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U. S. EPA TECHNICAL REVIEW COMMENTS ON
"REVISED DRAFT PROPOSED PLAN FOR OPERABLE UNIT 4 SILO 3
REMEDIAL ACTION"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

GENERAL COMMENTS

1. Commenting Organization: U.S. EPA Commentor: Barwick
General Comment #: 1

Comment: DOE includes five specific examples of the problems it anticipates may develop with respect to implementing the full scale dispersibility treatment but only references heightened worker risk and/or costs as concerns that would accompany such problems. DOE should provide more detail about the worker risk and cost concerns. The point is to better illustrate why it may become necessary to alter or abandon the dispersibility treatment once full scale operations have started.

Response: Agree. The following text will be added to address the EPA comment: "In the event one or all of these concerns were to materialize during full scale operations, the on-line efficiency, capacity, and cost of the remedy would be impacted. For example, the plugging of the spray nozzles or the plugging of the conveyor screws would require the shutdown of operations and the performance of intrusive maintenance. Maintenance workers would be required to don fully encapsulating protective clothing and supplied air respirators and then come in direct contact with the waste materials. These actions would delay operations and subject workers to potential exposures to thorium bearing material, with resultant schedule and cost increases."

Action: Add text to page 8 as discussed above.

2. Commenting Organization: U.S. EPA Commentor: Barwick
General Comment #: 2

Comment: Once full scale operations begin, if it becomes necessary to switch to the contingent remedy, are there any implementation issues associated with that switch? For example, will DOE have enough bags to start double bagging immediately? Are these bags readily available? Does double bagging provide the same level of protectiveness in the event of a severe transportation accident? Can double bagging really be performed; either by placing one bag inside another prior to filling, or maneuvering a large filled bag into another as an overpack?

Response: Implementation of the contingency plan would be driven by an operability or maintainability issue that could result in increased worker exposure. Examples could include problems with movement of material through the system, filling a container with moistened material, or plugging in equipment or chute. Under these circumstances it is likely that a system outage would occur and "cleaning" of lines and equipment to remove wet or moist material prior to switching to dry material feed would be completed. Operations would need to lock out conditioning systems and make procedural changes to reflect double packaging and filling the containers with dry material. To the extent possible, procedures will be written to encompass both operating modes.

The current concept for double-bagging consists of a second liner, providing an additional layer of protection. This type of liner is readily available and could be kept on hand in case the contingency needs to be implemented. The Silos Project engineering team has concluded that the additional inner liner can be added to the packaging configuration without negatively impacting the packaging operation.

With regard to the effectiveness of the contingent remedy (double bagging), the transportation risk evaluation (Attachment 3 in the Supplement to the Proposed Plan) demonstrates that the proposed revised remedy provides a transportation risk under a severe accident scenario that is well within the 1×10^{-6} criterion without taking any credit for reduced dispersability provided by either the proposed revised remedy or the contingent remedy. The two measures were added to the remedy as first and second choices, respectively, to satisfy stakeholder concerns to provide an additional level of protection above what is required based upon the transportation risk analysis. In tandem, both the proposed revised remedy (first choice) and the contingent remedy (second 'backup' choice) adequately address stakeholder requests to provide a "best management practice" level of protection above what is required to meet ARAR or DOT-driven protectiveness criteria.

Action: N/A

3. Commenting Organization: U.S. EPA Commentor: Barwick
General Comment #: 3

Comment: In the draft Proposed Plan, DOE commits to "interact" with EPA, OEPA, and stakeholders when deciding whether to alter or abandon dispersability treatment. During the meeting in Chicago, DOE explained that this decision would require balancing a number of concerns, some of which may not be foreseeable at this time, and so devising an objective standard for determining the success or failure of the dispersability treatment in the Proposed Plan or ROD would be very difficult and inappropriately limiting. While EPA agreed that it would be good to retain flexibility, especially in light of possible worker exposure risk, EPA understood that in the absence of an objective standard DOE would obtain EPA and OEPA concurrence prior to altering or abandoning treatment. In the absence of an objective standard, EPA believes that the decision process must be open to stakeholders and include EPA and OEPA concurrence.

Response: Agreed. As discussed in the responses to subsequent comments, the DOE is committed to maintaining the involvement of the U.S. EPA, Ohio EPA, and other stakeholders during the remaining design, testing, and implementation of the Silo 3 remedy. The results of testing, start-up, and initial operations will be made available, as will adequate opportunity for input to any decision to alter treatment or to pursue the contingent remedy. As recommended by the U.S. EPA in the next comment, a decision to switch to the contingent remedy will be documented in a post-decision document file, after consultation with the regulators and the public.

