DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 6, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Timothy L. Hunt, Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for February 2020

DNFSB Staff Activity: No staff members were on site during February 2020.

Radioactive Waste Management Assessment. On February 4, 2020, the DOE Office of Enterprise Assessments (EA) released its report on the Idaho Cleanup Project (ICP) Core radioactive waste management program as implemented by Fluor Idaho and the central characterization program contractor. The assessment was conducted in response to the Deputy Secretary of Energy's July 9, 2019, memorandum directing EA to undertake a DOE-wide assessment of the procedures and practices for characterizing, packaging, and shipping radioactive waste. The assessment, performed in July 2019, identified no findings, two deficiencies, and six opportunities for improvement. The two deficiencies were associated with the condition of transuranic waste containers packaged for shipment (unknown liquid in vicinity of corroded drum) and the management of these containers prior to shipment (visual inspection process insufficient to identify all degraded waste containers). A final roll-up assessment report is scheduled to be issued by the end of calendar year 2020 to capture results of assessments at multiple sites.

Integrated Waste Treatment Unit (IWTU) Process Gas Filter (PGF) Testing. Fluor Idaho subcontractor, Hazen, has used its 18-inch pilot plant (about 1/6 scale) to validate issues that have arisen, most importantly, with the PGF. Test run PGF-CD1—to confirm that the SF-15 filter elements can meet the breakage criteria with proper handling—was terminated after 285 hours of feed-on time; the test duration was planned to be 360 hours. The post-run filter element inspection revealed that leakage past two missing PGF thermowells caused the inside of the fuses to get coated with solids. (These particular thermowells on the pilot plant are not prototypical of the IWTU so it should not see a similar issue.) This was determined to be the cause of higher than normal filter differential pressure trending. The test run did confirm, however, that filter bundles could be assembled, installed, and removed without breaking the filter elements; the design of the modified spider plate prevents bridging (i.e., buildup of particulate between elements) and broken elements from falling to bottom of the PGF; and the existing vertical gas distributor design does not cause filter breakage during operations. PGF-CD2, now underway, will include a 30-day run with new fuses, elements, and the existing inlet distributor and blowback system, followed by testing of the in-situ decontamination of filter elements.

Squeezants. Fluor Idaho completed the campaign to process the remaining 15 drums of squeezants (expressed liquids from supercompaction of waste) in the Advanced Mixed Waste Treatment Facility (AMWTF) on February 27, 2020. Workers sorbed the squeezants at a 3:1 ratio of sorbent to liquid and mixed them with greater than 50 percent debris, by volume, prior to loading them into 55-gallon drums for supercompaction. This squeezant processing supports completion of the AMWTF mission in preparation for eventual facility closure in accordance with the Resource Conservation and Recovery Act. Note that processing these containers does not ensure they or any other containers in the BN510 supercompacted debris waste stream meet all current requirements for disposal at the Waste Isolation Pilot Plant.