4-468.37 - 1413

L-1271

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 23 1998

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

REPLY TO THE ATTENTION OF: SRF-5J

Subject: Technical Review Comments on "Silos 1 and 2 Accelerated Waste Retrieval Project, Part 6, Statement of Work, and Part 7, Technical Requirements Document"

Dear Mr. Reising:

The United States Environmental Protection Agency (U.S. EPA) has reviewed the above-referenced documents as part of its oversight activities for the Fernald Environmental Management Project (FEMP). The documents, which are dated March 1998, were prepared by Fluor Daniel Fernald for the U.S. Department of Energy. The statement of work (SOW) describes the tasks and activities required for removing and segregating the materials in Silos 1 and 2 and placing them in temporary transfer tanks for subsequent retrieval and transfer to a future on-site treatment facility. The technical requirements document presents the minimum project requirements for implementing the SOW.

U.S. EPA's review focused on assessing the documents' overall technical adequacy; general and specific review comments are enclosed. Please contact me at (312) 886-4591 if you have any questions.

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

Recycled/Recyclable • Printed with Vegetable Oil Based Inks on 50% Recycled Paper (20% Postconsumer)

ENCLOSURE

TECHNICAL REVIEW COMMENTS ON
"SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT,
PART 6, STATEMENT OF WORK, AND
PART 7, TECHNICAL REQUIREMENTS DOCUMENT"

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

(Five Pages)

TECHNICAL REVIEW COMMENTS ON "SILOS 1 AND 2 ACCELERATED WASTE RETRIEVAL PROJECT, PART 6, STATEMENT OF WORK, AND PART 7, TECHNICAL REQUIREMENTS DOCUMENT" FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

PART 6, STATEMENT OF WORK

GENERAL COMMENT

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: Not Applicable (NA) Page #: NA Line #: NA
Original General Comment #: 1.
Comment: The statement of work (SOW) cites the technical requirements document (TRD) excessively, which limits the usability of the SOW. Almost every page of the SOW cites the TRD at least once, and many pages have numerous citations of the TRD. The numerous citations of the TRD make reviewing the SOW cumbersome. Future SOWs should include all relevant text so that the SOWs are complete, stand-alone documents.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 1.2 Page #: 6-6 Line #: NA
Original Specific Comment #: 1.
Comment: The text states that the soil waste retrieval system will transfer residues, BentoGrout™, and heels from Silos 1 and 2 into temporary transfer tanks. The text, however, does not define the term "heels." The text should be revised to identify the heel material.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2 Page #: 6-7 Line #: NA
Original Specific Comment #: 2.
Comment: Paragraph 2 states that "the Contractor must use the pre-conceptual design for the Phase 1, RCS [radon control system] which is being provided by FDF [Fluor Daniel Fernald]." The paragraph further states that "when the Contractor uses any of the FDF design information (including the RCS Phase 1), the Contractor shall validate, certify, and assume all responsibilities for this design and any modifications." It is not clear whether the contractor is required to use the preconceptual design information or the actual design. If the contractor must use FDF's design, the contractor should not be held responsible for it. However, if the contractor is given a choice of using FDF's or someone else's RCS design and the contractor selects FDF's design, then the contractor can be held responsible for it. Requiring the contractor to use FDF's RCS design and making the contractor responsible for it will likely increase the overall project cost in order to account for the contractor's increased liability. This situation can be avoided by allowing the contractor to select

the RCS design. The text should be re-evaluated and revised accordingly.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 3.16.2.1 Page #: 6-11 and 12 Line #: NA
Original Specific Comment #: 3.
Comment: The text states that "water that can not be treated at the Advanced Wastewater Treatment System (AWWT) shall be treated by the Contractor prior to discharge." The text should be revised to identify where the treated water is to be discharged. If the treated water is to be discharged to the AWWT, it should first be analyzed to verify that the discharge will not cause an exceedance of the AWWT's National Pollutant Discharge Elimination System (NPDES) permit requirements. Moreover, the text should discuss the treated water's disposition in the event that the analytical results indicate that its discharge to the AWWT would cause such an exceedance. In addition, the NPDES permit requirements should be included in a table or appendix in the SOW.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 5.1 Page #: 6-23 Line #: NA
Original Specific Comment #: 4.
Comment: The text states that "the Contractor is responsible for any pre-treatment of waste water prior to transfer to the AWWT." The text then cites Section 2.3.2.2 of the TRD as containing "wastewater system" requirements. As discussed in Original Specific Comment 3 above, the text should describe the wastewater's disposition in the event that analytical results indicate that its discharge to the AWWT would cause an exceedance of NPDES permit requirements.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Exhibit #: 6.2 Page #: 6-36 through 52 Line #: NA
Original Specific Comment #: 5.
Comment: Submittal due date codes K, T, and U are missing from Exhibit 6.2. Code K is associated with the (1) exit checklist, (2) fuel storage tank, (3) portable structure sketch, and (4) portable structure anchoring system. Code T is associated with the submittal register. Code U is associated with (1) samples, (2) material certifications, and (3) laboratory test reports. Exhibit 6.2 should be revised to include the submittal due dates for codes K, T, and U.