Action: The above details concerning involvement of the regulators and the public in the contingency decision, and the attendant documentation requirements, have been added to the discussion of the contingent remedy in the Proposed Plan.

4. Commenting Organization: U.S. EPA Commentor: Barwick
 General Comment #: 4
 Comment: DOE should expressly state that since the contingent remedy would meet all remedial action objectives and the dispersibility treatment is not required to meet any legal requirement, switching to the contingent remedy will be considered a minor change. DOE would not prepare an ESD for a minor change but instead document the decision in the post-decision document file, which is equivalent to the RD/RA case file for a remedial action. The documentation of non-significant differences should not be part of the administrative record file for the ROD. If DOE chooses, non-significant changes can be documented for the public in an optional Remedial Design Fact Sheet. These fact sheets generally are used to inform citizens of the schedule for public participation activities as well as progress being made in the design and implementation of the remedy. These fact sheets also can be used to notify the public of any minor changes made to the remedy.

Response: Agreed.

Action: As noted in the response to Comment 3, additional detail concerning involvement of the regulators and the public in a decision to pursue the contingent remedy, and documentation in a post-decision document file, has been added to the discussion of the contingent remedy in the Proposed Plan. In addition, text has been added clarifying that the contingent remedy will meet all Remedial Action Objectives.

SPECIFIC COMMENTS

5. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Emergence of a Commercial Disposal Facility to Accept DOE 11e.(2) Materials
 Page #: 5 (first paragraph of the section) Line #: Not applicable (NA)
 Specific Comment #: 1
 Comment: DOE states that a commercial disposal facility that can accept 11e.(2) regulated materials for disposal is in the process of working with their regulatory agency to gain approval for accepting the Silo 3 materials untreated into their 11e.(2) disposal cell. It is EPA's understanding that DOE and the Nuclear Regulatory Agency (NRC) are currently working to facilitate the disposal of DOE-designated 11e.(2) material at Envirocare's 11e.(2) disposal cell; if this can't be accomplished then use of a commercial disposal facility will not be possible. DOE should summarize the actions that need to be performed to facilitate disposal of Silo 3 11e.(2) material at Envirocare, and a timetable for when those actions need to be completed for the Silo 3 Project to proceed without delay.

Response: As documented in the Proposed Plan, the Nevada Test Site (NTS) has confirmed that untreated Silo 3 material can currently be accepted for disposal at the NTS. For this reason, NTS was assumed as the representative disposal location in comparing the proposed revised remedy with the remedy approved in the 1998 Silo 3 ESD.

In order to minimize the schedule risk associated with transportation and disposal of Silo 3 material, DOE is continuing to pursue options for disposal of Silo 3 material at a Permitted Commercial Disposal Facility (PCDF). The container and packaging system for the Silo 3

project are designed to accommodate either transportation to the NTS by direct truck or intermodal transport or direct rail transportation to a commercial disposal facility.

The current baseline schedule for the Silo 3 Project reflects the initiation of waste shipments in April 2004. In order to initiate shipment of Silo 3 material to a PCDF by this date, regulatory approval for disposal would need to be finalized by late 2003. Since the procurement activity and other final preparations for shipment to and disposal at the NTS can be initiated and completed within this same timeframe, DOE is confident that transportation and disposal of Silo 3 material can be implemented according to the current project schedule, regardless of which disposal facility is ultimately chosen.

Action: The details concerning implementation of both the NTS and PCDF transportation and disposal options will be documented in the revised RD Package, due to be submitted to the USEPA 30 days after approval of the ROD Amendment. Milestones for implementation of the selected option will be specified in the Remedial Action Workplan, due to be submitted to the U.S. EPA by October 6, 2003.

6. Commenting Organization: U.S. EPA Commentor: Jablonowski
Section Title: Emergence of a Commercial Disposal Facility to Accept DOE 11e.(2)

Materials

Page #: 5 (second paragraph of the section)

Line #: NA

Specific Comment #: 2

Comment: DOE states that the actual disposal facility will be selected as part of the design process and may include the Nevada Test Site (NTS), an appropriately permitted commercial disposal facility that can accept the Silo 3 materials, or a combination of both. DOE should remember that 30 days after EPA approval of the ROD Amendment for Silo 3, DOE is required to submit a revised draft Silo 3 Remedial Design (RD) package to EPA (enforceable milestone). The Silo 3 Proposed Plan should emphasize the ultimate dependence upon Nevada Test Site for disposal given the numerous uncertainties surrounding the use of a commercial disposal facility for Silo 3 material disposal. EPA supports DOE having as many disposal options available as possible, but is concerned about the Silo 3 remedy proceeding in a way that emphasizes use of a commercial disposal facility that may later prove to be unavailable. The Silo 3 RD package should also include flexibility in the disposal facility utilized and should accommodate Silo 3 waste disposal at the NTS or a permitted commercial disposal facility.

