DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 12, 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 August 12, 2011

Nuclear Safety: SRNS has identified a potential nonconservatism in dose consequence calculations for nuclear facilities at SRS. SRS collects meteorological data in H-Area and calculates the corresponding stability class. The MACCS2 code then adjusts the amount of vertical dispersion based on how the surface roughness of the actual terrain (e.g., 100 cm for forests) compares to the reference terrain (e.g., 3 cm for open flat terrain). SRNS is investigating whether the calculation ends up double counting the impact of surface roughness if it uses both onsite meteorological data and the surface roughness adjustment in MACCS2. The concern is that the onsite meteorological data may already reflect the impact of surface roughness on wind turbulence since the data were not normalized. If validated, this issue could cause the calculated dose consequences to increase for those calculations that assumed a 30 or 100 cm surface roughness. These higher dose consequences may affect the functional classification of the resulting safety controls. The descriptions of the dose calculations for those scenarios that used a 3 cm surface roughness may still need to be revised if the data used actually reflected a higher surface roughness. SRNS still needs to meet with the meteorologists and the code developers to ensure they fully understand how the data is collected and used in MACCS2. Once that is complete, SRNS will determine if they need to issue Potential Inadequacies in the Safety Analyses for most of their facilities next week. SRR is also evaluating the applicability of this concern to their Documented Safety Analyses.

H-Area: DOE continues to pursue new missions for H-Canyon and HB-Line. The site rep also observed tabletop seismic drills in both H-Canyon and HB-Line that are being used to train shift crews on the expected response and improve the facility seismic response procedures.

F-Tank Farm: After a sub-contractor hydro-lanced a clogged gravity drain line (GDL) from the evaporator on F-Tank Farm, an operator received a puncture wound while preparing to place part of the high-pressure hose in waste (see 8/5/11 report). This week SRR reviewed the activities that led up to the wound as well as those factors that may have assisted in preventing an internal contamination from this event. While SRR plans to conduct a root cause analysis shortly, SRR is already pursuing a few potential issues. SRR procured the services of the subcontractor through SRNS. This complicated communications between SRR and the subcontractor. The subcontractor last walked down this job in September 2010, and the SRR planner and subcontractor never walked down the job site together. The activity was treated as a frequently conducted one although the subcontractor only performed it three times within the last year at this location. Neither SRR nor the subcontractor adequately defined the scope of work that each would accomplish or analyzed the hazards.

Tank 16 Annulus Sampling: The site rep observed a proof of concept (mock-up) for the equipment SRR plans to use to sample the Tank 16 annulus. Tank 16 is a type II tank that leaked years ago. Waste flowed into the annulus and mixed with the remnants from previous sand blasting of the tank wall. SRR needs a sample of this material to adequately characterize the waste. The waste mixture has hardened into a concrete-like structure near the bottom of the annulus. The tool was a rotating, core-boring type of instrument that SRR tank farm personnel lowered from a work platform into a bucket of hardened simulant. When the coring device was removed, it was empty and SRR observed that it had created a fine powder instead of retrievable pieces. The team then identified that the waste could be collected by lowering a vacuum cleaner into the annulus. Additional mock-ups will be required.