

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 31, 2012

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 31, 2012

F-Canyon: A site representative observed workers open three levels of drum overpacks inside a tight glovebag and vent a sealed 30-gallon drum inside the overpacks. Although the instructions stated that workers should avoid placing any part of their body in the path of the drum lid, the site rep pointed out when he observed workers standing or leaning in front of the lid. The workers had to forcefully remove the overpack drum ring since the drum was lying on its side. The site rep suggested propping up the overpack to make it easier to remove the ring.

Nuclear Safety: SRNS has revised their recommendation and is now proposing to use the DOE-STD-1189 Appendix A χ/Q value for collocated worker calculations for existing facilities. The previous recommended approach increased the calculated doses by a factor of 2 - 3. The 1189 χ/Q increases the dose for 3 facilities by 13 - 33%, but results in a lower calculated dose for the other nuclear facilities.

The site rep's previous reviews of H-Canyon criticality controls and specific administrative controls (SACs) led to a revised process for functionally classifying criticality controls (see multiple reports between 7/9/10 and 2/11/11). A site rep review of criticality safety SACs and key attributes found that SRNS was upgrading administrative controls to key attributes for high consequence events that did not have an engineered safety significant control or SAC credited. However, SRNS is only classifying criticality controls as SACs if their failure would increase the frequency to anticipated, if they inherently provide a risk bin frequency/consequence reduction, or if their failure would lead to a criticality in a relatively short period of time (usually not an issue due to double contingency). While some administrative criticality safety controls are not amenable to being a SAC due to their nature (e.g., failure only leads to very slow accumulation of fissile material), SRNS is not using the SAC concept to improve the rigor and reliability of other criticality controls which could easily be converted into a SAC.

Conduct of Engineering: DOE-SR provided SRR a list of issues that reflect a potential weakening of conduct of engineering practices (e.g., see next item). DOE-SR requested an assessment of the overall cause(s) for their occurrence and a corrective action plan.

Defense Waste Processing Facility: SRR conducted a root cause analysis on two SAC violations where they did not identify that material was carried over from the slurry mix evaporator into the slurry mix evaporator condensate tank (see 7/6 and 7/27/12 reports). The identified root causes were the lack of training on the details of SAC requirements and both the procedure structure for the processing procedures and the procedure content were less than adequate. A contributing cause was the difficulty in detecting carryover with trends.

Saltstone: SRR conducted a short grout run of leftover salt feed tank and sump solutions. Maintenance issues delayed the processing of Tank 50 solution.

SWMF: SWMF personnel found increased levels of tritium in a culvert which contained drums of tritiated waste. They backed away from the culvert and replaced the lid. The actions seemed appropriate for the hazard. Site health physics personnel took bioassay samples from the affected workers and determined that none had received any internal contamination. The site rep cautioned the facility radiological protection manager that special precautions must be taken when remediating waste that has been exposed to tritium for long periods of time since it may have incorporated the tritium as a special tritiated compound. The site rep will further explore the training and precautions that have been or will be taken before this waste is actually remediated.