

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 24, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: J. S. Contardi/M.T. Sautman, SRS Site Representatives
SUBJECT: SRS Report for Week Ending February 24, 2006

DNFSB Activity: This week, the Board's Technical Director, Kent Fortenberry, was onsite for a working group meeting regarding salt processing activities. Representatives from the Department of Energy, the State of South Carolina, Parsons, and Washington Savannah River Company were also in attendance. Mr. Fortenberry also toured the Tritium Extraction Facility and nuclear material storage operations in K-Area.

Criticality Safety: While revising the Safety Basis for HB-Line, the contractor identified a deficiency with the current Double Contingency Analysis (DCA). One of the controls currently in place was determined not to prevent a criticality if the failure of a single control occurred. The DCA assumed the potential nuclear material configurations would remain under-moderated, but the controls did not adequately limit the introduction of moderating materials. A complete procedural review did identify controls to prevent exceeding moderation assumptions, but they were not credited in the DCA. Following the discovery of the flawed control, facility personnel also identified a new criticality scenario which had not been previously analyzed. The DCA shortcomings only affect Phase I operations which have been placed in a safe configuration until the criticality issues are resolved. The DCA revision is a result of a new operation in Phase III. Unlike previous revisions where a new mission is solely analyzed in the form of an appendix, the contractor chose to revise the entire DCA to more accurately reflect ongoing operations. The benefits of this approach are clearly evident from the contractor's findings and this approach is encouraged elsewhere at the site.

While troubleshooting some neutron monitors in H-Canyon first cycle, it was identified that the neutron monitor setpoints for 2 of 3 banks of neutron monitors were inconsistent with a 2003 engineering calculation. The setpoints for one of these banks were non-conservative relative to the calculation. A paperwork review implies that the facility intentionally modified the setpoints for only one of the banks, but the rationale cannot be determined from the documentation.

Nuclear Material Repackaging: This week the site rep observed nuclear material repackaging activities in the F-Area Material Storage Facility (FAMS). The nuclear materials had been stored onsite for decades and posed a significant risk to workers since the integrity of inner packages was unknown and the specific activity of the materials is extremely high. The contractor employed local confinement barriers (e.g., a radiological hut with filtered ventilation) and applied conservative personnel protective equipment (PPE). For the most part, the observed evolution was completed in a methodical and safe manner although several minor deficiencies were noted relating to procedural compliance, PPE doffing, and ventilation. For example, air movement in the process area was out of the room rather than into it. These were communicated to facility personnel and have since been resolved. During the repackaging activity, no contamination was identified and the inner packages were found to be in excellent condition.