Response: The referenced section of the Proposed Plan states that the NTS has confirmed their *current* ability to receive untreated Silo 3 material and that one representative PCDF (Envirocare) is in the process of gaining regulatory approval. The section concludes by stating that although the actual disposal facility will be selected as part of the design process, "In this Proposed Plan, one option (the Nevada Test Site) will be selected as the representative disposal facility option to illustrate the costs and logistics of off-site disposal and permit a fair comparison of the modified remedial action with the 1998 Silo 3 ESD remedial action." As this language illustrates, DOE does not believe the proposed plan is written in a way that emphasizes use of a commercial disposal facility that may later prove to be unavailable.

Action: The details concerning implementation of both the NTS and PCDF transportation and disposal options will be documented in the revised RD Package, due to be submitted to the USEPA 30 days after approval of the ROD Amendment.

7. Commenting Organization: U.S. EPA Commentor: Barwick
 Section Title: Rationale For Proposed Change
 Page #: 5 (last paragraph) Line #: NA
 Specific Comment #: 3
 Comment: The fact that DOE is modeling transportation accident scenarios means that a severe transportation accident is not "unforeseen." "Unlikely" might be a better term.

Response: Agreed.

Action: "Unlikely" will be added to replace "unforeseen".

8. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Remedy Comparison Table
 Page #: 6 (Remedy Comparison Table) Line #: NA
 Specific Comment #: 4
 Comment: "Maintain transportation risk to less than 1×10^{-6} " should be included as a bullet item under *Proposed Revised Cleanup Plan*.

Response: Agreed.

Action: "Maintain transportation risk to less than 1×10^{-6} " will be inserted as a bullet in the comparison table.

9. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Proposed Revised Cleanup Plan
 Page #: 7 Line #: NA
 Specific Comment #: 5
 Comment: Text under the second bullet in this section states that Silo 3 waste will be treated "to the degree reasonably implementable." The text should be revised to further describe what will be considered "reasonably implementable" treatment. Specifically, the text should discuss the impact of worker exposure and operational efficiency on implementability.

Response: Agree with comment.

Action: Consistent with General Comment #1, supplemental text has been added.

10. Commenting Organization: U.S. EPA Commentor: Jablonowski
Section Title: Detailed Description of the Proposed Revised Cleanup Plan
Page #: 7 Line #: NA
Specific Comment #: 6
Comment: The last sentence of the paragraph titled "Waste Treatment" states that a liquid solution will be added to the dry waste material as it enters the package. The text should be revised to state that a liquid solution will be added to the waste to reduce the waste's dispersibility and mobility.

Response: Comment acknowledged.

Action: The text has been revised as recommended.

11. Commenting Organization: U.S. EPA Commentor: Jablonowski
Section Title: Detailed Description of the Proposed Revised Cleanup Plan
Page #: 7 (last paragraph) Line #: NA
Specific Comment #: 7
Comment: It is stated that bench scale testing yielded encouraging results indicating that a liquid solution could be successfully added as waste is loaded into packages. U.S. EPA has not seen these test results; these test results should be provided to EPA within 30 days and included in the revised Silo 3 Remedial Design package.

Response: Testing of potential additive-addition systems by Jenike & Johanson was initially discussed with the USEPA and OEPA at a briefing on October 3, 2002. Bench-scale testing of waste conditioning for dispersability and metals mobility is documented in FEMP report 40430-RP-0025, "Silo 3 Conditioning Report."

Action: FEMP report 40430-RP-0025, "Silo 3 Conditioning Report" is enclosed with this comment response document for U.S. EPA and OEPA information. The findings from the testing of additives, and their impact on the final design, will be reflected in the revised RD Package.

12. Commenting Organization: U.S. EPA Commentor: Jablonowski
Section Title: Detailed Description of the Proposed Revised Cleanup Plan
Page #: 8 Line #: NA
Specific Comment #: 8
Comment: The text states, "It is recognized that once the final formulation for delivery is selected, the actual application of additives defines the best management approach and no further testing on the materials will be conducted during full scale operations." The text should be revised to clarify that standards for additive application will be defined by best management practice levels to be determined from mock-up testing.

Response: As stated in the referenced section of the Proposed Plan, a final formulation for the additive solutions is being developed, in consultation with industry experts, in preparation for the mock-up test. The mock up test will be used to demonstrate the effect of adding the liquid solution on the design and operation of the packaging system and, potentially, to identify physical or operating modifications to improve operability of the final configuration.

