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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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REPLY TO THE ATTENTION OF: SRF-5J

Mr. Johnny W. Reising
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

RE: Silo 3 ESD Disapproval

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the United States Department of Energy's (DOE) draft *Explanation of Significant Differences for Operable Unit 4 Silo 3 Remedial Action* (ESD), dated September 9th, 1997. The ESD was prepared to document the change in remedy for treatment and disposal of Silo 3 waste, consistent with the July 22, 1997 *Agreement Resolving Dispute Concerning Denial of Request for Extension of Time for Certain Operable Unit 4 Milestones*.

The ESD fails to compare the newly proposed stabilization alternatives with the performance criteria for vitrified material specified in the OU 4 ROD. Even though the Silo 3 material could not be vitrified, DOE needs to demonstrate that the new stabilization alternatives could meet the same standards established in the OU 4 ROD.

Therefore, U.S. EPA disapproves the ESD. U.S. DOE must submit responses to comments and a revised document within thirty (30) days of receipt of this letter. Please contact Jim Saric at (312) 886-0992 or myself at (312) 886-4591 if you have any questions regarding this matter.

Sincerely,

E Jablonowski

Gene Jablonowski
Remedial Project Manager
Federal Facilities Section
SFD Remedial Response Branch #2

Enclosure

cc: Tom Schneider, OEPA-SWDO
Bill Murphie, U.S. DOE-HDQ
John Bradburne, FERMCO
Terry Hagen, FERMCO
Tom Walsh, FERMCO

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U.S. EPA TECHNICAL REVIEW COMMENTS ON "DRAFT EXPLANATION OF SIGNIFICANT DIFFERENCES FOR OPERABLE UNIT 4 SILO 3 REMEDIAL ACTION"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

OCTOBER 1997

GENERAL COMMENTS:

Commenting Organization: U.S. EPA Commentor: Saric
Section #: Not applicable (NA) Page #: NA Line #: NA
Original General Comment #: 1
Comment: The draft explanation of significant differences (ESD) document provides reasonable explanations about why various alternate remedial actions were eliminated from further consideration. However, the ESD should more thoroughly and definitively explain why the remedial action selected in the Record of Decision (ROD) was eliminated (see Original Specific Comment No. 2). The text of the ESD should be revised to address this issue.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2
Comment: The text contains numerous references to the December 26, 1996, "melter incident." Use of the word "incident" does not adequately reflect the final outcome of the vitrification pilot plant (VitPP) project. The word "incident" should be replaced by a word or phrase that more specifically refers to the failed performance of the melter and its overall effect on the outcome of the VitPP project.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.2 Page #: NA Line #: NA
Original General Comment #: 3
Comment: The text provides an overview of chemical stabilization technologies successfully implemented at the site. The text should be revised to provide information, including quantitative information, regarding the implementation of these technologies to treat similar waste streams at other sites.

Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 1.4 Page #: 3 Line #:
Original General Comment #: 4
Comment: A list of documents which form the basis for this ESD must be included. The list of references may serve this purpose but should be reviewed to determine if it includes all appropriate documents. In addition, a sentence should be added to Section 1.4 explaining that the list of administrative record documents supporting this ESD is included as the

list of references.

Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 3.3 Page #: 10 Line #:
Original General Comment #: 5
Comment: The measure for whether a change can be documented via an ESD is whether the new remedy meets the performance standards of the existing remedy and not merely whether the new remedy could have been selected under the NCP. U.S. DOE has adequately addressed this on pages 29 through 31 but, due to the organization of the document, it is not clear. This section needs to be revised to illustrate that the new remedy will at least meet the performance standards for vitrification.

Reference to the NCP screening criteria may be helpful in explaining how U.S. DOE examined various options but those criteria are not the controlling factors. This ESD must specifically set forth the performance criteria for vitrification. The various remedies must then be compared to those performance standards and only those remedies found to be at least equivalent to the existing remedy may be implemented via an ESD. Remedies that cannot meet this standard could only be implemented through a ROD amendment.

This section needs to be restructured to more specifically list the performance standards of vitrification and clearly explain the evaluation process. For example, in Table 11, "Waste will packaged in a manner that minimizes exposure during transportation" should be something like, "waste will be packaged in a manner which ensures that no individual will be exposed to any greater dose than [insert the dose estimated for vitrified materials], which was the estimated dose in the OU 4 ROD." The ESD should be revised to more thoroughly discuss the OU 4 ROD performance standards.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.5 Page #: 28 Line #: NA
Original General Comment #: 6
Comment: The proposed remedy described in the ESD encompasses both on-site and off-site treatment of Silo 3 waste. The ESD does not provide an adequate analysis of the off-site treatment option because discussion of transportation risks is limited to transportation of material that has undergone full treatment. The ESD does not adequately address safety concerns associated with shipping partially treated material. The ESD should be revised to specify required on-site pretreatment and packaging activities associated with shipment of partially treated material.

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SPECIFIC COMMENTS:

Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 3.5 Page #: 2 Line #: 23
Original Specific Comment #: 1
Comment: Insert "and performance standards" after "remedial objectives."

Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 2.2 Page #: 5 Line #: 24
Original Specific Comment #: 2
Comment: U.S. DOE needs to clarify that this ESD concerns only a change in management of the Silo 3 contents and that other elements of the selected remedy related to silo structures, soils, perched groundwater, etc., are not being altered in any way.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.1 Page #: 7 Line #: NA
Original Specific Comment #: 3
Comment: The text discusses the proposed separation of the Silo 3 waste treatment process from the K-65 (Silos 1 and 2) waste treatment process. The text should include more detail regarding the inherent difficulties of vitrifying Silo 3 waste materials and provide an obvious justification for separating the treatment processes. For example, the text should include additional technical information about the difficulties associated with vitrifying a material with high sulfate and lead contents. In addition, the text should emphasize that the theoretical difficulties associated with vitrifying this type of waste were confirmed through the attempted vitrification of surrogate materials similar to Silo 3 waste materials. Finally, the text should clarify that mixing Silo 3 wastes and the K-65 wastes will not make vitrification of the mixture possible.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.3 Page #: 10 Line #: 11
Original Specific Comment #: 4
Comment: The text states that oxidization and calcination are the same process. Actually, calcination refers to roasting or dry heating that may be conducted in an oxidizing or reducing atmosphere. The text should be corrected to refer to "oxidization by calcination" to correctly identify the process that generated the waste.

Commenting Organization: U.S. EPA Commentor: Barwick
Section #: 3.3 Page #: 12 Line #: 2
Original Specific Comment #: 5
Comment: U.S. DOE needs to explain that stabilization / solidification alternatives that would significantly exceed the cost estimated for Silo 3 in the OU 4 ROD could only be selected through a ROD amendment.

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The amount of the OU 4 ROD estimate should be specifically included in this ESD as a limiting factor.

Commenting Organization: U.S. EPA Commentor: Saric
Section #: 3.5 Page #: 28 Line #: 15 through 19
Original Specific Comment #: 6
Comment: The text does not provide an adequate analysis of transportation risks associated with the offsite treatment option. The text should explain that if the off-site treatment option is selected, on-site pretreatment and packaging will be required to reduce the risk of exposure to shipped materials. The text should specifically address the prevention of thorium dust dispersion during transport of Silo 3 wastes.

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