DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 2, 2013

TO: S. A. Stokes, Acting Technical Director
FROM: D. Gutowski and R. Quirk, Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending August 2, 2013

Plutonium Finishing Plant. Recently, workers successfully replaced the highly-contaminated 24-inch port window on a glovebox (see Activity Report 7/5/2013). The improved visibility allows workers and managers to see more of the equipment inside this glovebox which has significant quantities of plutonium holdup. Space constraints coupled with the high radiological hazards will make it difficult to remove some large, heavy pieces of equipment from this glovebox. The site rep and contractor managers discussed different approaches for reducing the holdup in this glovebox, including the time-consuming conventional process of size reducing equipment and removing it through seal-out ports. Another approach would be to add foam to the box (see Activity Report 7/19/2013) to fix the highly mobile waste as well as improving the rigidity for subsequent in situ size reduction. Finally, if in situ size reduction is not practical, size reduction in another facility, such as T Plant, may be an option.

During the past few weeks, workers made a series of entries into the Plutonium Reclamation Facility canyon to install new festoon cables for the canyon bridge crane and perform related maintenance. This week, workers completed the electrical work and are preparing for the post maintenance tests.

Waste Encapsulation and Storage Facility. The site rep accompanied an operator performing facility rounds and noted that conditions have improved. Managers at the facility have been making an effort to ensure that new problems are quickly added to the Equipment Deficiency Log (EDL) as well as resolving a number of items that have been in the EDL for some time.

200 West Pump and Treat. The contractor is evaluating why a four-inch, schedule 80 PVC pipe filled with organic sludge exploded, sending pieces of pipe throughout the large Sludge Room in this less than Hazard Category-3 facility. The segment of pipe was on the discharge section of an installed backup pump, had been isolated for six months, and did not have any pressure relief capability. The failure occurred at night when there were no workers in the facility, but management recognized the consequences could have been much greater if workers were present. The contractor sampled the offgas from some of the material and believes the pressure buildup was the result of anaerobic bacteria generating methane. The contractor postulated that this accumulated gas, combined with the recent high temperatures, resulted in an overpressure event. Shortly after the failure was discovered, the contractor performed a thorough review of the design and ensured potential pressure buildup scenarios in other isolated segments were addressed. They plan to modify the design to prevent recurrence as well as use some of their corporate experts to review the event.

River Corridor Closure. The contractor completed all the pre-start items from the Readiness Assessment for retrieving waste from the 618-10 burial ground trenches and expects to resume trench operations later this month.

The contractor is evaluating the use of a phosphate solution to suppress contaminated dust and immobilize strontium in the soil under the Building 340 vault (see Activity Report 7/26/13).