

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 30, 2017

TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending June 30, 2017

Nuclear Criticality Safety (NCS): This week, maintenance and Enriched Uranium (EU) Operations (EUO) personnel initiated an activity to clean out the sand separator in the Building 9212 reduction area. CNS EUO and NCS staff initiated the activity in response to non-destructive analysis (NDA) data that indicated unexpected uranium holdup in the sand separator (see 6/2/17 report). NCS staff issued an addendum to the NCS evaluation for the area, which identified several new controls for the activity. The resident inspectors reviewed the work package for the job and found that it effectively integrated maintenance and operations tasks and adequately implemented all NCS controls. The resident inspectors communicated to CNS maintenance management an improvement opportunity involving the excessive repetition of certain hazard controls in the work package. For example, the work package contained several dozen reminders regarding heat stress, the need for caution flagging, and the need to use fire retardant plastic sheeting. The resident inspectors believe this impacted the usability of the job package and diverted the focus from NCS controls unique to the evolution. During the cleanout activity, workers observed nearly all of the sand holdup at the base of the sand separator and a material transfer line. They did not observe any indications of wet sand or hydrogenous material. NCS staff plan to use NDA data from the collected sand and observations from the cleanout activity to define appropriate corrective actions and NCS program improvements.

Building 9212: Last week, two operators were performing inventory in a material storage area when they observed indications of thermal stress on two storage boxes. They exited the area and contacted their supervisor, who notified the fire department, NCS, and radiological control personnel. Fire department and EUO personnel entered the area and used thermal imaging to verify that the storage boxes were at room temperature. Operators opened the storage boxes and found that the lids on the inner containers had fallen off and the tape sealing the lids had melted. An immediate evaluation of the area identified a third storage box that showed similar signs of thermal stress. It appears the EU briquettes stored within the boxes underwent an exothermic reaction similar to ones observed late last year (see 1/6/17 and 12/16/16 reports). CNS engineers are nearing completion of an action identified following those events to implement a process change that will inert newly containerized briquettes. In the meantime, CNS also plans to re-evaluate the radiological control strategy and environmental conditions in the storage area. The CNS team charged with improving the safe storage and processing of briquettes will evaluate this event for process changes that could prevent recurrence (see 2/10/17 report).

Building 9212/Housekeeping: A significant number of empty containers that are awaiting decontamination have recently accumulated in a Building 9212 open floor storage area. In June, CNS facility management suspended activities in the decontamination glovebox after operators identified a broken seal pot on the exhaust fan that services the glovebox. The seal pot implements an NCS control that limits accumulation of liquids in unfavorable geometry ductwork. To date, CNS has not supplied maintenance resources to repair the seal pot; as such, decontamination activities remain suspended and the pile of equipment and containers requiring decontamination has grown. This week, the resident inspectors walked down the storage area with an NPO facility representative and observed a significant pile of miscellaneous empty containers and equipment that is approximately six feet tall. The pile represents a facility housekeeping concern and could pose additional contamination, NCS, and/or fire risks should it be allowed to grow further. As such, NPO subject matter experts have engaged with their CNS counterparts on the need to repair the seal pot so that CNS can restart decontamination activities.