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DEC 17 1997

Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352-0539



Dear Mr. Sherwood:

105-C REACTOR FUEL STORAGE BASIN (FSB)

The purpose of this correspondence is to submit the U.S. Department of Energy (DOE), Richland Operations Office (RL), recommendation for disposition of the 105-C Reactor FSB per Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) milestone M-93-01. Please review the attached information and provide comments and/or approval no later than January 31, 1998. Comments are required by this date in order to implement disposition of the FSB to meet project and Tri-Party Agreement commitments.

It is RL's desire to keep communication between the two organizations open and resolve issues in a timely manner. If you have any comments or require clarification or detailed backup information, please contact me at 376-7121.

Sincerely,

Jeffrey M. Bruggeman, Project Manager
Decontamination and Decommissioning Project

DDP:JMB

Attachment

Background

The 105-C Fuel Storage Basin (FSB) is an 88' X 80' X 20'9" deep basin with adjoining pits/pools which were used for viewing, fuel transfer, or fuel examination. During periods of operation, the FSB was filled with water for shielding purposes. The adjoining pits/pools were connected to the FSB; therefore, the water was common to all portions. There is no water in the FSB at this time.

Currently the 105-C Reactor Building is undergoing decontamination and decommissioning in order to place the reactor block in a safe storage condition as authorized under a National Environmental Policy Act Record of Decision (DOE/EIS-0119 and 40 FR 20489, 54 FR 18325, 58 FR 48509). Preparation of the reactor block for safe storage includes:

- Removal of equipment and material from the 105-C Reactor Building.
- Decontamination of equipment and structures.
- Dismantlement of equipment and structures outside the existing reactor block shield walls.
- Construction of a safe storage enclosure utilizing the existing reactor block shield walls and installation of a new roof.
- Installation of remote monitoring systems.
- Establishment of a new surveillance and monitoring program.

The safe storage condition allows the reactor block to be maintained in a manner with negligible potential for release of hazardous substances while reducing 105-C Surveillance & Maintenance activities and associated costs. The scope of the 105-C safe storage project includes disposition of the 105-C FSB. Alternatives for disposition of the FSB are evaluated below.

Evaluation

The assumptions listed below were utilized to perform an evaluation of FSB disposition:

- Based on existing soil sample analysis and process knowledge of FSB construction and operating history, soils beneath the FSB are assumed to be below the cleanup criteria for deep zone contaminants in accordance with the Remedial Design Report/Remedial Action Work Plan for the 100 Area (DOE/RL-96-17)
- A residential land use scenario is assumed, although no land use documentation has been published and approved designating future use of the 100 Areas of the Hanford Site. If Land use assumptions change, disposition of the FSB will be re-evaluated accordingly.

In accordance with the assumptions provided above, full removal of the FSB was assessed first in order to provide the most comprehensive analysis. This alternative was determined inappropriate after evaluation of existing contamination (based on DOE/RL-97-20, 105-C Building Characterization Survey Data Report) via both a residential post drilling scenario and a residential occupant scenario using the RESRAD BUILD and RESRAD (soil) computer model codes. Based on existing soil and concrete analysis, the models show no contamination to groundwater above criteria in DOE/RL-96-17 and no exposure above 15 mrem/yr above background to a residential occupant at 15 feet. "Full" removal of the FSB provides no risk reduction to human health or the environment. However, based on the evaluation for full removal, it was determined that the 0-15 foot layer of the FSB provided the only significant risk. The level of contamination present in the walls of the FSB from grade to 15 feet below grade create a dose greater than 15 mrem/yr above background to a future residential occupant. Therefore, the walls of the FSB must be either removed or decontaminated.

Recommendation

Upon careful review of existing data for the 105-C FSB, risks to human health and the environment, and cost considerations, the following approach is recommended for disposition of the FSB.

The soils beneath the 105-C FSB will be sampled to verify whether or not the cleanup criteria, for deep zone contaminants, identified in DOE/RL 96-17 are met. Soil sampling will be performed in accordance with the 105-C Sampling and Analysis Plan for Release of Below Grade Structures and Underlying Soils (DOE/RL-97-37).

If cleanup criteria for underlying soils are met, the walls of the FSB from grade down to 15 feet below grade will be removed and disposed to the Environmental Restoration Disposal Facility (ERDF). The remaining portions of the FSB will be backfilled to natural grade and left in place as a final disposition.

If cleanup criteria for deep zone contaminants are not met, the entire FSB will be removed and disposed to ERDF. FSB removal and disposal will be performed as part of the field implementation of the future 100 Areas Remaining Sites Record of Decision.