator: OFFO

Section #: Option 1 Method Pg. # 2

Line #: NA

Code: C

Original Specific Comment #: 4

Comment: Using the Option 1 method, each 100 foot square OSDF grid would hold roughly 400 cubic yards of thorium debris (each grid holds two units each 95'x40'x1.5'). At the January 27 meeting, DOE reported that roughly 6,000 cubic yards of thorium debris are ready for disposal. Approximately 15 grids are therefore needed to dispose of the available thorium debris under the Option 1 method. Considering the restrictions on the bottom of Page 2 and continued on Page 3, are there enough available grids in Cells 2 and 3 to place all the thorium debris? Please provide a sketch showing placement options that honor all the restrictions. The sketch should start with the current grid placement history and demonstrate that the thorium will in fact "fit" using the proposed scheme.

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Response: It is estimated that approximately 2,000 bulked cubic yards of thorium debris will be available in the Year 2000, which is the maximum available in one construction season. The remainder will be spread out between the years 2001 and 2005. Assuming no compaction within the grid after placement, and each grid holds two units each of 95' x 40' x 1.5', this equates to planning five grids in one season. It is agreed that finding 15 grids in one season may be difficult, however five grids in three cells is very manageable.

Action: The planning of the five grids of thorium debris placement will be performed during the optimization placement planning process.

Commenting Organization: Ohio EPA  
Section #: Debris Placement Pg. #: 4 Line #: NA Commentator: OFFO  
Original Specific Comment #: 5 Code: NA

Comment: The Plan calls for spreading the thorium debris in 18 inch plus or minus 3-inch loose lifts followed by tamping with a backhoe bucket. To prevent spreading of thorium contamination, no passes are scheduled with the Caterpillar compactor until after the initial lift of Category 1 cover has been placed. Past observations of the Caterpillar 816 compactor led to the conclusion that this equipment was only marginally satisfactory in compacting larger structural steel pieces. The heavier Cat 826 has been satisfactory compaction of an 18-inch loose lift of structural steel with a bucket spread in loose lifts not to exceed 10 inches. Restrictions should also be placed that prohibit long lengths of steel from overlapping and causing "see-sawing" under the passes of the compaction equipment.

Add a requirement too proof-roll the final lift of Category 1 cover. This requirement should be similar to the existing requirement specified under the Compaction Procedures sections of the IMPP. These procedures require re-working soft spots or areas of visible deflection. Re-working should also be required in this Plan, but the possibility exists that recalcitrant soft spots or visible deflections would remain after repeated rework. In that situation it would defeat the purpose of this Plan to re-excavate and re-spread the thorium debris. If this situation occurs, we would expect the use of this method to be stopped until alternative procedures, which perform satisfactorily, can be developed.

Response: In order to spread debris material in 10-inch lifts, a dozer and or compactor would have to come in direct contact with the thorium debris. The design intent was to avoid contact with all thorium material except for the backhoe bucket. As material is dumped from the rolloff box, it will closely resemble an 18-inch thick loose lift. The backhoe bucket can then push down the material above 18 inches and also work long lengths of steel from overlapping and causing a see-saw effect.

Proof rolling procedures will be incorporated into the design with wording similar to that used in Article 8, Section 8.3.2 of the IMPP.

Action: The Addendum will be revised for proof rolling by adding the following to the first paragraph on Page 5 and the last paragraph on Page 7 as follows: "After compacting the final lift of Category 1 material over the thorium debris, the Category 1 material shall be proof-rolled. Soft spots indicated by tire ruts more than 3 inches (76 mm) in depth or visible deflection under the moving proof rolling equipment shall be stabilized through additional passes of the compactor. The proof rolling equipment shall have a minimum gross vehicle weight of 20 tons (180 kN) and exert a ground pressure of at least 65 psi

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(450 kPA). Any soft spot that cannot be stabilized with further compactive effort shall be cause for additional treatment to the satisfaction of the Construction Manager."

### Comments Specified to Addendum 3

Commenting Organization: Ohio EPA  
Section #: NA Pg. #: 1 Line #: 2nd bullet Commentator: OFFO  
Original Specific Comment #: 6 Code: c

Comment: The second sentence of the second paragraph on this page starts "This alternative trenching method shall be used for non-routine placement of Category 2 impacted material when." And then continues to the second bullet to finish. "Types of Category 2 material require special handling (such as large structural members that meet Category 2 materials size criteria). Of course, the description of Category 2 material in the IMPP states that Category 2 material can be handled *en masse*. If the intent is to allow flexibility in placing small lots of material, we have no problem with this Addendum, but we can not think of any other reason why this method would be chosen over the standard Category 2 grid placement.

