DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 1, 2016

TO: Steven Stokes, Technical Director
FROM: Bradford Sharpless, Idaho Cleanup Project Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for March 2016

DNFSB Staff Activity: Board's staff members R. Quirk and B. Sharpless were on site during March 7–11, to perform general safety oversight. The staff members conducted discussions with site personnel and visited facilities, including the Integrated Waste Treatment Unit (IWTU), the Advanced Mixed Waste Treatment Project (AMWTP), and the Fluorinel Dissolution Process and Fuel Storage (FAST) facility. The Board's staff provided an average of 1.3 man-weeks of on-site oversight per month for the first six months of fiscal year 2016.

Integrated Waste Treatment Unit: As a result of the Integrated Waste Treatment Unit's (IWTU) Chemistry Summit, conducted during February 2016, IWTU's engineers developed three groups of actions to address the facility's operational challenges:

- Actions that can be implemented in the near-term, prior to a non-radioactive waste simulant run at IWTU (operational changes or facility modifications that can be implemented with minimal impact to the current facility outage schedule). Examples of these actions include increasing the fluidized bed height in the Denitration Mineralization Reformer (DMR) and adding CO_2 gas to the DMR.
- Actions that can be implemented without additional bench-scale or pilot plant testing, but would require additional time to design, install, and implement.
- Actions that would require bench-scale or pilot plant testing prior to design and implementation.

IWTU's managers will direct the implementation of the first group of recommended actions before commencing the facility's next round of waste simulant testing. This testing is currently planned for May 2016.

Advanced Mixed Waste Treatment Project: On March 4, an operator entered a Zone 3 cell in AMWTP's Advanced Mixed Waste Treatment Facility without placing a lock on the cell's alternative energy control lockbox. Zone 3 cells are equipped with an engineered trap key system. When an operator pulls the key, all mechanical systems within the cell are de-energized, allowing safe entry into the cell. Operators entering the cell are then required to lock this key in a lockbox located in the cell or to maintain possession of the key while in the cell. Operators are also required to be in Level B suits using supplied breathing air. The scope of work for this cell entry was to recover an upright drum from the floor in the 390 cell and place it on the conveyor, as well as resetting an emergency stop that had inadvertently actuated during a previous shift.

The lock-related error was not noticed until the operators were removing their Level B suits after completing the work. Neither of the entrants was exposed to any uncontrolled hazardous energy. However, because one of the operators had not placed a lock on the lockbox, this constituted a non-compliance with AMWTP's alternative hazardous energy control process.