

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 14, 2009

TO: T. J. Dwyer, Technical Director
FROM: D. L. Burnfield and M. T. Sautman, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending August 14, 2009

H-Canyon: Two recent events illustrate the challenges management faces in changing the behavior of some workers. Fuel bundles loaded with highly enriched uranium metal are transported with a crane from the hot crane maintenance area into the canyon and lowered into a dissolver that has a ten-well insert. A qualified observer [e.g., another qualified crane process operator (CPO)] is required to be present while charging dissolvers to verify the insert is installed. On 8/3, a fuel bundle became disengaged from the monorail hook while being inserted into a well and dropped ~15 feet. The procedure clearly states that if a bundle is dropped, that the control room first line manager (FLM) is to be advised immediately and to avoid any further movement of the bundle until any damage is determined and authorization is obtained from management. However, neither the CPO nor the qualified observer (both long-time CPOs) stopped work or made any notifications, even though they talked with a control room operator shortly afterwards. Their stated reasons for this decision were because they did not believe the procedure required a notification at this step in the process and that they did not believe there was any damage.

Two days later, the end cap of another fuel bundle caught the lip of the well and caused the bundle to disengage again. The bundle did not fall, but was left sitting on the 5-well plug and the space between the wells. This CPO (a recently qualified one) stopped work, made notifications, and a path forward was developed for reengaging the fuel bundle. Although the first CPO was functioning as the qualified observer in this second event, he did not mention the earlier drop then or during the fact finding meeting on the second dropped bundle. When the Site Rep asked if any other fuel bundles had been dropped at H-Canyon, this same CPO mentioned a drop many years earlier, but did not mention the one just two days before. On 8/10, when the first dropped bundle was removed from the well, the bundle was discovered to be damaged and the FLM notified the shift manager. The crane manager identified the first drop by reviewing video tapes of prior chargings. Although the video only depicts the top of the bundle becoming disengaged, it is suspected that the bundle was being inserted at a slight angle and friction between the bundle and the well side caused the bundle to bind up.

The event had potential criticality safety implications because a damaged insert could allow undissolved fuel to drop to the bottom of the dissolver or the credited dimensions could be modified. While the actual safety impact of both events is likely to be relatively minor, the difference in response to similar events is significant. The Site Rep does not believe there was any misunderstanding of management's expectations because the Site Rep has observed many safety meeting and training sessions where the expectation to stop work when something unusual happens and notify the shift manager has repeatedly been clearly communicated. The CPOs were already undergoing team-based Conduct of Operations training due to another recent event involving a CPO (see 5/29, 6/5, 6/12, and 7/2 reports). While the crane FLM did not observe any crane operations on 8/3, the Senior Supervisory Watch observed the charging of 2 other bundles on 8/3 and was present when the second bundle was dropped. This event also raises questions about the effectiveness of corrective actions taken in response to conduct of operations events. The two CPOs involved with the first dropped bundle were the same CPOs involved in an inadvertent transfer last year that resulted from an improperly performed independent verification. (See 4/18/08 report).

Saltstone: The troubleshooting plan was not able to conclusively identify the cause of the plugging of the grout pump hopper (see 7/2/09 and 8/7/09 reports). The Site Reps observed the resumption of grouting operations. The initial attempt was terminated because three valves associated with cement and slag malfunctioned. The second attempt failed because a programming error prevented a flow control valve from operating. After repairs were made, grouting operations resumed.