The "standards" for the addition of liquid additives will consist of operational criteria applied in a best management approach (utilizing the final equipment and operational configuration to apply the specified additive formulation). No analytical criteria (e.g., treated waste metals analyses) will be applied to the final waste form to demonstrate adequate treatment.

Action: The referenced text has been revised to clarify the standards for satisfying the best management application of treatment.

13. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Contingency Backup Actions
 Page #: 8 Line #: NA
 Specific Comment #: 9

Comment: The mockup test plan should be submitted to EPA for review and approval. EPA should also be provided the opportunity to observe the testing, review and evaluate the mockup test results, as well as the performance criteria established from the mockup test. Also, since best management practice levels will be set during the mockup test and no subsequent testing will take place during full scale operation, it is important that the mockup test include representative samples that will yield statistically significant results.

Response: Consistent with past practice, DOE is committed to maintaining the involvement of the U.S. EPA and OEPA during design and implementation of the Silo 3 remedy, including during the planning and implementation of mockup testing and subsequent interpretation of its results .

Action: As has been the practice with previous testing activities, the scope and objectives for mockup testing will be shared with the U.S. EPA and OEPA prior to being finalized. The Testing Plan will be provided to the U.S. EPA and OEPA prior to initiating the testing. In addition, the opportunity will be provided for U.S. EPA and OEPA to observe the testing and to provide input during review of testing results and subsequent development of operating parameters based upon the results.

14. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Contingency Backup Actions
 Page #: 9 Line #: NA
 Specific Comment #: 10

Comment: Details need to be provided on the contingent double packaging system, what it consists of and why it is equivalent to the dispersibility treatment.

Response: The current packaging concept for the proposed revised remedy consists of a 30-mil liner with a spout inside the soft-sided container. The spout connects to the discharge of the packaging station.

The contingent double packaging configuration would add an additional liner, resembling a regular open top bag, between the 30-mil liner and the soft-sided container. The outer package would be the woven soft-sided container with the flap closures that fold over and strap. After filling, the inner-inner package (30-mil liner) would be heat sealed. The added liner would be gathered, the air pushed out of the package and the package taped or tied closed. The outer package would then be closed and the straps tied.

As stated in the response to Comment 2, both the proposed revised remedy and the accompanying contingent remedy provide, in tandem, a qualitative "best management practice" level of protection above what is required to meet ARAR or DOT-driven protectiveness criteria. Addition of moisture reduces the amount that may become airborne when spilled from a package, whereas an additional bag increases the layers that would be breached for the material to spill. Since soft-sided packaging is flexible it is presumed that a breach through multiple layers would not stay aligned as it would through rigid steel layers. The shifting of liners would eventually misalign the tear/hole reducing the quantity spilled as the bag slouches. Therefore, both the primary (first choice) and contingent (second backup choice) remedies adequately provide a qualitative reduction in dispersability, although through different physical mechanisms. As discussed in the response to Comment 2, this two-pronged approach satisfies the concerns of stakeholders who raised the dispersability issue.

Action: N/A

15. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Waste Packaging and Shipping
 Page #: 9 Line #: NA
 Specific Comment #: 11

Comment: Terms such as "package" and "container" are used interchangeably and ambiguously to the extent that it is unclear what exactly will be performed as far as waste packaging and shipment. EPA expects that Silo 3 waste will be loaded into a lined soft-sided package, and subsequently placed into steel Sea/Land containers that will be transported via truck and/or rail to the disposal facility(ies). EPA also expects the continued use of dedicated unit trains if rail shipment of Silo 3 waste is necessary. These points should be clarified in the Proposed Plan.

Response: Agreed, the Proposed Plan has been revised for consistency. For both alternatives, the Proposed Plan assumed that Silo 3 material will be loaded into a lined soft-sided container, and subsequently placed into steel Sea/Land containers that will be transported via truck and/or rail to the disposal facility(ies). If rail transportation is used, dedicated unit trains will be utilized to the extent practical. The current concept for rail transportation to Envirocare would be to attach railcars of Silo 3 material to the existing WPRAP unit trains.

Action: The referenced text has been clarified.

16. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section #: Balancing Criterion No. 2 Reduction of Toxicity Mobility, or Volume Through Treatment
 Page #: 12 Line #: NA
 Specific Comment #: 12

Comment: The text states that treatment specified in the currently proposed plan would result in an increase in waste volume of about 50 percent over the treatment proposed in the revised plan because of the types of additives required to stabilize the waste to toxicity characteristic leaching procedure (TCLP) levels. Later, the text states that the volume of waste under the treatment specified in the proposed revised plan is expected to increase by

approximately 11 percent because of air entrainment during retrieval. However, this increase does not take into account any volume change from addition of a waste treatment solution. Because the impact of the proposed waste treatment solution on volume is not specified, the previous statement specifying a 50 percent decrease in volume relative to treatment in the currently approved plan cannot be supported. The text should be revised to either provide information regarding the impact of the waste treatment solution or volume or to state that mock-up testing will verify if the waste treatment solution will decrease the volume of waste relative to the currently approved treatment method.

Response: Based on testing, the currently approved cleanup plan will result in a **total** volume increase of approximately 63% over the untreated volume, due to both the addition of additives (52.1 weight-percent) and the effect of bulking during material handling. The proposed revised cleanup plan is estimated to result in a **total** volume increase of approximately 11% compared to the untreated volume, due to both the addition of the 20% aqueous solution and the effect of bulking during material handling. The volume increase stated in the Proposed Plan for the currently approved cleanup plan relative to the proposed revised remedy, compares the total volume increases (63% and 11%) estimated to result from the two alternatives. This accounts for the approximately 50% increase in volume for the current remedy over the proposed revised remedy as stated in the Proposed Plan.

Action: Text has been revised to provide the overall volume increase of both the current and proposed revised remedies compared to the untreated volume.

17. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Balancing Criterion No. 3 Short Term Effectiveness
 Page #: 13 through 15 Line #:NA
 Specific Comment #: 13

Comment: Various inconsistencies were identified between Attachment 3 and the section entitled "Balancing Criterion No. 3, Short-Term Effectiveness." These inconsistencies are listed below.

- Attachment 3 refers to "Sea/Land" containers, but the section refers to "sealand" containers. This section should be revised to refer to "Sea/Land" containers.

Response: Agreed

Action: Text has been modified as recommended.

- The fifth paragraph of this section refers to "the supplement to this Proposed Plan." Because the transportation risk evaluation is presented in Attachment 3, the fifth paragraph of this section should be revised to refer to "Attachment 3 to this Proposed Plan."

Response: The Supplement to the Proposed Plan contains Attachments 1, 2, 3, and 4.

Action: The text has been modified to refer to "Attachment 3 in the Supplement to this Proposed Plan."

- The eighth paragraph of this section refers to "1910 bags." Attachment 3 consistently refers to "soft-sided containers." This section should be revised to refer consistently to "soft-sided containers" and not "1910 bags."

Response: Comment acknowledged

Action: The text has been modified to refer to "1910 soft-sided containers."

- Attachment 3 defines intermodal transport as "combined rail and truck." The section does not define this term. This section should be revised to define intermodal transport in a manner consistent with Attachment 3.

Response: Comment acknowledged

Action: The section has been revised to define intermodal transport as "combined rail and truck."

- The section presents information regarding the estimated number of direct rail and truck shipments for both the current cleanup plan and the proposed revised cleanup plan. However, this section does not discuss the number of rail and truck shipments required as part of intermodal transport. This information is presented in Attachment 3. The section should be revised to include information on the number of rail and truck shipments associated with intermodal transport under both the current and proposed revised cleanup plans.

Response: Comment acknowledged.

Action: The information from Attachment 3 concerning the number of truck and rail shipments for intermodal transport has been added to the referenced section of the Proposed Plan.

- This section refers to a "47.9 percent waste loading rate." The basis for this rate is not explained. A waste loading rate is not discussed in Attachment 3. Both this section and Attachment 3 should be revised to consistently refer to and explain any waste loading rate used in transportation risk calculations.

Response: The cost estimates and transportation risk evaluation assumed a waste loading of 47.9 weight-percent for the current remedy, based upon the addition of the ferrous sulfate, lime, portland cement, and water treatment formulation developed during Fernald treatability testing. A 79 weight-percent waste loading was assumed for the proposed revised remedy, based upon the addition of a ferrous sulfate solution and lignosulfonate binder to optimize moisture at 20%.

Action: The text in both the Proposed Plan and the supplement has been revised to clarify the definition of and basis for the waste loadings assumed for both alternatives.

- The numbers of required rail shipments associated with direct rail and intermodal transportation options in the current and proposed revised plans do not match. Neither this section nor Attachment 3 explains the basis for this discrepancy. This section and Attachment 3 should be revised to clarify the basis for the difference in the numbers of required rail shipments associated with direct rail and intermodal transportation options.