Response: The intent of this addendum is to allow flexibility in placing small lots of Category 2 material.

Action: No action.

Commenting Organization: Ohio EPA  
Section #: Lift(s) of Category 1 Material Pg. #: 3 Line #: NA Commentator: OFFO  
Original Specific Comment #: 7 Code: c

Comment: This section allows the initial compaction to be performed with "a self-propelled double drum roller compactor, a smooth-drum vibratory roller or other equipment as approved by the Construction Manager." Experience to date has shown that a Caterpillar 826 compactor is superior to a lighter compactor and greatly preferred over less-specialized equipment. The text in this and the preceding section should be revised to permit only the Cat 826 to be used in compaction. Other sections should also be revised so that the width of the trench will accommodate the compactor.

Response: Due to the possibility of contamination, unnecessary contact with thorium debris should be avoided during placement by both personnel and equipment. This Category 2 material described in Addendum 3 is similar to other "normal" Category 2 material. Therefore, this material may be placed directly with compaction equipment. FDF will require a Caterpillar 826 to compact debris in the trench, and the trench will be widened from 8' - 12' to 15'-18' to accommodate the Caterpillar 826 in the trench. The initial lift of Category 1 material directly above the Category 2 material shall be compacted with four one-way passes of a self-propelled double drum roller compactor, a smooth drum vibratory roller or other compaction equipment approved by the Construction Manager.

Action: All references within the addendum to the 8'-12' wide trench will be revised to 15'-18' wide. The fifth sentence of the second paragraph on Page 3 will be revised to the following: "Initial compaction shall be accomplished using a Cat 826 landfill compactor or equivalent within the trench."

Specific Comments on Addendum 4

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Commenting Organization: Ohio EPA Commentator: OFFO

Section #: Preparation of the Grid; Debris Placement; and Initial and Additional Lifts of Category 1

Material Pg. #: 2 and 3 Line #: NA Code: c

Original Specific Comment #: 8

Comment: The Addendum should list time limits to have all the asbestos debris covered (by end of day) and to have the entire grid covered and compacted (five working days).

Response: The Addendum will be revised to include covering of transite debris time limits. Transite debris shall be covered by the end of the day. The entire grid shall be covered with an initial lift of Category 1 material by the end of five (5) working days.

Action: A sentence will be added to Addendum as follows: "No transite debris shall remain uncovered with Category 1 material by the end of the day. The entire grid of transite debris shall be covered with a 15 inch +/- 3inch initial lift by the end of five (5) working days."

Commenting Organization: Ohio EPA Commentator: OFFO

Section #: NA Pg. #: NA Line #: NA Code: c

Original Specific Comment #: 9

Comment: The text states that after placement of the material an initial lift of Category 1 material would be placed and compacted using a minimum of four passes of a self-propelled double-drum roller compactor, a smooth-drum vibratory compactor or other equipment as approved. A Caterpillar 826 compactor currently in use is equipped with feet and experience has shown that this machine achieves better compaction than the vibratory roller. Our concern is that the feet of the compactor are more likely to extend through the Category 1 material and bring the asbestos debris to surface. The text should be revised to indicate that a Cat 826 compactor is the preferred equipment and other equipment may be approved if the Cat 826 causes asbestos debris to surface.

Response: According to page 4 of the text, an initial lift (15 inches +/- 3 inches), shall be placed over the transite debris. This initial lift will not be tested for compaction. This initial lift is to be compacted by a self-propelled double-drum compactor, a smooth-drum vibratory compactor or other equipment as approved. This initial lift is a soil buffer above the potentially friable transite debris so the construction equipment avoids contact with the transite debris bags and does not break the bags sending friable material airborne. The feet of the double drum-roller are approximately 8 inches long and could possibly extend into a minimum 12-inch thick loose lift. Therefore, in order to use the equipment specified, the initial loose lift thickness will be revised to a minimum of 15 inches.

The self-propelled double-drum compactor, and a smooth-drum vibratory compactor described above are appropriate equipment to compact the initial lift above the transite debris bags. The weight and chopping blade on the Cat 826 landfill compactor does not make it suitable for compacting the initial lift thickness of 15 inches +/- 3 inches of Category 1 material placed over a lift of transite debris. A Cat 826 landfill compactor may be used to compact additional lifts of Category 1 material over the initial lift.

Action: References to the initial lift thickness of 15 inches +/- 3 inches of Category 1 material will be revised to, "... minimum lift thickness of 15 inches...".