DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 7, 2014

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending November 7, 2014

HB-Line: In order to maintain proper Halon concentrations following a manual activation, an interlock puts the facility in a reduced ventilation mode to maintain ventilation zones with smaller differential pressures. Following maintenance on a heat detector, this interlock activated for an unknown reason when workers enabled it as part of system restoration. This triggered 111 alarms over the next 80 minutes as differential pressures dropped below alarm set points and the vacuum levels in two locations oscillated around the alarm set point. In response to the alarms, operators pulled a dozen alarm response procedures and an abnormal operating one. After discussions with operations personnel and engineers, the shift manager authorized the fire alarm control panel system to be reset. While this returned glovebox vacuum levels back to normal, it did result in a pressure transient in a glovebox exhaust (GBEX) plenum, possibly caused by the dampers opening and air rushing in. This transient activated a safety-significant interlock that caused the standby Phase II/III GBEX fan to start. When the operators were acknowledging groups of alarms, they missed that the alarm associated with the interlock had been active for eight seconds. During rounds 11 hours later, an operator noticed that both Phase II/III GBEX fans were running. (Running this fan did not cause any problems). Fire protection personnel are still investigating why the first interlock activated.

SRNS has encountered other issues recently in HB-Line: 1) a vent line in the breathing air system that was not locked/tagged out as required during maintenance, 2) having workers perform glovebox work for six hours while the breathing air system periodically exceeded the maximum air pressure limit, 3) an inoperable fire detector, 4) a GBEX fan damper failure, and 5) an out-of-service standby diesel generator, and 6) an inoperable level instrument on the chemical adjustment tank.

Emergency Preparedness (EP)/Fire Department (FD): The site rep observed a drill involving a simulated waste box fire at F/H Laboratory. Although a smoke generator produced a very noticeable plume, the facility and FD decided to set up their incident command post (ICP) and hot/warm/cold zones where they could see the smoke blowing across the road about fifty feet in front of them. The questionable siting of the ICP was a major weakness during the annual EP exercise that also took place in F-Area (see 5/16/14 report). The FD response was overly simulated and controllers provided information that a responder would not know. The site rep discussed these observations with F-Area personnel and the FD chief.

In response to previous site rep observations (see 10/10/14 report), SRNS is conducting an assessment of their drill program with DOE oversight. The team leader discussed the planned scope and lines of inquiry with the site rep. For each of the SRNS nuclear facilities, the team will review hazards analyses, limiting conditions for operations, specific administrative controls, etc. to identify where the EP program and any associated worker response actions are credited. The team will then determine if these actions are addressed by an existing procedure and drill scenario and whether such a drill has been performed since January 2013. The assessment will also review the development and use of abnormal and emergency operating procedures, how poor drill performance is handled, and how safety basis changes are incorporated into the EP program.

Meanwhile, SRNS completed their independent assessment of emergency management as requested by DOE (see 7/25/14 report). While the team concluded that the program was compliant with the DOE Order, drills were not sufficiently integrated to demonstrate a full range of response capabilities. The team also found that training for the emergency response organization is inadequate to properly prepare for effective emergency response and that the effectiveness of corrective actions were not validated.