

R-028-208.2

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**COMMENTS AND RESPONSES ON THE IMPROVED  
STORAGE OF SOIL AND DEBRIS REMOVAL  
ACTION WORK PLAN**

**XX-XX-XX**

**DOE-FN/EPA  
14  
RESPONSES**

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General Comments

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1. Ohio EPA suggests, if OU-5 Treatability Study produces an early successful result showing a significant portion of soil can be cleaned, that DOE consider developing an EE/CA for soil treatment and initiate treatment of soils as part of a non-time critical removal action. As shown by the necessity of Removal Action 17, the stockpiling of soils at the FEMP is becoming an overburdensome problem and it would appear that treatment prior to the issuance of a ROD is justified. DOE needs to investigate the potential for expediting treatment of soils in addition to its efforts to better store contamination soil. How can such an effort be coordinated with the integrated demonstration for soils at Fernald?  

Soil treatment may start earlier based upon the results of treatability studies and the Integrated Technology Demonstration. Any treatment of soil prior to the ROD issuance will require concurrence from Ohio and US EPA regarding pre-ROD remediation contaminant levels for uranium. Information on this subject will be included in the annual update of new Removal Actions submitted by DOE to the US EPA.
2. This removal action work plan fails to incorporate the concept that soils can be non-hazardous but still pose a significant risk and require cleanup. The work plan defines a hazardous substance within Section 1.3 but never again refers to them. DOE must incorporate a process of preventing the dilution/dispersion of soil significantly contaminated with a hazardous substance but not defined as a hazardous waste. This issue is a primary shortcoming of this work plan.  

Field screening will be an important component to determine how soil and debris will be handled. Based upon the RI/FS data obtained to date, uranium is the primary contaminant of concern. Therefore, the FEMP believes that it is reasonable to use radioactivity concentrations as the primary disposition designator. The FEMP intends to segregate wastes for management in the CSF, but does not consider it prudent to complete a risk assessment to establish interim site standards for other hazardous substances. Materials will be dispositioned according to their activity-

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concentrations and data from the contaminant assessment. The contaminant assessment and the associated MEF will rely heavily upon process knowledge and existing RI/FS data to characterize what constituents may be present.

Hazardous substances will be addressed by the MEF procedure. The work plan addresses hazardous substances that are expected to be present at the FEMP (i.e. asbestos, PCB, petroleum, and radiological contaminants). It is also stated that the bulk storing of these soils (which may or may not "dilute" the contaminants) will not be a substitute for remediating the soils. It is also stated that all soil (either soil in an improved storage facility or soil present in a controlled stockpile) will be remediated in accordance to the remedial alternative prescribed by the appropriate Record of Decision.

3. The removal action work plan must include a discussion of solid wastes and how soils may be considered solid wastes. This is especially true for petroleum contaminated soils from UST removals.

Agreed. A discussion concerning solid waste will be included in section 1.

4. The removal action work plan must incorporate radionuclides in addition to uranium. Basing segregation solely on the level of uranium is unacceptable. The levels of thorium and radium at a minimum should be included in determining action levels.

Thorium and radium will be included along with uranium in the determination of acceptable radiological concentrations for the FEMP. However, current RI/FS data indicates that thorium and radium are NOT a major source of soil contamination at the site. Therefore, action levels for thorium and radium will be applied



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to locations where the contaminant determination (MEF) identifies the potential presences of these radionuclides. The radium activity/concentration for disposition determination will be 5 pCi/g in accordance with 40 CFR 192 and 50 pCi/g for thorium in accordance with 46 FR 52061.

Soil that has activity concentrations that are less than 100 pCi/g (total uranium) 50 pCi/g (total thorium), and 5 pCi/g (total radium) will be placed on a control stockpile.

