

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 28, 2011

TO: T. J. Dwyer, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending January 28, 2011

HB-Line: Last week, DOE verbally directed SRNS to stop receiving plutonium from K-Area. SRNS is to finish processing its existing inventory of plutonium and then cease further dissolution activities. Furthermore, SRNS is preparing modifications to the Documented Safety Analysis to address the preparation of plutonium items for direct shipment to the Waste Isolation Pilot Plant.

F-Canyon: During the last week, workers found four plastic suits with one or more small holes. The exact cause is still under investigation. After a worker found holes in one suit shortly after entering a contamination area, workers inspected other suits and found holes in another set still in the box. In the last two cases, workers had repeatedly inspected the suits prior to use and during use, but they did not see the holes until they were undressing. In all cases, no contamination was detected inside the suit. Workers will use heated air to minimize the potential for cracking due to cold temperatures.

Heavy Water Components Test Reactor (HWCTR): The site rep reviewed the status of reactor deactivation and decommissioning. At HWCTR two events occurred within the last week. SRNS asked the crane contractor (responsible for making the lift of the reactor dome) to replace their technical representative when he was found to be responsible for several technical errors. These errors had they been allowed to continue could have resulted in components being installed incorrectly during the lift. The new crane technical representative has reportedly corrected these errors. Secondly SRNS construction inadvertently installed chocks that would have precluded both lateral movement and dropping of the dome during the cutting and lifting operation. While the chocks will still preclude lateral movement a drop is no longer precluded. SRNS is in the process of designing and installing wedges that will reduce the likelihood of the dome dropping.

3013 Surveillance and Monitoring Program Review: Field surveillances in Fiscal Year 2011 will consist solely of cans in the Pressure and Corrosion bin since sampling of the Pressure Only and Innocuous bins is complete. Based on tests and past sample results, the Engineering Judgment containers chosen will focus on cans with a high water to chloride ratio. While salts are corrosive, the team believes that corrosion is more likely when water migrates to the relatively cooler can walls and then forms a liquid phase whereas moisture in high salt mixtures will form hydrates. Shelf life studies have found that: 1) plutonium oxides with a high salt content can generate significant hydrogen, 2) these hydrogen concentrations can continue to increase for years (some samples are at 5 atm H₂), 3) high purity oxides or those with non-salt impurities generate little to no H₂, and 4) oxygen concentrations are not reaching a plateau, but appear to be going to zero after several years. A Hanford can containing ~0.5w/o moisture was opened at Los Alamos. The inner can had a pressure of 43 psia and its headspace contained 74% H₂ and ~0.1% O₂.

Salt Waste Processing Facility: The site rep accompanied other Board staff members on a walk-down of the facility. Parsons continues to develop ways to continue construction while waiting for delivery of the large steel vessels. Parsons is now confident the new contractor, Precision Custom Components, can deliver these vessels on the revised schedule and limit the potential for further potential construction delays associated with their delivery.