

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 3, 2016

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

DNFSB Staff Activity: Board's staff members F. Bamdad, B. Sharpless, and B. Weathers were on site at INL during May 9–13. The staff members conducted walkdowns of the Radioactive Waste Treatment Complex (RWMC), the Advanced Mixed Waste Treatment Project (AMWTP), the Idaho Nuclear Technology and Engineering Center, and the Integrated Waste Treatment Unit (IWTU). The staff members also attended the quarterly training session for the Department of Energy Idaho Operations Office's Facility Representatives. The Board's staff provided an average of 1.5 man-weeks of on-site oversight per month for the first eight months of fiscal year 2016.

Integrated Waste Treatment Unit: On May 18, operators at IWTU commenced a waste simulant test run. A simulant feed rate of 1.6 gpm into the Denitration Mineralization Reformer (DMR) was maintained throughout the test. During the test run, operators successfully transferred bed material from the DMR using an alternative route (i.e., via the Process Gas Filter, rather than from the bottom of the DMR) to the Product Handling System. Operators did not observe any adverse system indications or high differential temperatures in the DMR bed during the course of the test. The samples of output product from the DMR bed showed particles of desirable size and quality. Operators concluded the test run and began a system cool down on May 25.

A technical challenge encountered during the test run involved binding of the DMR's recently redesigned auger-grinder. The binding was significant enough to cause the auger-grinder's shear pins to fail. Following the completion of the system cool down and shut down, IWTU's engineers will inspect the auger-grinder to determine its cause of failure.

Radioactive Waste Management Complex: On May 10, an increase in airborne radioactivity at RWMC's Accelerated Retrieval Project-VII (ARP-VII) facility led to contamination of facility operators' skin and clothing. The operators at the ARP-VII facility were performing a routine waste repackaging activity on a debris box received from AMWTP.

As part of the repackaging activity, operators are required to cut the walls of the original debris box using an electric saw to facilitate the transfer of the contents to a new IP-1 container. During the cutting process, the operators used controlled air flow and water misting to minimize the spread of local airborne contamination. Radiological Control Technicians (RCT) also performed direct and loose radiological surveys on the debris before it was transferred to the IP-1. An operator made three horizontal cuts on the side of the debris box, then began a horizontal cut. At this time, an RCT noted an increased reading on the continuous air monitor from ~17 DAC to ~2000 DAC. The operators immediately placed their work in a safe condition and exited the service bay. RCTs successfully decontaminated the affected operators. A fact finding conducted on May 11 generated a list of follow-up actions to prevent a recurrence of this event.