5. This removal action should not be construed by DOE as a justification for limiting or cutting back on shipments of contamination material to off-site disposal locations. Present procedures call for boxing >100 pCi/g soil and preparing it and contaminated debris for shipment. DOE appears to be moving away from this procedure under this work plan. DOE needs to at least maintain and hopefully increase the shipment of materials ready for disposal.

This removal action does not preclude shipment of soils. However, the FEMP places a higher priority on shipping nonrecoverable contaminated debris and residues. This will be added to the work plan.

Specific Comments

1. Section 1.3, pg. 4: DOE needs to include a definition of solid waste as it applied to this removal action.
2. Section 1.3, pg. 4, UST: Petroleum contaminated soils from

Agreed. A solid waste definition will be added.

Agreed. This will be incorporated into the definition. However, the

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UST removals may be considered a solid waste under Ohio Law (see attached policy). The potential for this soil to be a solid waste needs to be included in the definition.

referenced policy was not submitted with the comments.

3. Section 2.2, pg. 1, Phase I:

a) This section should include DOE's rationale for using the 100 pCi/g action level. The document generally fails to include a sufficient justification for the use of the 100 pCi/g of uranium action level.

The 100 pCi/g total uranium activity concentration was adopted because it represents the threshold of detection with hand held instrumentation.

b) It is not clear why DOE has chosen to overlook its previous policy of dividing uranium contaminated soils into three types: <35 pCi/g; >35 pCi/g and <100 pCi/g; DOE needs to discuss its previous procedures and why it will change them within the justification for the 100 pCi/g action level.

b) The previous action levels are not easily implemented in the field because field monitoring instruments cannot detect levels of radiation at activity concentrations less than 100 pCi/g.

4. Section 2.2, pg. 1, 3rd Paragraph: please provide more detail as to what is "current policy" for the management of soil piles (e.g. attach SOP)

The FEMP Standard Operating Procedure 044 will be included as an attachment for information.

5. Section 3, pg. 1, 2nd Paragraph: DOE should not indicate that any pre-selection of the final remedial action has taken place.

Agreed. Sentence will be reworded. Also refer to the response for General Comment #1 regarding treatment of soil prior to ROD issuance.

6. Section 3.1.1, pg. 2: The AOC concept should not be used to allow contaminated soil to be transferred from one area of the site to another for use as

The FEMP intends to use soil from an AOC as backfill within that AOC and does not intend to use soil from one AOC as backfill for another. It should be noted that

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backfill. DOE must realize the complexity of trying to develop a complete RI report while soil may be transferred from one area of the site to another. As stated in previous comments on this document and others DOE must be aware of the potential for soil to be contaminated and act as a source area without being a hazardous waste. DOE needs to develop a procedure to prevent the dispersal of various hazardous substances across the site. This is especially important in light of the fact that organic and inorganic contaminated soils may require different treatment options.

soil will be taken from the controlled stockpile and used as backfill within an AOC if the area adjacent to the backfill is likely to require remediation (is similarly contaminated). This is intended to reduce the amount of clean backfill that will need to be brought in from off-site and then require treatment when the adjacent area is remediated. It should also be noted that the controlled stockpiles will have activity concentrations that are less than 100 pCi/g and will have concentrations of organic and inorganic constituents that are less than the respected regulatory limits for hazardous substances. In addition the disposition of materials will be recorded into a database tracking system.

7. Section 3.1.1, pg. 2, bullets: It would appear that benefit bullets 1) and 2) are contradictory, if source soils contaminated with hazardous substances are allowed to be used for backfill anywhere within the AOC.

The first benefit will be rephrased to state that it applies to materials that do not require storage, and the second benefit is true for soils that require storage in the improved storage facilities.

