

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 11, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending September 8, 2017

Building 9212: This week, Enriched Uranium Operations (EUO) personnel identified another storage box containing briquettes that underwent a spontaneous exothermic reaction (see 8/18/17 report). As a result of corrective actions from recent events, the personnel who entered the area and identified this issue were wearing respiratory protection. Consistent with prior events, radiological control surveys of the area showed that contamination spread was limited to a relatively localized area surrounding the origination point of the reaction.

Notwithstanding the localized nature of these reactions, CNS views these events as undesirable and continues to pursue actions that will allow for the safe and expeditious processing of briquettes into more stable forms. This week, the multi-disciplinary team chartered to develop these actions issued a memorandum recommending resumption of briquette processing in the skull burner (a hood designed to intentionally burn enriched uranium metal until it fully converts to oxide). The team provided two contingencies to its recommendation: (1) update the applicable job hazards analysis (JHA) to require that operators use leather gloves when handling briquette containers and (2) provide special training to address abnormal thermal reactions of briquettes during transfer. Industrial safety personnel have updated the JHA and EUO personnel plan to conduct the training on abnormal reactions next week, at which point EUO plans to resume briquette processing in the skull burner. Prior to resuming briquette casting operations, EUO management is awaiting two key actions: (1) an update to the applicable JHA to require that operators don leather gloves and fire retardant personal protective equipment, and (2) completion of a fire protection analysis that is intended to provide a more in-depth thermal characterization of these reactions.

Building 9204-2E: Last week, a viewing port fell off of a positive-pressure glovebox after the adhesive connecting it to the Lexan window failed. An operator was working in the glovebox when this happened; he immediately evacuated the area and notified his supervisor. In response to this event, CNS personnel covered the glovebox opening, altered glovebox ventilation in order to minimize the potential to spread contamination, and surveyed areas surrounding the glovebox. During surveys, no detectable contamination was discovered. CNS engineers are currently evaluating a temporary repair to the box that would allow personnel to restore the glovebox to positive pressure and restart operations. Additionally, they are considering whether a modified permanent replacement port might preclude reoccurrence.

In-Service Testing: CNS engineers recently identified that two new life certification ovens (see 7/15/16 report) reached operating temperature too quickly. During troubleshooting activities, the engineers identified that an oven controller function that regulated temperature ramp rate was disabled. This week, the resident inspectors walked down the ovens and discussed with CNS engineers the process they used to perform troubleshooting activities. The resident inspectors believe that the responsible CNS engineers demonstrated a thorough knowledge of the system and developed a test instruction that clearly confirms both the cause of the issue and efficacy of the proposed solution. However, the resident inspectors noted some informality in documentation associated with the engineering test instruction and thus believe that the enterprise procedure governing testing could be improved to require a more formal means of documenting test instructions.