

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 1, 2024

TO: Timothy J. Dwyer, Technical Director
FROM: Mark T. Wright, Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for February 2023

DNFSB Staff Activity. The Board's INL cognizant engineer held weekly meetings to maintain awareness of site activities, including attending event fact findings, management reviews, integrated project team reviews, and facility plan of the day meetings.

Leaking Drums at the Advanced Waste Treatment Project (AMWTP). Between January 31, 2024 and February 7, 2024, two waste drums were found to be leaking liquid at AMWTP. The two identified drums were part of the BN510 waste stream, which includes 100-gallon puck drums, some of which are known to contain liquids (see May 2022, August 2022, November 2022, and January 2024 reports). AMWTP had previously identified twenty-four (24) drums as potentially containing residual liquids. These drums were identified as non-conforming, placed on spill pallets, and are awaiting rework through the Treatment Facility (TF) to ensure compliance with the Waste Isolation Pilot Plant waste acceptance criteria. These two drums were being placed in a three drum overpack (TDOP) for processing through the TF at time of discovery of the leaks. The first leak was discovered when unloading the drum from a truck moving waste between facilities to start the overpacking process. This drum had leaked previously, was repaired, and was stored in an area with secondary containment prior to the current discovery. The other incident was discovered when accessing the drum for overpacking. This drum had not previously leaked. Both leaks were small, resulting in spots of liquid less than about 4 inches in diameter. The IEC response to these incidents was appropriate, including evacuating the building, securing building ventilation, and sending a radiation control team to sample for surface and airborne contamination. In both instances, contamination was limited to the spots of liquid. The spots had detectable contamination levels of less than 60 dpm Alpha, which the radiation control team cleaned and decontaminated prior to returning the facility to operations. Both leaking drums were placed in TDOP boxes to move into the TF for treatment. One drum is in the TF undergoing reprocessing and the other is scheduled for reprocessing in the TF next week. The leaking drums were generated approximately 6 to 7 years ago, which does not challenge the current AMWTP long term order that allows BN510 drums generated less than 5 years ago to be shipped without overpacking.

Integrated Waste Treatment Unit (IWTU) Granular Activated Carbon (GAC) Beds. During the recent IWTU outage, IEC sent samples of the used GAC bed material to a laboratory for analysis. Results confirmed that process gas flow distribution through both GAC beds was uneven. Though no physical changes were made to the GAC bed equipment during the outage, IEC leveraged expertise from a vendor who specializes in catalytic media maintenance and implemented procedural changes to improve flow through the beds and increase the life of the GAC bed material. These changes include loading the GAC bed material in small amounts from within the beds; reducing fines by screening and improved handling methods during filling; formalizing the procedures and process for pre-heating and conditioning the GAC beds; and minimizing time the GAC media is exposed to steam flow if waste feed will be secured for extended periods of time, which will be achieved by switching to fluidizing nitrogen in the plant.