



Department of Energy

Washington, DC 20585

August 23, 2023

The Honorable Joyce L. Connery
Chair
Defense Nuclear Facilities Safety Board
625 Indiana Avenue NW, Suite #700
Washington, DC 20004

Dear Chair Connery:

This letter transmits the Office of Environmental Management's annual report to the Defense Nuclear Facilities Safety Board regarding safety at Savannah River Site Building 235-F.

In its November 21, 2021, letter to Secretary Granholm, the Board requested an annual briefing and report on the following five topic areas:

1. Progress made to deactivate and decommission Building 235-F.
2. Results of radiological surveys and inspections to verify that contamination is not spreading.
3. Status and schedule for establishing a final end state determination with regulatory authorities.
4. Results of structural integrity inspections, and any corrective actions identified and implemented from these inspections.
5. Any changes to the status of the E-5 ventilation system and sand filter, including any maintenance activities performed.

The Department assembled the enclosed report to address these five topics and fulfill this annual reporting requirement. Further, in accordance with your request, a briefing to the Board to discuss this report was completed on July 13, 2023.

We appreciate the Board's perspectives and look forward to continuing positive interactions with you and your staff. If you have any questions, please contact me or Mr. Michael D. Budney, Manager, Savannah River Operations Office, at (803) 952-7243.

Sincerely,

A handwritten signature in blue ink, appearing to read "William I. White".

William I. White
Senior Advisor for Environmental Management

Enclosure

Safety at Savannah River Site Building 235-F

Deactivation of Building 235-F began in July of 2019 and was completed February 2023. Deactivation activities prepared the facility for Long-Term Safe Storage, which is an end state relatively free of non-radiological hazards, with acceptable radiological risks, and minimal continuing surveillance and maintenance.

Deactivation involved the shutdown of all active structures, systems, and components in Building 235-F along with electrical/mechanical isolation of the building. The deactivation prepared the facility for decommissioning. This shutdown/isolation greatly reduces the cost for surveillance and maintenance of Building 235-F during Safe Storage until decommissioning is completed. Decommissioning of 235-F is a top priority for the Office of Environmental Management.

The Department of Energy (DOE), along with Savannah River Nuclear Solutions (SRNS), has been working to improve the posture of Building 235-F and is providing this report in response to the Defense Nuclear Facilities Safety Board's November 02, 2021, letter requesting an annual report regarding safety at Savannah River Site Building (SRS) 235-F.

1. Progress made to Deactivate and Decommission Building 235-F.

Since deactivation began in 2019, the 235-F project team has focused on removing hazardous material from the building, fixing contamination outside of the process enclosures, draining shield water, and implementing the ventilation transition sequence (VTS) which will deactivate all fans except the E-5 fans. The E-5 fans are maintaining vacuum on the areas where material and contamination are present.

Building 235-F deactivation included:

- Air Gapping utilities from the building (completed);
- Maintaining ventilation through the E-5 fans to draw a vacuum on the Material-at-Risk (ongoing); and
- Removed the office trailer adjacent to building 235-F (completed).

The current safety basis documents support deactivation activities and entry into transition surveillance and maintenance of Building 235-F. A Safety Basis revision to support decommissioning will be issued pending completion of the decommissioning design. Decommissioning planning activities are moving forward, with completion still several years out.

2. Results of Radiological surveys and inspections verifying that contamination is not spreading.

Radiological protection personnel perform routine surveys of Building 235-F prior to each entry. Radiological surveys have found no spread of contamination.

Safety at Savannah River Site Building 235-F

Entry was made into the facility to perform enclosure integrity inspections in March of 2023, and again in May of 2023, to perform level III lock inspections and corrective maintenance on access lock exterior door seal of a glovebox. Radiological surveys found no spread of contamination during either entry.

3. Status and schedule for establishing a final end-state determination with regulatory authorities.

The Regulatory Process for End-State Determination is complete and includes approval from both the U.S. Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC).

The Comprehensive Environmental Response, Compensation, and Liability Act non-time critical removal action process determined the appropriate end-state for 235-F decommissioning, which includes in-situ grouting of 1st and 2nd floor process areas and installation of an engineered roof. The series of activities conducted over a 2-year period included:

- Regulatory approval of the Engineering Evaluation/Cost Analysis (EE/CA) document (completed);
- Public comment period on EE/CA and selected alternatives (completed); and
- DOE issuance of Action Memorandum to EPA and SCDHEC and notice to the public through an Environmental Bulletin (completed).

