DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 15, 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 April 15, 2011

Operations: As site personnel returned to work following spring break, several operational events occurred, including;

- While mining a culvert for TRU drums, Solid Waste Management personnel experienced an airborne radiological contamination event. The workers were in appropriate personal protective clothing. The surface contamination (~8000 dpm/100cm^2 α) from the event did not escape from within the structure.
- While installing a lockout, a site electrician opened the wrong pole switch. This interrupted power to some H-Canyon support facilities and caused a safety class backup power generator to start.
- During routine tests, the emergency diesel generators at H-Canyon and H-Tank Farms encountered an exhaust fan breaker trip and low voltage, respectively.
- H-tank farm personnel failed to fully secure instrument air pressure to a steam system when applying a lock out/tag out (LO/TO). The instrument air isolation valve had been closed in accordance with a specific administrative control, but the LO/TO requirements were not followed.
- DWPF personnel reviewed a new revision to the justification for continued operation. The revised document uses a method that accounts for the increased flammability presented by anti-foaming agent when calculating melter off-gas flammability.

Emergency Preparedness: The site reps observed field and Emergency Operations Center (EOC) activities during a site training drill involving a simulated transuranic waste drum breach and an injured worker in K-Area. No major weaknesses were noted. One of the site reps focused attention on the SRS Operations Center (SRSOC) until the EOC activated since staffing changes there are under review. During the first hour, the SRSOC was very busy classifying the emergency, establishing and communicating site protective actions, dispatching the fire department and ambulance, and notifying remote workers and local/state agencies. The SRSOC would also initially be in charge of integrating actions for events involving multiple facilities. During the last Site Area Emergency, a relatively minor event involving a formic acid spill (see 11/9/06 report), the SRSOC fielded ~3500 phone calls and radio transmissions. In a routine month, the SRSOC staff handles 6400 phone calls; 40-50,000 security/fire alarm system signals; 4940 remote workers; 21 ambulance dispatches; and 16 fire department dispatches.

Tank Farms: In light of site rep and other comments (see 2/18/11 report), SRR examined three additional methodologies for estimating the effective cleaning radius (ECRs) of tank mixing devices. Since rheology data of tank waste settled solids is very limited and difficult to accurately measure, SRR calculated ECRs using 4 correlations for a variety of assumed densities, yield stresses, and solid concentrations. They also compared calculated ECR values with field measurements from 8 tanks. The chosen approach for calculating how much trapped gas would be released from solids by a mixing device is simple. While it may not be the best approach for tank waste whose rheology is significantly different from past tanks, the site rep believes there is sufficient conservatism built into the approach to address most uncertainties.