

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 15, 2024

**TO:** Timothy J. Dwyer, Technical Director  
**FROM:** B. Caleca, P. Fox, and P. Meyer, Resident Inspectors  
**SUBJECT:** Hanford Activity Report for the Week Ending March 15, 2024

**Waste Treatment Plant:** The resident inspectors have observed changes in the philosophy and strategy applied by BNI and WTCC to the development of hazard controls that protect facility and collocated workers. They are currently working toward incorporating these changes into the Low Activity Waste (LAW) Facility safety basis and the design of the higher hazard High-Level Waste (HLW) Facility. Contractor representatives believe that the changes result in adequate protection of affected workers but will simplify and improve the operation of these facilities. DOE is evaluating the proposals and, in some cases, has approved the proposed change while rejecting others. As an example of the proposed changes at the LAW Facility, BNI and WTCC are proposing changes intended to result in heavier reliance on hazard control processes and methods used in the chemical industry. These changes are being applied for control of hazards associated with toxic chemicals that are used in or result from processing of nuclear waste regardless of the quantity and relative hazard of the toxic chemical. This does not appear consistent with the hazard identification and screening, and hazard evaluation philosophies outlined in DOE STD 3009-2014. Other proposed changes would reduce DOE's role in decisions related to the establishment of safety limits and controls for LAW Facility chemical hazards, and the allowed operation of the LAW Facility in cases where installed safety systems related to chemical hazards are compromised. Another proposed change would also appear to reduce the rigor of the training that will be provided to some personnel whose duties can affect facility operation in relation to the safety basis.

Similar approaches for toxic chemical hazard controls are being proposed for the HLW Facility. Additionally, BNI is proposing other changes that will reduce conservatism in the design of the HLW Facility. For example, in addition to revising the proposed feed vector for the HLW Facility, the contractor has proposed, and DOE has approved the use of an alternative dispersion analysis approach that they believe more accurately reflects local conditions and results in more realistic results. This approach, which significantly reduces the expected chemical and radiological accident consequences for collocated workers, may not be consistent with recent guidance on this topic from the DOE Office of Environment, Health, Safety and Security (EHSS). When questioned regarding this apparent conflict, neither BNI nor DOE have been able to address the specifics of the EHSS guidance relative to their approach. However, they state that they believe the approach BNI uses is compliant. DOE and BNI have stated that they will review the matter. The reduction in potential radiological and chemical consequences to workers, along with the changes in approach associated with toxic chemicals related to nuclear operations, and any other modified approaches, will be eventually reflected in the type of hazard controls selected, and in how the hazard control methods and supporting systems are designed and implemented. The resident inspectors are working with DOE and contractor representatives to develop a common understanding in the above areas so that identified issues can be addressed. DOE and contractor representatives have been engaged and open in these conversations.