Department of Energy
Savannah River Operations Office
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Aiken, South Carolina 29802

JUL 3 1 2013

Ms. Shelly Wilson
Federal Facility Liaison
Environmental Quality Control Administration
South Carolina Department of Health and Environmental Control
Seventy Seven Business Center
101 Business Park Blvd, 2nd Floor
Columbia, SC 29203

Dear Ms. Wilson:

SUBJECT: Z-Area Sedimentation Basin No. 4 and Vault 4 Stabilization

This letter provides the additional information that you requested during our technical discussions with you on July 10, 2013. The slide presentation provided on July 10 is enclosed for your information (Enclosure 1). This letter summarizes the actions that the Department of Energy (DOE) is taking under its regulatory authority relating to management of radionuclides at the Savannah River Site (SRS). Where appropriate, the actions in this letter will be referenced for information purposes in a future revision of the Saltstone Disposal Facility (SDF) Contingency Plan (i.e., ESH-WPG-2007-00031) required by General Condition B.11 of the SDF Solid Waste Landfill Permit. As with all of our operations, DOE continually seeks to improve and enhance the safe operations of the SDF and may accordingly refine and improve upon these plans in the future.

The following is the information that you requested during our July 10 technical discussions.

1. *Provide in writing that there are no further plans in System Plan Revision 18 to use Vault 4 and that if plans change, DOE will notify SCDHEC.*

   As explained during our briefing, DOE currently has no plans for future disposal of saltstone in Vault 4, in accordance with the Liquid Waste System Plan Revision 18. If these plans change, DOE will notify SCDHEC.

2. *Are there any other mechanisms that caused the large crack in the Vault 4 roof?*

   The cracks in the Vault 4 roof that were identified in February 2013 have been evaluated by structural engineers. The cracks occurred at saw cut joints which are used to control shrinkage in the top of the roof slab and are believed to be caused by normal temperature variations between the exterior and interior of the cell roof slab. No other mechanisms were identified. The evaluation concluded that this presents no concern relative to the structural integrity of Vault 4. As discussed in the briefing, the cracks were repaired shortly after they were identified in February 2013. Additionally, the facility has increased monitoring of the Vault 4 roof for degradation and, when issues are identified, repairs will be aggressively implemented to preclude the potential for significant in-leakage.

3. *Provide in writing, DOE's plan on the path forward for the stabilization of Vault 4 along with a timeline for implementation.*

As discussed during our briefing, rainwater in-leakage to the Vault 4 north six cells has been mitigated either by installation of coatings and sealants or by membrane covering. DOE plans to implement modifications to improve Vault 4 conditions by reducing the potential for rainwater in-leakage into the Vault 4 south six cells. The key attributes of the planned modifications are as follows:

a. Develop a low water grout recipe for use in pouring clean cap grout into the Vault 4 south six cells to reduce worker dose rates on the roof and allow for workers to safely apply roof coatings.
b. Apply coatings to the roof of the Vault 4 south six cells
c. Decontaminate and remove weather enclosures on the exterior of Vault 4.

Regarding the timeline for implementation, the modifications are planned from Fiscal Year (FY) 14 through FY15 to complete the clean capping and coatings, followed by disposition of the weather enclosures, which will complete in FY17. This effort has been estimated at a cost of $2M per year and schedules are subject to change based on changes to the anticipated SRS funding profile.

4. *What trends in radiological constituents in pCi/L have been measured in the basin?*

Enclosure 2 depicts trends of radioisotopes detected in the basin. The results are below the annual average Derived Concentration Standard (DCS) in accordance with DOE Order 458.1.

Following the initial basin discharge in February, radiological and non-radiological effluent monitoring equipment was installed at the basin discharge to monitor migration of radioactive and non-radioactive contamination. The monitoring program is in accordance with the requirements of DOE Order 458.1 (for radiological contaminants) and with requirements for storm water under NPDES Permit SCR000000 (for non-radiological contaminants) and are reported in the SRS Annual Environmental Report.

As discussed in the briefing, we are actively pursuing a Systems Engineering Evaluation (SEE) to determine the most practical plan of action to address the Z-Area Sedimentation Basin No. 4 as well as Industrial Storm Water Outfall Z-01, including the transport pathway to McQueen's Branch. This evaluation is expected to be completed in mid-August. DOE will communicate the results from this evaluation to SCDHEC. Using a graded approach, some near-term actions that are being considered include installation of silt fencing and/or hay bales to mitigate further Z-Area Sedimentation Basin No. 4 discharge, as well as gamma over flight screening to better understand extent of contamination.

5. *Are there any groundwater wells down gradient of the basin that would show any migration?*

There are no groundwater wells down gradient of the basin.

6. *Provide confirmation by the end of July of sample results at McQueen's Branch.*

Enclosure 3 depicts trends of radioisotopes detected at McQueen's Branch. These results are below the annual average DCS in accordance with DOE 458.1. Following the initial basin discharge in February, radiological effluent monitoring equipment was installed at McQueen's Branch. The monitoring program is in accordance with the requirements of DOE Order 458.1 (for radiological contaminants).

If you have any questions, please contact me at 803-208-6072.

Sincerely,

Terrel J. Spears
Assistant Manager
Waste Disposition Project

WDPD-13-76

Enclosures:
(1) Briefing Package, SRR-WTF-2013-00012
(2) Z Basin Sample Results
(3) McQueen's Branch Sample Results

cc: w/enclosures
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