

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 9, 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 March 9, 2012

**Emergency Preparedness (EP):** For the last 22 months, the site rep has been discussing the need for DOE to prepare an integrated response to a large-scale natural phenomena event (see 5/14/10, 6/18/10, 2/25/11 reports). Since last May, DOE has conducted dozens of increasingly difficult EP drills to practice their response at the facility and area level. This week, DOE conducted the annual site-wide training drill using one of the most ambitious EP scenarios ever used in the DOE complex. The scenario simulated the impacts of a design basis earthquake (DBE) to SRS. (The DBE is a 7.3 Richter scale earthquake in Charleston.) Participants included both DOE offices, SRNS, and SRR. The immediate effects of the earthquake included: 1) a deflagration of a leaking tritium line at the Tritium Extraction Facility, 2) the collapse of a stack onto a vault, 3) the collapse of the H-Canyon stack brick liner, and 4) an annulus leak at Tank 12. A subsequent aftershock triggered a deflagration in Tank 30 at H-Tank Farms. Since the focus of the drill was on the response to multiple radiological releases, there was a deliberate decision to exclude mass casualties or widespread infrastructure damage from the scenario. That being said, the scenario did include some assumptions that went beyond a DBE or reflected hazards worse than actually exist.

With a few exceptions, the control of the drill went well. This is impressive considering the number of concurrent events and controllers spread across SRS. The overall performance of the drill by the players also went well. Compared to previous drills, the players demonstrated a better ability to deal with multiple events, prioritize the hazards, integrate their response and protective actions, and respond to infrastructure damage. For example, tritium responders sheltered when the wind caused the simulated Tank 30 plume to drift across the tritium facilities and tritium radiological personnel now had equipment for detecting tank waste contamination. Workers were also able to communicate protective actions and direct field actions using alternative means when the public address systems in H-Tank Farms and surrounding H-Canyon lost power and cellphones stopped working. The SRS Operations Center was able to manage the general emergency until the Emergency Operations Center activated, including Technical Support Rooms for both tritium facilities and H-Tank Farms. While the Board staff did observe several opportunities for improvement, they were reasonable for a training drill. For example, available resources could have been better used to deploy more teams to look for injured victims, assess building damage, and collect radiological data which would have supported earlier recovery planning efforts.

**N-Area:** Several internally contaminated heat exchangers from the reactors rest on a rectangular concrete pad approximately 10 m wide by 50 m long. Before the heat exchangers were on the pad, the pad used to be a contamination area until it was cleaned up in 1997. SRNS is currently using a crane to load the heat exchangers onto a flatbed so they can be transported to E-Area and disposed in the burial ground. While picking up one of the heat exchangers, the soil beneath one of the crane's tracks subsided, causing the concrete pad to collapse and sink approximately 6 inches. The crane operator set the heat exchanger back down and was able to move the crane to a more stable place on the pad. Once the crane was moved, a small area of contaminated concrete ( $130,000 \text{ dpm}/100\text{cm}^2 \beta/\gamma$ ) was discovered in the area where the concrete was damaged. No contamination was discovered on the workers or the crane nor was the heat exchanger damaged. Site rigging personnel are developing ways to stabilize the area so that the remainder of the heat exchangers can be loaded.

**E-Area:** SRNS is now conducting oral boards for shift operations managers. The site rep observed a candidate's second attempt to pass the oral board. While the conduct of the oral board was adequate, this raises questions about the adequacy of the training program in preparing candidates for oral boards.