

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 14, 2008

TO: T. J. Dwyer, Technical Director
FROM: M. P. Duncan and M. T. Sautman, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending November 14, 2008

Board members Bader, Brown, Mansfield, and Winokur were at SRS this week along with staff members Dwyer, Ogg, and Sharpless. The Board and its staff walked down several defense nuclear facilities and met with SRS personnel to discuss site activities and issues. Areas of Board interest included resolution of due diligence findings, facility aging, the Plutonium Preparation Project, high-level waste system planning and risk management, F-Canyon deactivation, conduct of operations, Interim Salt Disposition Project performance, DOE oversight, leading indicators, and the Waste Solidification Building.

H-Canyon: During field preparations, the wrong valve was opened which allowed ~6100 pounds of acidified process water to overflow one tank and fill up its drain tank. This inadvertent transfer occurred despite the use of the valve numbers and descriptions, the phonetic alphabet, and repeat backs. A qualified operator acted as the reader and a trainee manipulated the valves inside a nearby contamination areas. The reader incorrectly told the trainee to open a valve at the top of a tank (7E-6) rather than the correct valve at the bottom of the tank (7F-6). After the trainee found the valve, he confirmed the valve number and the reader told him the wrong number again. When the trainee opened the valve and heard solution flowing, he shut the valve and asked the reader to repeat the valve number a third time. The reader once again told him the incorrect valve number and the trainee reopened the valve. The valve was left open since he did not hear solution flowing this time (probably since the tank was already full). Although the qualified reader stated the descriptive name for the valve and was watching the valve manipulation, he did not question why the valve on the top of the tank was being opened rather than one at the bottom. After the control room staff investigated the cause of an alarm, they realized the tank was overflowing and the shift manager went to the field and closed the valve. In response to this event, H-Canyon management is revising their protocol for overseeing trainees and revising their procedure format for valve lineups to reduce the potential for errors.

SRNS submitted revised Safety Basis Strategies for H-Canyon and HB-Line. The Strategy states that Safety Integrity Level calculations will be completed for any controls that involve the design and installation of new safety significant (SS) instrumented systems. Existing SS instrumented controls will be assessed for reliability. Any controls that involve modifications that cannot be funded and implemented within 90 days of DOE approval will be included in a discussion in the Documented Safety Analysis (DSA). The approval of the DSA will not be contingent on the planned upgrades, but there will be an annual evaluation of the need and priority of these upgrades. Furthermore, SRNS is submitting a Criticality Safety Program Description that includes a proposed methodology for functional classification of criticality safety controls and the inclusion of selected criticality safety controls in a facility DSA and the Technical Safety Requirements. The initial frequency and consequences of a criticality scenario plus the determination of whether the event remains credible after applying the controls would be used to determine which passive and active controls are safety significant, which administrative controls are Specific Administrative Controls, and whether a Nuclear Incident Monitor is required. While this sort of methodology would ideally be developed and approved as a DOE-wide standard, SRNS is pursuing local approval of their proposal because they need an answer very soon to avoid delaying the H-Canyon DSA upgrade. The staff is reviewing the above documents.

HB-Line: SRNS completed processing a significant quantity of neptunium through the HB-Line Phase II process during a campaign that began in August 2004, producing purified neptunium oxide. Operators began flushing the lines and process vessels. No future mission has been identified.