

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 26, 2016

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman, D. L. Burnfield, and Z. C. McCabe Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending February 26, 2016

Members of the Technical Staff conducted a fire protection review for the Salt Waste Processing Facility. They also reviewed the process of turning over systems from construction to testing.

K Area: The 9975 shipping package is a credited design feature for storing and handling plutonium bearing materials. SRNS is currently evaluating targeted 9975's to support extending the storage life beyond the current limit of 15 years (see 1/3/14 report). The surveillance of one of the targeted containers detected visible moisture and mold on the underside of the 9975 lid. Furthermore, the gap between the upper assembly and the upper drum flange exceeded the limit in the Safety Analysis Report for Packaging. Based on field observations and laboratory tests, higher decay heat may cause moisture to migrate to the edges and bottom of the container, causing the fiberboard to slump and cause this gap. Future inspections of 9975 shipping packages will try to determine if there is a certain decay heat wattage that causes this problem and identify if there is a subset of the 9975 population that will require additional actions for continued storage.

L-Basin: Last week the site representative observed the receipt of the first shipment of a cask of National Research Experimental (NRX) spent fuel into the disassembly basin. This week the site representative observed SRNS process and bundle the NRX spent fuel for storage. The current basket unloading procedure used to bundle the fuel requires the use of a specific tool to handle the fuel elements. SRNS was previously notified that some of the NRX fuel may be longer than previously specified and thus not conform to the dimensions on which the criticality safety analysis was based and this tool was designed. While processing the fuel, SRNS identified a non-conforming fuel element, and subsequently stopped fuel handling. SRNS entered the appropriate limiting condition for operations (LCO) and then initiated a nonconformance report (NCR). Because the updated criticality safety analysis showed that the nonconforming fuel was still bound by the previous analysis, SRNS was able to prepare a conditional release for the NCR allowing them to handle this type of nonconforming fuel and the LCO was exited. However, site personnel are still developing a tool to safely handle the nonconforming fuel and revising the fuel handling procedure to allow for the use of the new tool. Since exiting the LCO, SRNS discovered two additional nonconforming fuel assemblies in this basket. The nonconforming assemblies have been placed and will remain in a safe condition until the new tool is developed and the procedure is revised.

Tank Farms: Last week tank farms personnel reported a leak in 3-H Evaporator (see 2/19/16 report). SRR has since confirmed that the leak is from the evaporator pot and is occurring approximately 92 inches from the bottom. SRR has formed teams evaluating if repair or replacement of the pot is necessary or whether the pot can be used as is under restricted operational constraints. SRR has also assigned teams to determine the best way to clean the contaminated cell, determine the failure mechanisms, manage the water influx into the tanks, and explore ways to optimize the system plan to minimize the effect on liquid waste operations. So far, the team exploring the optimization of the system plan has worked its way through various options and has determined that by minimizing the washing of sludge and using supernate from tanks 8 and 22 to dilute waste from H-Canyon, they can continue to continue liquid waste operations for approximately 36 months before the plant is bound by space limitations.