PART 7, TECHNICAL REQUIREMENTS DOCUMENT

GENERAL COMMENTS

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: NA Page #: NA Line #: NA
Original General Comment #: 1
Comment: The text states that any wastewater created as a result of the accelerated waste retrieval (AWR) process will be staged for treatment at the AWWT. However, it is not clear whether waste materials associated with Silos 1 and 2 would be amenable for

4

treatment at the AWWT. Section 5.1 of the SOW for the AWR project states that the AWWT was designed to remove only uranium from wastewater. According to Appendix A of the TRD, the silos contain actinium, polonium, thorium, and radium at high activities. Although the contractor will be required to perform any necessary pretreatment of the wastewater before its discharge to the AWWT, it is not clear whether this pretreatment would be sufficient to allow the wastewater to be treated at the AWWT. Additional information regarding the feasibility of treating AWR wastewater containing Silo 1 and 2 constituents should be presented to clarify this matter.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: NA Page #: NA Line #: NA
Original General Comment #: 2
Comment: The text discusses gross decontamination of the silos, decant sump tank, and process equipment after all materials have been removed. However, the end result of the decontamination effort is ambiguous. The acceptable level of total contamination (both fixed and removable) remaining after decontamination and the disposition of decontaminated equipment should be clearly stated in the TRD.

SPECIFIC COMMENTS

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.1.4 Page #: 8 Line #: NA
Original Specific Comment #: 1
Comment: Function 1.4 deals with collection of residue samples. The text states that one of the objectives will be to prevent radon releases. However, it is not clear whether this objective applies to the sampling process, the samples, or some other item. The text should be revised to clearly state what this objective is associated with.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 2.2.7 Page #: 12 to 14 Line #: NA
Original Specific Comment #: 2
Comment: The contractor is required to provide a full-sized mock-up facility using Silo 4 in order to demonstrate the AWR process. However, some important elements of the demonstration have been omitted from the text. In particular, this section should be revised to discuss sample acquisition, facility and equipment decontamination, a method to demonstrate decant sump system removal, and placement of shielding to protect workers.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Table #: 2-2 Page #: 18 Line #: NA
Original Specific Comment #: 3
Comment: The text specifies a requirement to provide shielding on top of the silo domes in order to reduce radiation to 1 millirem per hour or less. It is not clear where this requirement originated. The text should be revised to cite a reference for this requirement. Furthermore, based on the structural integrity of the silo domes

and the dose rates of the silo residue materials, it is questionable whether this requirement could be met. The text should be re-evaluated and revised accordingly. In addition, Table 2-8 on Page 29 specifies a requirement that the top of the mock-up facility (Silo 4) have no more than 700 pounds of loading on top of the silo. Given this requirement, placing shielding above the silo domes may not be practical. This weight requirement should be reconsidered.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Table #: 2-2 Page #: 19 Line #: NA
Original Specific Comment #: 4
Comment: The text specifies that 1 unit of residue will be collected for sampling purposes for every 1,000 units of residue transferred. Based on the estimated total waste volume in Silos 1 and 2, about 60 30-gallon drums of sample media would be collected. Although proper characterization of the silo materials is important for treatment and disposal purposes, this volume of sampling media appears to be excessive and should be reconsidered.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Table #: 2-10 Page #: 35 Line #: NA
Original Specific Comment #: 5
Comment: The text requires that activities in wastewater discharged from the AWWT not exceed the derived concentration guides (DCG) established in U.S. Department of Energy Order 5400.5. These DCGs are based on radioactivity levels in water that would represent 100 millirems of exposure per year to a human receptor using standard assumptions, and these levels are specified for individual radionuclides. However, these levels may not be protective of human health and the environment. To address this concern, further discussion should be presented regarding discharge of AWWT effluent containing multiple radionuclides.

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: 5.9 Page #: 120 Line #: NA
Original Specific Comment #: 6
Comment: The text discusses berm excavation and possible disposal of the excavated material in the On-Site Disposal Facility (OSDF). Although a limit of 1,030 parts per million (ppm) uranium is included among the OSDF waste acceptance criteria (WAC), other isotopes have been identified in the silos that may not have been fully evaluated for on-site disposal. In particular, thorium-230, protactinium-231, and actinium-227 are present at high concentrations in the silos and may also be present in the berm material. Furthermore, the level of 1,030 ppm is based on uranium that exhibits a natural isotopic distribution. According to Table 2-18, some of the silo materials may exhibit enriched uranium distributions; therefore, higher activities on a weight (ppm) basis may be present. The text should be revised to present information regarding OSDF WAC levels for additional radionuclides and to discuss variable uranium isotopic ratios.

6

Commenting Organization: U.S. EPA Commentor: Jablonowski
Section #: A.4 Page #: NA Line #: NA
Original Specific Comment #: 7
Comment: The text in Section A.4 does not appear to be entirely consistent with the tables in Section A.4.1. For Silo 1, the text suggests that water content increases with increasing depth in the silo. However, the data for the vertical sections taken from this silo suggest that the middle section (zone B) is driest, followed by the top (zone A) and then the bottom (zone C). Similarly, for Silo 2, the text states that zone B is much wetter than zone A. However, the data for vertical sections from Silo 2 suggest that zone A is much wetter than zone B; no data are provided for zone C. These discrepancies should be resolved.