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<p>8. Section 3.1.1, pg. 4, AOC B: The proposed AOC B covers five operable units and a very diverse assortment of contaminants and contaminant levels. It does not seem reasonable to consider the contamination in the K-65 silo berms and the waste pit soils to be contiguous with that in the solid waste landfill soils. DOE needs to reconsider the boundaries of this AOC.</p>	<p>A new AOC will be incorporated into the work plan from the original AOC B. AOC D will consist of the silos (OU-4) and their surrounding soil.</p>
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<p>9. Section 3.1.1, pg. 4, AOC C: No evidence or data is provided to suggest that contamination is contiguous across the production area. Ohio EPA is concerned that DOE will be allowing hazardous substance contaminated soils to be placed in areas which were not previously contaminated with these substances. The need to keep various contaminants separate becomes more important as we near the completion of RI reports and develop treatment options for the soils.</p>	<p>The DOE supports the theory that the Production Area is a single AOC that is contaminated with radionuclides and will provide better justification for establishing this AOC. It should be noted that the AOC controlled stockpile will have activity concentrations that are less than 100 pCi/g and will have concentrations of organic and inorganic constituents that are less than their respective regulatory limits for hazardous substances. This material will be used as backfill in AOC C if the adjacent soils will require remediation. Excess soils that do not qualify for the controlled stockpile will be segregated in the CSF.</p>
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10 Section 3.3, pg. 9, last Paragraph:

(This Section has been changed to 3.4)  
 DOE may wish to consider using HSL analysis instead of TCLP for initial characterization, then if HSL concentrations warrant run

The work plan will propose to use process knowledge and RI/FS data to "narrow down the list of suspected contaminants" so TCLP can be performed. HSL should not be required. (See the response to

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TCLP. This procedure is likely to be more cost effective and allow for a better hazardous substance characterization of the soils. TCLP data will be limited in its usefulness for hazardous substance characterization due to higher detection limits and leachability requirements. general comment #2)

11 Section 3.4.2, pg. 11, last Paragraph:

(This Section has been changed to 3.5.2)  
 It appears acceptable to Ohio EPA to place contaminated soil back into the hole from which it was removed. Allowing hazardous waste substance contaminated soil to be used a backfill anywhere within the AOC's, as currently defined, is unacceptable.

The section will be modified to state that "excess soil will be used as backfill in its AOC of origin if it has radiological constituents that are similar to the soils where it will be used as backfill." The plan will not allow excess soils with hazardous waste to be used as backfill.

12 Section 3.4.2, Pg. 15, 1st Paragraph:

(This Section has been changed to 3.5.2)  
 DOE should not allow and should stop if already occurring the redistribution of contaminants around the site via the use of contaminated soils for backfill. Ohio EPA's concerns with the redistribution of contaminated soils has been expressed in our comments on numerous previous DOE submittals.

See response to Comment #9.

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13 Section 3.4.5:

(This Section has been changed to 3.5.5)

See attached petroleum contaminated soil policy.

PARSONS has not received this policy.

14 Section 3.4.6, pg. 16:

(This Section has been changed to 3.5.6)

Please provide more detail as to what "shipped on site for management" entails.

This is a typographical error; "on-site" should have been "off-site". This implies handling at a facility approved for PCB storage/disposal.

15 Section 3.6.1, pg. 20, 1st Paragraph:

(This Section has been changed to 3.7.1)

a) This paragraph is somewhat confusing with the multiple types of debris. It may be less confusing if broken up into several paragraphs.

a) The paragraph will be reworded for clarity.

b) Why is a pile needed for non-recoverable, uncontaminated debris? This material should be moved off-site for proper disposal. If the material is piled on-site, it is likely it will become contaminated and need to be dealt with during remediation.

b) Non-recoverable, uncontaminated debris will be placed in an appropriate container.

16 Figure 3-4, pg. 21: It is unclear from this figure where decontamination of debris fits in. Please include debris decontamination in the figure.

The figure will be revised for clarity.

17 Figure 3-5, pg. 22: See the preceding comment.

The figure will be revised for clarity.



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18 Section 3.6.3.2:

(This Section has been changed to 3.7.3.2)

Is it DOE's intention to decontaminate this debris to a level of free release for disposal? And is this an effective/efficient strategy if the debris will have to be disposed of anyway? DOE needs to provide more detail within the work plan concerning the strategy for this debris.

