

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 9, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending November 9, 2017

Nuclear Criticality Safety (NCS): CNS issued an extent of condition review plan to further evaluate the recent inadvertent accumulation of uranium in the Building 9212 reduction sand separator (see 6/2/17 and 7/7/17 reports). Multi-disciplinary teams will perform assessments of various facility documents and certain NCS program requirements in order to evaluate whether event root causes have impacted other fissile material operations. Of note, the assessments will include: (1) comparisons of field conditions and process documents (e.g., operating procedures, system drawings, and NCS evaluations) for select fissile material operations in order to identify discrepancies and (2) reviews of select Inadvertent Accumulation Prevention Program (IAPP) evaluations (see 2/22/08 report) in order to identify additional unfavorable geometry equipment in which accumulation of uranium may not be adequately controlled. CNS personnel will evaluate assessment results in order to determine whether they should expand the extent of condition plan to include additional fissile material operations. Additionally they will evaluate whether results identify a need to improve key programs (e.g., change control, IAPP, and operator training). CNS intends to execute the extent of condition review plan throughout calendar year 2018.

Building 9204-2E: Recently, workers in Building 9204-2E did not adhere to several NCS controls when they handled sample bottles potentially containing fissile material. The sample bottles contain machine coolant contaminated with very low levels of uranium. As part of a four-year maintenance activity, workers drained machine coolant from lathes into safe bottles and then placed the bottles into storage in accordance with facility procedures and NCS requirements. They subsequently were made aware of the need to sample the safe bottles for a non-fissile contaminant. Workers incorrectly treated the sampling activity as non-fissile; thus they obtained, packaged, and handled the samples in a manner that was not compliant with several NCS-related controls. NCS personnel were notified of the sampling activity later in the day; upon notification, they directed that actions be taken to ensure the sample bottles were placed in a safe and stable configuration. This week, CNS held a fact finding meeting to discuss the event. During the meeting, attendees identified a corrective action to provide refresher training to facility workers on NCS-related general handling controls. Meeting attendees also committed to developing a facility procedure that will govern future sampling activities.

Building 9212/Oxide Conversion Facility (OCF): Enriched Uranium Operations personnel performed dye penetrant testing to further evaluate a potential leak of hydrogen fluoride (HF) from an OCF isolation valve (see 10/27/17 report). The testing identified a defect in an HF exhaust line, specifically in the downstream portion of the isolation valve body. In response, equipment test and inspection personnel performed ultrasonic wall thickness measurements on several HF exhaust lines in order to ascertain extent-of condition. System engineers reviewed the measurements and identified only one location with a wall thickness that is less than the nominal value. Because the measured thickness of the 15-year-old pipe was only ~10% less than nominal, they recommended that the thickness of this particular location be tested on at least an annual basis. Additionally, the system engineers performed a walkdown of the uninsulated piping within various OCF enclosures and did not identify any other areas that exhibited potential leaks. OCF operations remain on hold, pending replacement of the isolation valve.