

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 29, 2014

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending August 29, 2014

HB-Line: The unexpected sample results in the concentrate tank resulted from: 1) a tank heel of concentrated acid leftover from cold runs, 2) the less dense heart cut solution forming a layer on top of this, 3) a small diameter orifice in the recirculation line reducing the mixing effectiveness, and 4) taking samples from the bottom of the tank. Once SRNS temporarily installed a larger diameter orifice, they were able to get better mixing and a representative sample. This week, SRNS precipitated and filtered plutonium solids, calcined the solids, and then sampled the oxide. After operators had mixed the plutonium concentrate solution with oxalic acid in the precipitator, they received a precipitator tank level high alarm followed seconds later by a precipitator tank level error alarm and the precipitator agitator interlock tripping. After the alarms cleared, operators restarted the agitator, and the same thing happened again. Based on other volume readings up and (later) downstream of the precipitator, it appears that the precipitator's capacitance level instrument was indicating a level more than 20% greater than the actual volume. Furthermore, when the instrument went out-of-range on the high side, it triggered the error and shut down the agitator (normally only desired if the solution is below the agitator's blades). This was highly undesirable because the agitator is essential in keeping the plutonium solids suspended until the slurry is transferred to the filtration station. Realizing this, facility management in the control room verbally directed operations to 1) restart the agitator and 2) transfer the slurry to the filtration station. This was accomplished. The site rep expressed concern to DOE and SRNS about the reliability of the capacitance level indicator and whether there should be an agitator interlock once precipitation has begun.

Waste Solidification Building: SRNS conducted a fact-finding meeting (FFM) to investigate a problem associated with the hazardous energy control program used by their subcontractor, Baker Concrete Construction, Inc. (BCCI). During the FFM, SRNS determined that BCCI personnel 1) did not sign on the lockout/tagout permit for their assigned scope and 2) performed work on a component that was beyond their assigned task. Fortunately, BCCI had de-energized the equipment under a separate lockout. The FFM revealed that the interface between SRNS and BCCI was less than adequate. The FFM lacked the expected formality for a FFM, partly because other attendees were controlling much of the meeting's direction. Furthermore, SRNS did not conduct the part of the meeting typically used to identify corrective actions to prevent recurrence due to time constraints.

Solid Waste Management Facility (SWMF): SRNS declared a technical safety requirement violation because of the discovery last week that neither Shift Operations Manager (SOM) had fully met the site requirements for periodic requalification. The site requirements specify that SOMs must pass a written test and operational evaluation (i.e., a graded field walk down) every 24 months. Because of a deficiency in the software being used to record qualifications and the failure to adequately track the paper backup records, the qualification cards did not correctly specify the periodicity for the written test and the operational evaluation. Both SOMs requalified in accordance with site procedures before SRNS resumed waste handling.

Tritium: Because of recent issues associated with the conduct of operations in the tritium facilities, SRNS placed senior supervisory watches (SSWs) and conduct of operations (COO) advisors in the facilities to monitor activities and provide mentoring as needed. Last Friday, radiological control operations (RCO) personnel were performing source check surveillances on tritium air monitors (TAMS) in the materials test facility. On Friday day shift, RCO personnel completed source checks on the first six TAMS. However, they failed to verify that they had returned the instruments to full service. Confusion arose on Saturday because of unusual entries in the data sheets associated with this surveillance. The operability status was not resolved until SRNS management had the surveillances completed and verified again with full documentation.