Decontaminated debris may be sent to a permitted industrial landfill. This will be more cost effective than shipping the waste to a radioactive waste disposal area such as Nevada Test Site. Debris that can be easily decontaminated (surface contamination) will be decontaminated and disposed as industrial waste. Debris that cannot be easily decontaminated (fixed contamination) will be shipped for off-site disposal as radioactive waste.

19 Section 3.6.3.4, pg. 25:

(This Section has been changed to 3.7.3.4)

What is DOE's current practice for disposal of PCB contaminated and PCB/Rad contaminated debris?

A discussion of the current PCB containerization and storage will be included in the removal action work plan.

20 Section 3.6.3.5, pg. 25:

(This Section has been changed to 3.7.3.5)

DOE needs to detail what steps will be taken to prevent hazardous waste that is contaminated with organic material from off-gassing within the CSF. The combination of materials, potential off-gassing, and dust emissions may cause considerable health risks to workers within such a structure. DOE needs to discuss how dust created by equipment usage and off-gassing will be controlled to protect workers.

The Improved Storage Facilities which will be occupied will be equipped with an HVAC system. During operation of the facility, periodic industrial hygiene surveys will be performed. If required, additional control measures (i.e., dust, suppressants, personal protective equipment, increased ventilation) will be used to correct any problems discovered during the surveys.

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21 Section 3.7, pg. 3-26

(This Section has been changed to 3.8)

Typo: Line 5 "addresses" should be "addressed". Will change.

22 Table 3-6, pg. 3-28: Why are security fences installed around soil piles?

Fencing will be used around piles for administrative control purposes.

23 Section 3.8, pg. 3-31:

(This Section has been changed to 3.10)

Is the tracking system proposed for material going to be manageable to the point where a credible RI characterization can be made?

Yes. The FEMP intends to have a tracking system that will allow characterization data to be maintained for soils that are used as backfill, stored in a controlled stockpile, or placed in an improved storage structure. The FEMP will use its existing tracking system as a base. However, modifications will be required. PARSONS will revise the discussion of the tracking system to identify the modification that will be required to make the existing procedure effective for soil and debris.

24 Section 3.8, pg. 3-31:

(This Section has been changed to 3.10)

The computerized database should be used to facilitate the RI/FS and ROD for OUs 3 and 5. The site wide post remediation risk assessment is a final screening tool to see if site wide cleanup goals were met. OUs 3 and 5 should already be cleaned up before the site wide post remediation risk assessment is

The sentence about using the data bases for the post-remediation risk assessment will be deleted.



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conducted. DOE should remove the reference to this risk assessment.

- 25 Section 4.1.1, pg. 4-2 2nd Paragraph: Why not anchor the tarp to the pad with stakes through grommets instead of using concrete blocks.
 

The method of stabilizing the tarp will be considered during detailed design.
- 26 Section 4.2, pg. 7, design bullets: An additional design consideration should be to place the structures within the current or proposed stormwater runoff capture system.
 

Structures within the former production area will be in the "controlled stormwater zone". This will be added as a criteria.
- 27 Section 4.2, pg. 9: It would seem that the sides of the concrete slab or foundation will need to be elevated to a higher level so that heavy equipment will be able to push soil against it for pick up. Otherwise the soil will be pushed against the sprung structure walls.
 

The unloading and loading activities will be considered during the detailed design. It is envisioned that concrete blocks will be used to form storage compartments. These may be stacked as high as six feet. The blocks may also be used to "line the structure" so dirt is not up against the structure cover.
- 28 Section 4.2.1.3, pg. 11: DOE should consider installing a lighting system within the CSF due to the potential future uses and the possibility for needing to complete nighttime or overcast day activities.
 

