DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 18, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending August 18, 2017

Building 9212: Last week, Enriched Uranium Operations (EUO) personnel identified two briquette storage boxes that showed signs of thermal stress. EUO personnel inspected the contents and found briquettes that had undergone an exothermic reaction similar to those observed on several previous occasions (see 6/30/17, 1/6/17, and 12/16/16 reports). Later in the week, EUO operators observed another exothermic reaction while attempting to load briquettes into a crucible in preparation for a casting operation. EUO management, concerned with the regularity with which these events are occurring, paused all operations requiring briquette handling and chartered a multi-disciplinary team to identify measures that could be taken to improve the safety posture associated with the safe storage and handling of briquettes. Also last week, engineering and operations staff completed a key corrective action from the initial suite of briquette exothermic reaction events by reconstituting the capability to inert briquette containers. EUO and engineering staff believe this will significantly reduce the occurrence of these exothermic reactions for new briquette containers. However, a significant number of briquettes remain stored in non-inerted containers. As such, EUO management is evaluating opportunities to significantly increase the rate at which briquettes are cast into safer and more stable forms.

Building 9204-2E: This week, the Building 9204-2E operations manager reported a technical safety requirement (TSR) violation after identifying a failure to comply with the limiting condition of operation (LCO) actions required for an inoperable fire suppression system. The violation occurred following an activity to replace the sprinkler heads on a portion of the fire suppression system. Prior to the activity, construction personnel implemented a temporary change to the system that allowed fire protection operations (FPO) personnel to impair only the portion of the system within the scope of the sprinkler head replacement activity. Per the TSRs, facility personnel initiated fire patrols for the impaired portion of the system. Following the activity, FPO staff drained the entire system to support removal of the temporary change. At that time, the fire patrol coverage area should have been extended to the entire system. However, due to a miscommunication between the shift manager and the fire patrol team leader, fire patrols only remained in effect for the portion of the system that was previously impaired. During the critique on the event, Building 9204-2E operations management identified actions to evaluate the checklists, procedures, and other protocols for implementing LCO actions to ensure that they effectively account for partial impairments or changes in impairment scope.

Nuclear Criticality Safety (NCS): During a walkdown last week, an NCS engineer identified two holes in a wall that is part of a Building 9212 Large Geometry Exclusion Area (LGEA). The holes represent an unattended large geometry in the LGEA; in the event that nearby storage tanks leak, fissile solution could enter the hollow tiles from which the wall is constructed. As a part of the immediate response to the NCS observation, CNS personnel covered the holes. CNS held a fact-finding meeting to discuss this issue. During the meeting, the maintenance supervisor stated that the holes originally served as anchor points for a bracket; maintenance workers recently removed the bracket in order to make room for new equipment and thus exposed the holes. Fact-finding meeting attendees noted that the team planning the equipment's installation did not identify that wall penetrations would be created or exposed, though the topic was discussed during at least one walkdown. As such, attendees identified a corrective action to brief design engineers on the importance of revisiting and verifying assumptions throughout the development of a change package. Additionally, meeting attendees identified corrective actions to better educate workers on the hazard created by wall penetrations in LGEAs.