

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 5, 2018

TO: Steven A. Stokes, Technical Director
FROM: Bradford V. Sharpless, Cognizant Engineer
SUBJECT: Idaho National Laboratory (INL) Report for December 2017

DNFSB Staff Activity. Board's staff members R. Quirk and B. Sharpless were on site at INL during December 11–15, to perform routine oversight of defense nuclear facilities. The Board's staff provided an average of 1.7 person-weeks per month of on-site oversight for the first three months of fiscal year 2018.

Advanced Mixed Waste Treatment Project (AMWTP). On December 21, AMWTP's Department of Energy Facility Representative was notified via the Warning Communications Center of a fire in the North Box Line's (NBL) east trough at the Advanced Mixed Waste Treatment Facility (AMWTF). At approximately 1310, during the processing of the fifth drum in a Six Drum Modular Overpack, the operator opened a dark colored plastic bag that, according to the Waste Tracking System's information, contained scrap metal and debris. Upon opening the bag, the contents ignited. The operators immediately took appropriate emergency actions, notified the Shift Supervisor, contacted the INL Fire Department (FD), and activated the manual CO₂ fire suppression system mounted on the robotic manipulator. The CO₂ fire suppression system was not effective in extinguishing the fire. Upon emptying the primary CO₂ bottle, the operators activated the manual fire alarm and evacuated all personnel from AMWTF.

At 1323, the contractor declared an Alert level emergency—fire in the box line that is not extinguished within 10 minutes. Upon arriving at the scene, the INL FD Battalion Chief and the facility's Emergency Action Manager (EAM) observed that the fire was contained in the NBL's stainless steel-lined trough and that no other material or equipment was at risk. Due to the high contamination levels in the NBL and the expectation that the fire involved Class D material (burning metal), they decided to let the fire self-extinguish while providing continuous monitoring from the Emergency Communications Center. When the INL FD declared the fire to be extinguished at 1610, the EAM took control of the scene. There was no increased radiation nor spread of contamination detected outside the confinement boundary of the box line. The emergency was terminated at 2034.

At the subsequent fact finding meeting conducted on December 22, it was determined that the drum contained "RF751" waste that was initially classified as potentially pyrophoric in nature. Although the drum was identified as containing approximately 46 kg of potentially pyrophoric metal (U-238), it had been downgraded to "non-pyrophoric" based on real-time radiography (RTR) data (all previous Rocky Flats-sourced pyrophoric material encountered had been in 30-gallon containers within the 55-gallon drums; none was anticipated outside of such containers).

Going forward, AMWTP personnel will perform an extent of condition review on all drums that were initially characterized as "RF751 pyrophoric" and subsequently re-characterized following RTR and assay results. Nuclear safety personnel evaluated all actions performed as part of the recovery through the unreviewed safety question process.