

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 6, 2015

**MEMORANDUM FOR:** Steven Stokes, Technical Director  
**FROM:** Bradford Sharpless, Idaho Cleanup Project Cognizant Engineer  
**SUBJECT:** Idaho National Laboratory (INL) Report for October 2015

**DNFSB Staff Activity:** Board's staff member R. Quirk was on site on during October 19–23, to conduct general oversight of INL facilities. Board's staff members D. Brown, K. Deutsch, and B. Sharpless were on site during October 26–30, to conduct a review of the Safety Significant Instrumented System at the Integrated Waste Treatment Unit (IWTU). The Board's staff provided an average of 2 man-weeks of on-site oversight per month for the first 10 months of 2015.

**Integrated Waste Treatment Unit:** Engineers at IWTU identified the cause of the failed filter elements in the facility's Process Gas Filter (PGF). Representatives from Porvair Filtration Group, the manufacturer of IWTU's process filter elements, visited IWTU during October 5–6. The representatives assisted in the evaluation of the PGF failure and corrective actions. They agreed that the failure of the PGF elements was due to buckling caused by inadequate tolerance for differential thermal expansion between the filter elements and the frame that retains the filter bundle baseplate. Workers replaced the PGF elements with spares that have the proper gap (approximately 0.75") between the end of the filter elements and the baseplate.

**Advanced Mixed Waste Treatment Project (AMWTP):** On October 5, AMWTP's operating contractor declared a positive Unreviewed Safety Question (USQ) Determination (USQD) regarding an explosion in conjunction with a propane delivery. The contractor entered the USQ process in response to a Potential Inadequacy of the Safety Analysis (PISA). The PISA had been declared on August 3 due to the identification of a potential error in the "Beyond Design Basis Propane Delivery Explosion" accident analysis in AMWTP's Documented Safety Analysis (DSA). In particular, a concern existed regarding conflicts in the description of propane events in supporting calculations provided by subject matter expert subcontractors and those detailed in the DSA. These conflicts are not adequately discussed or explained in the DSA, leading to the positive USQD. The following compensatory measures at AMWTP have been implemented:

- Perform periodic inspections of the 45,000 gallon propane tank to verify no detectable leaks.
- Maintain control of waste storage/characterization building roll-up doors to preclude propane vapor migration if a leak should occur.

On October 23, a violation of a Technical Safety Requirement-level control occurred when the above-mentioned roll-up door control was not properly implemented. While conducting quarterly maintenance on the west roll-up door of the WMF-628 waste storage facility, workers did not fully close the roll-up door while the facility was unoccupied, as required. In response, facility managers directed the addition of operational locks to the west roll-up doors on the storage facilities and issued a revision to the Long Term Order governing the propane tank-related controls.