DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 4, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending December 1, 2017

F. Bamdad, R. Jackson, and S. Thangavelu were in Oak Ridge to conduct a review of the Uranium Processing Facility Preliminary Documented Safety Analysis.

Building 9212: This week, Enriched Uranium Operations (EUO) personnel resumed briquette casting. In August, EUO management paused all briquette processing operations, including casting and briquette processing in the skull burner, after several storage boxes containing briquettes exhibited signs of thermal stress from uncontrolled exothermic reactions (see 8/18/17 report). Since pausing operations, EUO and engineering personnel have dedicated significant resources to further evaluating the hazard associated with these unanticipated reactions. As a result of these evaluations, EUO management has implemented new worker-level hazard controls for various elements of briquette handling and processing (see 9/8/17 report) and has developed new procedures that govern worker response in the event that unanticipated reactions occur during briquette handling. Before implementing these new controls and procedures, EUO management held several training sessions for operators (see 11/3/17 report).

In November, EUO personnel also resumed briquette processing in the skull burner. For the remainder of calendar year 2017, EUO operators will process the population of briquettes formed since February 2017 that CNS engineers determined are more likely to undergo spontaneous exothermic reactions. EUO management plans to begin a campaign at the beginning of calendar year 2018 during which it will dedicate all casting resources to briquette processing for a period of several months. As a result of this campaign, management hopes to significantly reduce the number of briquettes in storage (see 9/29/17 report). EUO management is further planning to process briquettes at an elevated rate after completion of the campaign in order to eliminate the backlog of briquettes stored in Building 9212 in fiscal year 2019.

Highly Enriched Uranium Materials Facility (HEUMF): Last week, HEUMF facility management reported a performance degradation of the safety-significant diesel fire pump after workers identified a solenoid valve that failed closed on the associated coolant system. The workers identified the failed valve during a weekly technical safety requirements (TSR)-driven surveillance. This week, maintenance workers replaced the valve without incident. System engineers are currently evaluating the failed valve and will consider whether recent maintenance performed on an upstream strainer assembly may have contributed to the failure.

Continuing Training: The resident inspectors attended a continuing training session this week intended for facility shift managers and shift technical advisors. Training is provided each month by the CNS Y-12 production support organization and typically covers pertinent topics such as recent operational events and changes to CNS programs. This month, the training introduced a new Y-12 structure, system, and component (SSC) operability determination procedure. Although facility operations personnel currently manage both safety and non-safety related SSC operability via existing Y-12 procedures (e.g., the conduct of operations manual), this procedure provides facility personnel with new tools to support more complex evaluations of degraded TSR-level active SSCs and passive design features. The training included a case study that applied the new process to a previous Building 9215 chip pan overflow drain issue (see 11/24/17 report). CNS plans to implement the new operability determination procedure this month. The resident inspectors believe that the training session was effective, and served as a useful forum for facility operations personnel.