Response: The reason for the discrepancy between the number of rail shipments for direct rail and intermodal is due to the need for truck shipments for intermodal transportation. The number of soft-sided containers that can be placed into a Sea/Land container for intermodal shipments is limited by the legal weight that can be placed on a truck. As a result, only seven soft-sided containers can be placed into a Sea/Land container for intermodal transport due to weight restrictions resulting from transfer of the Sea/Land container to a truck. However, nine soft-sided containers could be placed into a Sea/Land container undergoing direct rail shipments.

Action: Attachment 3, under Key Assumptions for the Model, will be revised to include clarification for the discrepancy in the number of rail shipments between direct rail and intermodal transportation.

- This section discusses the probability of a maximum severity truck accident and a maximum severity rail incident. Probabilities are presented in both cases for accidents occurring in rural and urban areas. However, this section does not present probabilities for accidents occurring in suburban areas, and this information is presented in Attachment 3. This section should be revised to present probabilities for accidents occurring in suburban areas.

Response: Agreed. The risk of a truck accident in a suburban area during shipment to the NTS and a rail accident in a suburban area during shipment to Envirocare will be added to the text.

Action: 1) The last sentence in Column 1 on page 14 will be revised to read, "The probability of a maximum severity truck accident occurring such that all the soft-sided containers in the Sea/Land are breached during transport to the Nevada Test Site under the proposed revised remedy has been estimated at approximately 3×10^{-5} in a rural area, 3×10^{-7} in a suburban area, and 9×10^{-9} in an urban area." 2) The first sentence in Column 2 on page 14 will be revised to read, "The probability of such a severe rail incident occurring during transport to Envirocare is estimated at approximately 9×10^{-7} in a rural area, 1×10^{-7} in a suburban area, and 7×10^{-8} in an urban area."

18. Commenting Organization: U.S. EPA Commentor: Jablonowski
Section Title: Balancing Criterion No. 3 Short Term Effectiveness
Page #: 14 Lines #: NA
Specific Comment #: 14

Comment: It is stated that essentially 100 percent of the waste materials are assumed to be released and available for resuspension as a result of the most severe hypothetical accident. RADTRAN 5 has a feature to determine the Maximum Individual Downwind Doses following a dispersion accident (RADTRAN 5 User Guide, Section 4.7.2, May 2000). These values may be used, for example, to determine whether Federal exposure guidelines might be exceeded and, if so, at what distances from an accident site. This information should be provided in the Supplemental Information attachment to the Revised Proposed Plan, primarily to estimate the doses to accident victims and first responders (including those lacking adequate personal protective equipment) following the dispersion of untreated Silo 3 material.

Response: The limit for annual exposure for an occupational worker is a total effective dose equivalent of 5 rem. The Nuclear Regulatory Commission limit for annual occupational dose limit for a minor is 0.5 rem, while the Department of Energy limit is 0.1 rem. The annual limit for total effective dose equivalent for a member of the public exposed to radiation or radioactive material during access to a controlled area is 0.1 rem. These limits are typically applied to routine operations at DOE or NRC-licensed facilities and not to accidents.

The model is typically used only to estimate dose to members of the public during an accident and not to hazardous material responders. The accident-scenario dose levels calculated by RADTRAN5 for members of the public assume that that evacuation requires 24 hours. These same 24-hour dose levels can be applied to first responders wearing no personal protective equipment, or can be interpolated based on a reasonable time of exposure before the first responders realize they should be in protective gear. From an occupational perspective, only a Severity Class 7 or 8 rail accident involving untreated Silo 3 material would result in the potential for a worker being exposed to a dose greater than 5 rem.

Assuming a 24-hour exposure without any personal protective equipment, an occupational worker, or first responder would be exposed to 100% of the external dose associated with the released material and be exposed to 100% of the respirable material released. Based upon these assumptions, the 24-hour dose resulting from exposure to a Severity Class 8 rail accident during intermodal shipments (7 lift-liners per Sea/Land) of untreated Silo 3 material would be 12.6 rem for an individual 33 meters from the accident and 6.32 rem for an individual 68 meters from the accident. If it was a Severity Class 7 accident, the 24-hour dose at 33 meters from the accident would be 6.29 rem. The 24-hour dose resulting from exposure to a Severity Class 8 rail accident during direct rail shipments (9 lift-liners per Sea/Land) of untreated Silo 3 material would be 16.2 rem for an individual 33 meters from the accident and 8.12 rem for an individual 68 meters from an accident. If it was a Severity Class 7 accident, the 24-hour dose at 33 meters from the accident would be 8.09 rem.

It must be recognized that although the very conservative assumptions described above assume a 24-hour exposure without any personal protective equipment, first responders are trained to assure that the proper protective equipment is in place prior to approaching an accident scene, and to immediately establish controlled access to the accident site to prevent access by workers and members of the public without protective equipment. Further, the actual likelihood that a 24-hour period would be required for a member of the public to be evacuated from the accident site is extremely small.