Decommissioning activities include planning and design, update to the Safety Basis documents to address decommissioning, and identification of technical resources to develop a ventilation strategy, grouting strategy, and demolition and removal of ancillary equipment adjacent to 235- F.

Demolition and removal of 235-F ancillary equipment began in Fiscal Year (FY) 2023, and decommissioning is currently scheduled to begin in FY2026.

4. Results of structural integrity inspections, and any corrective actions identified and implemented from these inspections.

Structural Integrity Inspections

There are no changes to report since last year's report. Structural integrity inspections are performed every five years by the Structural Mechanics and F-Area Engineering Department. The last inspection conducted in February 2022 found no conditions requiring repairs. The inspection results are documented in the 235-F Facility 2021 Structural Integrity Program Report (T-ESR-F-00036).

Safety at Savannah River Site Building 235-F

Enclosure Integrity Inspections

The 235-F Enclosure Integrity Program (EIP) is described in the Basis for Interim Operation, AC 5.7.2.15. The EIP Program consists of radiological surveys, visual inspections, and smoke leak testing of the enclosures to verify the integrity of the structure and the pressure boundary.

The EIP consists of two major components:

Radiological Control Program: The Radiation Protection Department (RPD) shall perform periodic radiological surveys around sealing surfaces to monitor for contamination migration from the confinement boundary, which may indicate integrity issues.

Enclosure Integrity Inspection: All required 235-F enclosures will be visually inspected by personnel deemed cognizant by the Facility Manager utilizing approved facility procedures. Inspections are performed with the assistance of the RPD, and frequency is specified by the Design Authority. If a suspect area is detected, a smoke test may be performed to help identify the location and scope of the issue. A baseline photographic record of the 235-F enclosures exists in the IPix database. This and/or additional photographs may be used to compare existing conditions to previous conditions and document leak points and/or repairs.

An EIP entry into the facility was performed in March 2023. During a smoke test of the Plutonium Fuel Form Facility Wing Cabinet, smoke was pulled into the cabinet at the access lock exterior door seal. This condition was corrected in a May 2023 facility entry using the existing door hardware and applying tape and FireDam™ fixative. A satisfactory smoke check of the door seal was performed, and radiological surveys found no spread of contamination.

The 2023 inspection is documented in SRNS-E1700-2023-00001, 235-F Enclosure Integrity Report.

5. Any changes to the status of the E-5 ventilation system and sand filter, including any maintenance activities performed.

There were no changes to the E-5 ventilation system and sand filter status. The E-5 fans have continued to operate with no issues during the past year. One fan is in standby when the other fan is in operation. The fan run times are equalized by rotating the operation. Ventilation readings are taken daily, and periodic preventive maintenance is conducted, which includes vibration readings, belt changes, and lubrication. No corrective maintenance was required in the past year.

Safety at Savannah River Site Building 235-F

The 292-2F fan house and 294-2F sand filter are inspected every five years for structural integrity. The last inspection was performed in July of 2022, and is documented in the 2022 Structural Integrity Program Inspection Report for 294-2F (T-ESR-F-00040). The filter media was found to perform its design function.

The E-5 fans are now drawing a vacuum on the process areas of building 235-F. The completion of the VTS removed all other fans in building 235-F from service. The facility is currently in a steady state.

The sand filter efficiency is checked every 18 months. The last test was performed on October 17, 2022, and the filter media passed with a 99.99 percent efficiency rating. The Fans and the Sand Filter remain in good working order and will remain functional while Building 235-F is in long term safe storage and decommissioning.

Conclusion

DOE completed deactivation of the 235-F facility in February 2023. Radiological survey results verify that contamination is not spreading, and structural integrity and ventilation system/sand filter inspections conclude that systems are performing as required.

The SCDHEC and the EPA has approved the decommissioning end state of the 235-F facility. DOE held a public comment period on the preferred end state alternative and received no comments.

Responsibility for the facility has been transferred to Environmental Compliance and Area Completion Projects (EC&ACP) for continued surveillance and maintenance, and decommissioning activities.

F-Area personnel will continue to support EC&ACP, as requested, during the surveillance and maintenance, as the plans and designs for the decommissioning are implemented.

The facility is radiologically safe, and no spread of contamination has been detected.