DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 10, 2014

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman, Site Representative
SUBJECT: Savannah River Site Weekly Report for Week Ending October 10, 2014

Emergency Preparedness (EP): A site rep review of the fiscal year (FY) 2005 – 2014 budgets found that FY-to-FY funding for the central SRS EP program declined in 7 of the last 9 intervals, including the last five straight years. The number of SRNS staff supporting EP in the central organization and the facilities (excluding those who directly support the SRS Operations Center) declined 40% between FY11 and FY14. These numbers do not tell the whole story because the EP program has lost several experienced EP staff due to attrition while recent hires have often had little to no prior EP experience beyond being a drill participant. The decrease in staff has reduced the capability to conduct routine assessments of the EP program and develop new emergency drill and exercise scenarios. For example, SRNS currently only has one employee working on EP scenarios and that person is dedicated to the annual site EP exercise. The shortage of drill scenario writers contributes to issues like: 1) the backlog of drills that need to be written or updated to be consistent with current emergency action levels, 2) the age of drill scenarios (some have not been revised in 9 years), and 3) the limited number of EP drills in some facilities (some facilities only have 2 or 3 active EP drill scenarios). Repeated use of the same limited number of old drill scenarios can lead to a false sense of preparedness when emergency responders know what initiated each scenario and what "surprises" are coming up later in the drill.

The site rep reviewed accidents covered in facility Emergency Planning Hazard Assessments, Documented Safety Analyses (DSA), and EP and conduct of operations (so-called 2S) drill scenarios. The lack of integration amongst the EP, nuclear safety, operations, and training organization appears to be leading to gaps in preparedness. EP scenarios often focus on high consequence accidents that exceed emergency action levels due to large source terms or unfiltered releases while 2S drills are on the other end of the spectrum, focusing on small upsets often with little to no radiological release. Although the DSAs credit emergency response for many accidents, many accidents (other than fires and seismic events) in the DSAs are not addressed by either facility EP or 2S drills. Although it can be argued that protective actions like sheltering or evacuation are generic to any radiological release, these other accident types could include scenario-specific recovery or mitigation actions. DSAs include dozens of explosion scenarios, but there are only a handful of explosion drills outside of tritium facilities. For example, HB-Line's DSA credits emergency response for 15 explosion and energetic event scenarios, but the HB-Line EP program does not have a single explosion scenario. While SRR conducted a pump pit deflagration drill this year, SRR recognizes that they do not have a routine facility drill involving a waste tank explosion and plan to develop one next year.

Implementation of 2S drills is very mixed. SRR conducted an extremely narrow scope of 2S drill scenarios at their facilities in the past year – evacuation accountability, injured person, and formic acid tank spill. The state of preparation at the Defense Waste Processing Facility (DWPF) is uncertain in light of the very few 2S drills above and the fact that SRR conducted only one non-security EP drill (a 6-year old response to tornado scenario) in the past year at DWPF. SRNS conducted around 10 different 2S drill scenarios at most of their facilities; H-Canyon conducted drills on more than two dozen different scenarios. The Solid Waste Management Facility was the exception conducting only loss of public address system and accountability drills (although they did take credit for three contamination events). At HB-Line, DOE issued a finding last year because the 2S drill program had been eliminated and SRNS is still ramping up the new program. SRNS conducted 15 drills at HB-Line, but these only involved 4 scenarios (loss of purge air or ventilation, personnel contamination monitor alarm, elevator rescue). With regards to 2S drill scenarios across SRS, they focus heavily on fires, contaminated and/or injured workers, response to an alarm, or loss of a system. Relatively few appear to involve process-related accidents, especially those initiated by an operator mistake.