Because the DOE manages the Silo 3 material, the 0.1 rem limit was used for comparative purposes for dose to an occupational worker who is a minor. Based on a limit of 0.1 for both a member of the public and an occupational worker who is a minor, the individual would need to be within the following distances to receive a dose in excess of the limit:

- 33 meters (108 feet) for Severity Class 4, 68 meters (223 feet) for Severity Class 5, 105 meters (345 feet) for Severity Class 6, 244 meters (801 feet) for Severity Class 7, and 369 meters (1211 feet) for Severity Class 8 truck accidents involving untreated Silo 3 material;
- 105 meters (345 feet) for Severity Class 3 and 4, 244 meters (801 feet) for Severity Class 5, 369 meters (1211 feet) for Severity Class 6, 561 meters (1841 feet) for Severity Class 7, and 1020 meters (3347 feet) for Severity Class 8 rail accidents, both direct rail and intermodal, involving untreated Silo 3 material.

Action: The supplement will be revised to include tables presenting the dose to the maximum exposed individual resulting from an accident with text comparing to Federal limits on exposure.

19. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Balancing Criterion No. 3 Short Term Effectiveness
 Page #: 14 Lines #: NA
 Specific Comment #: 15

Comment: The following changes should be made to the table at the bottom of this page:

- The table should specify if the incremental lifetime cancer risk (ILCR) provided is for suburban, rural, or urban scenarios.
- The table should identify the severity category of the accident scenario ILCR.
- The table should include ILCRs calculated in Attachment 3. Specifically, ILCRs for intermodal transport to NTS and truck transport to Envirocare should be added.

Response: Agreed. The text should state the location and severity of accident resulting in the greatest ILCR.

Action: The text associated with the referenced table will be modified to state the highest ILCR for the maximum exposed individual occurs during a Severity Category 8 accident in both suburban and rural areas for truck to the NTS and in a suburban area for rail shipments to Envirocare of Utah. In addition, the Supplement to the Proposed Plan will be modified to include similar information for intermodal transport to the NTS and truck transport to Envirocare of Utah.

20. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Balancing Criterion No. 3 Short Term Effectiveness
 Page #: 15 Lines #: NA
 Specific Comment #: 16

Comment: It is stated that in the event of an accident, the truck driver has been directed to immediately contact the appropriate response authority, the carrier company representative, and the Fernald communications center. What happens if the truck driver is incapable of performing these tasks as a result of an accident? Describe how a first responder is supposed to attain this contact information and perform the driver's tasks. While the truck driver is briefed on emergency response techniques, are there formal training and certification requirements for the driver? Is the driver obligated to respond appropriately to control a spill if capable of performing such duties?

Response: In the event the driver is incapable of performing the initial on-scene response duties, this obligation moves to the first responder. Fire and police responders are trained to gain access to the shipping papers in the cab or call the dispatcher. The shipping papers and/or dispatcher direct the responder to the Fernald Communication Center (24 hours a day). The Communication Center puts the Fernald duty officer in contact with the responder to provide information on the nature of the hazard and possible response actions.

Truck drivers transporting radioactive materials are required to have Hazardous Materials Endorsements by the state issuing their commercial drivers licenses. This endorsement requires hazardous materials training.

The driver is not obligated to control a spill in the event he/she feels unsafe or unsure. In these situations, the driver is directed to contact fire or police and the Fernald Communication Center.

Action: The first paragraph of the response will be included with text on page 15 of the Proposed Plan.

21. Commenting Organization: U.S. EPA Commentor: Jablonowski
 Section Title: Balancing Criterion No. 4 Implementability
 Page #: 16 Lines #: NA
 Specific Comment #: 17

Comment: This paragraph states that permits and licenses are not required for either the current or approved cleanup plans. The text also states that "these activities will comply with the substantive requirements that would otherwise be required for permitting." The text should be revised to briefly describe the types of permitting and licenses referred to.

Response: In accordance with the NCP (40 CFR 300.400(e)), and Paragraph XII of the 1991 Amended Consent Agreement, portions of response actions conducted entirely onsite are exempted from the procedural requirement to obtain Federal, State, or local permits. U.S. DOE must satisfy all Federal and State standards, requirements, and limitations that would have been included in any such permit. Therefore, neither cleanup plan will be required to obtain permits, such as air emission permits, or waste storage

permits, for the operations activities conducted at the FEMP. As outlined in the ARARs for Silo 3 Remedial Action (Attachment 2 in the Supplement to the Proposed Plan), both cleanup plans will meet the substantive requirements, such as air emission and waste management requirements, which would otherwise be imposed by permits.