Experience shows overcast days still provide more than efficient light. No night operations will be conducted at the improved storage facilities. The addition of lights will be considered during detailed design.
- 29 Section 4.2.1.4, pg. 11: As stated in a previous comment DOE needs to address potential off-gassing from hazardous wastes, petroleum contaminated soils, and radionuclides as well as dust generation. Further detail should be provided in this section concerning such efforts.
 

The Improved Storage Facilities which will be occupied will be equipped with an HVAC system. During operation of the facility, periodic industrial hygiene surveys will be performed. If required, additional control measures (i.e., dust, suppressants, personal protective equipment, increased

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ventilation) will be used to correct any problems discovered during the surveys.

30 Section 4.2.1.5, pg. 11: Why has DOE not considered the build-over criteria which it has previously used for other construction activities? Due to the long term nature of the CSF the build-over criteria should be applied to the facility.

PARSONS will return to the build-over criteria that was submitted and removed from previous drafts.

31 Section 4.2.3, pg. 13, 2nd Paragraph: DOE should underlay all stockpiles with tarpaulins or liners to prevent infiltration and to help delineate the bottom of the pile during excavation and removal.

A tarpaulin will be placed under the Phase I piles that will store soil that has an activity concentration that is greater than 100 pCi/g. Temporary contaminated debris piles will also have a tarpaulin placed underneath them. However, the controlled stockpiles will not require tarpaulins because the activity concentrations will be low enough so that there will not be the potential for leachate to have an adverse impact. Controlled stockpiles will be placed on areas of low contamination.

32 Section 4.2.3, pg. 13, 3rd Paragraph: DOE should not allow the soils from stockpiles to be freely used for backfill within the AOCs.

The Work Plan will be revised to state that soil from a controlled stockpile will be used in the AOC of its origin if the radiological constituents are similar.

33 Section 5, pg. 3, Waivers: In its considerations for a waiver DOE has failed to address or consider off-site disposal as an alternative option. The fact that disposal capacity is available in the private sector for mixed wastes (i.e. Envirocare) suggests that DOE should consider this alternative before requesting the

If treatment of soil is to be initiated at the FEMP as a non-time critical removal action, acceptable treatment standards will have to be agreed upon with USEPA/OEPA. Also, in this case, it would be assumed that further treatment would not be required as a result of the RODs. If this is not so, the value of a pre-ROD soil treatment removal



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waiver of ARARs. DOE needs to provide a more in depth discussion of this option and why long-term bulk storage is preferable over immediate, permitted disposal.

action is significantly lessened. A path forward on this activity will be contingent upon completion of the remedial alternatives treatability studies and agreement on a treatment standard.

Shipping contaminated soil off site should be avoided if possible, due to the expense associated with shipping and disposal and the potential quantities that may be generated. As general comment 1 states, the FEMP will consider initiating treatment of soil at the FEMP. Soil treatment is a viable alternative in the RI/FS and the FEMP believes that it is prudent to store soil that may be treated until the soil treatability studies are completed and the RODs are issued. Also having to obtain replacement fill could be expensive in addition to being unnecessary. However, a statement will be added to add flexibility to the work plan so that soil at activity concentrations that exceed 100 pCi/g or is contaminated with PCBs, petroleum products, or hazardous waste, may be shipped off-site for disposal where necessary and acceptable to EPA.

34 Section 6.2, pg. 2, last Paragraph: DOE should include the SOPs and their revisions within the work plan. This should be possible as soon as the basic ground rules are determined (e.g. action levels, storage configuration).

The Removal Action Work Plan identified when the SOPs will be completed (based on a duration from approval of the RAWP). These SOPs were not intended to be submitted with the RAWP, but will be generated so the FEMP can operate effectively in accordance with the approved work plan. SOPs will be



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available for information when completed.

35 Section 7: As previously stated Ohio EPA is concerned that DOE is overlooking the hazardous substances at the site and that the TCLP will not provide the detail needed to make decisions concerning soil disposition.

See response to specific comment #10.