DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 3, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: P. Foster and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending August 3, 2018

PUREX Plant: The contractor determined that a PISA exists because of significant corrosion damage to bolts that connect steel wale beams to the tunnel's concrete support ribs at the south end of the tunnel. Corrosion of threaded connections is known to be a common cause of structural failures and was identified during video inspections that the contractor conducted to confirm conditions inside the tunnel prior to performing stabilization work that is scheduled to start later this year. The PISA exists because the structural evaluation for Storage Tunnel Two that the contractor performed after the collapse of Storage Tunnel One (see 7/7/2017 report) did not consider the high levels of corrosion identified during the inspection. Consequently, the tunnel structure, which was already known to have overstress conditions in some structural support members and connections, is weaker than previously analyzed. The weaker structure increases the risk of failure and, depending on the failure mode, could increase the probability and/or consequences of a failure. The contractor has entered their unreviewed safety question determination process to determine if further action is necessary.

105-KW Basin: To address higher than expected transfer line radiation levels that remained after the last sludge transfer (see 07/27/18 report), contractor personnel developed and executed a recovery plan to decant the sludge transportation and storage container (STSC) to create flush water receipt space, and then flush the line into the STSC to dislodge the holdup. The transfer line radiation levels were returned to normal. The team subsequently completed loading and closure of the STSC, and it is expected to be moved to T-Plant next week. A resident inspector observed discussions between project engineering and operations personnel where the draft recovery plan was reviewed. The exercise was well executed and resulted in an improved plan.

Waste Treatment and Immobilization Plant. A resident inspector met with ORP and contractor representatives to discuss recent contractor actions designed to improve their control of non-conforming material (NCM). The actions include the development of a more functional database tool to support the program, improvements in the documentation of technical justifications for the conditional release of NCM, and confirmation that installed NCM is properly identified in the field. Additionally, the contractor is issuing a revised procedure to support their initiative and has developed training to ensure field personnel understand their role in the non-conformance process. If properly implemented, the actions will address recent Board staff observations that have noted discrepancies in some aspects of the contractor's control of non-conforming material.

Effluent Treatment Facility: During a routine boundary survey of the Liquid Effluent Retention Facility basin 42, radiological control (radcon) technicians found contamination inside a radiological buffer area. An in-progress ALARA review was held to discuss the event and the adequacy of the existing radiological controls. During the meeting, the most likely cause of the contamination identified was a punctured bag containing used pump filters what was carried through the area. As a result, the contractor is evaluating their packaging and handling of waste.