Action: The above clarification will be incorporated into the referenced paragraph of the Proposed Plan.

22. Commenting Organization: U.S. EPA
Section Title: Findings and Conclusions
Page #: 18
Specific Comment #: 18

Commentor: Jablonowski

Lines #: NA

Comment: The findings and conclusions section should be revised to include a summary of the current and approved plans relative to Balancing Criterion No. 2, Reduction of Toxicity, Mobility, or Volume through Treatment.

Response: Agreed.

Action: A brief summary of the current and approved plans relative to Balancing Criterion No. 2, Reduction of Toxicity, Mobility, or Volume through Treatment has been added to the referenced section of the Proposed Plan.

OHIO EPA COMMENTS ON
Silo 3 PP
 February, 2003

1. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: General Comment Pg #: Line #: na Code: C
 Original Comment #:

Comment: It's disappointing to note that DOE has not been able to achieve an agreement with NRC regarding the disposal of DOE-designated 11(e)2 material at Envirocare. The EPAs were under the impression that it was critical to DOE to receive this determination during the summer of 2002. Obviously this determination has a large impact on the cost and schedule for Silo 3 disposal. At this point it is unclear when or if DOE expects this determination and how it will affect the remedial design process. Unless DOE completes the agreement with NRC and Envirocare is able to accept the Silo 3 material prior to finalization of this ROD Amendment, DOE should just move forward with a Silo 3 design based upon disposal at NTS. This would mean that all necessary design and procurement should be initiated to implement NTS disposal.

It seems most appropriate at this point to develop the Envirocare disposal option as a contingency of the proposed remedy rather than a part of the proposed remedy. As stated in Ohio EPA's comments on the original draft, we do not think its appropriate to include a disposal option in the remedy that is not currently viable.

Response: As documented in the Proposed Plan, the Nevada Test Site (NTS) has confirmed that untreated Silo 3 material can currently be accepted for disposal at the NTS. For this reason, NTS was assumed as the representative disposal location in comparing the proposed revised remedy with the remedy approved in the 1998 Silo 3 ESD.

In order to minimize the schedule risk associated with transportation and disposal of Silo 3 material, the container and packaging design for the Silo 3 project will accommodate either rail transportation to a commercial disposal facility or transportation to the NTS by direct truck or intermodal transport.

The DOE and the NRC are currently working to facilitate the disposal of Silo 3 material in the 11(e)(2) cell at Envirocare. Formalization of an agreement between the two agencies that the material is appropriate for management in an NRC-licensed 11(e)(2) disposal cell is in process. Once this agreement is finalized, modification of the Placement Plan for the 11(e)(2) cell is necessary to permit disposal of the material in the soft-sided containers.

The current baseline schedule for the Silo 3 Project reflects the initiation of waste shipments in April 2004. In order to initiate shipment of Silo 3 material to Envirocare by this date, regulatory approval for disposal would need to be finalized by late 2003. Since the procurement activity and other final preparations for shipment to and disposal at the NTS can be initiated and completed within this same timeframe, DOE is confident that transportation and disposal of Silo 3 material can be implemented according to the current project schedule.

Action: The details concerning implementation of both transportation and disposal options will be documented in the revised RD Package, due to be submitted to the USEPA 30 days after approval of the ROD Amendment. Milestones for implementation of the selected

option will be specified in the Remedial Action Workplan, due to be submitted to the U.S. EPA by October 6, 2003.

2. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: General Comment Pg #: Line #: na Code: C
 Original Comment #:
 Comment: Based upon the new approach to treatment and the importance of the mock up testing in successful implementation of treatment, Ohio EPA expects the submittal of a mock up test plan and report as deliverables under the ROD.

Response: Consistent with past practice, DOE is committed to maintaining the involvement of the OEPA, during design and implementation of the Silo 3 remedy, including during the planning and implementation of mockup testing and subsequent interpretation of its results .

Action: As has been the practice with previous testing activities, the scope and objectives for mockup testing will be shared with the U.S. EPA and OEPA prior to being finalized. The Testing Plan will be provided to the U.S. EPA and OEPA prior to initiating the testing. In addition, the opportunity will be provided for U.S. EPA and OEPA to observe the testing and to provide input during review of testing results and subsequent development of operating parameters based upon the results.

3. Commenting Organization: Ohio EPA Commentor: OFFO
 Section #: Statutory Preference... Pg #: 17 Line #: na Code: E
 Original Comment #:
 Comment: Insert "If" before "The treatment step cannot be satisfactorily implemented..."

Response: Comment acknowledged.

Action: The text has been revised as recommended.