

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 28, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending August 28, 2020

DNFSB Staff Activity: Several members of the technical staff had a teleconference with CNS and NPO personnel to discuss the results of a review of Building 9212 out-of-service equipment (see 10/25/19, 1/31/20, 6/12/20, and 7/3/20 reports).

Nuclear Criticality Safety: Last Thursday, operators discovered liquid on the floor of a casting furnace enclosure in Building 9212 and responded appropriately per the applicable abnormal operating procedure. Nuclear criticality safety personnel responded and found approximately one cup of liquid that is suspected to have come from the cooling system. The nuclear criticality safety personnel provided guidance to isolate the cooling system and recommended that the area remain under administrative control until the liquid has evaporated and the cooling system has been repaired or determined not to be leaking. They later revised the guidance to allow production personnel to enter the administrative boundary to change a furnace pull rod and clean out uranium holdup under existing procedures as long as no liquid is found.

Two other water leaks have occurred in the casting line during the last year and a half. CNS determined that a leak in March 2019 was due to a compression fitting that did not seat properly (see 3/15/19 report). CNS noted discoloration near the fitting that indicated corrosion at the improperly seated ring. At that time, CNS believed the leak was an isolated incident and did not inspect other fittings in the casting line. The March 2019 leak was in the same casting furnace enclosure as the leak that was discovered last week. In June, operators discovered a leak in a different casting furnace enclosure. CNS has not identified the source of the June leak.

Since August 2019, CNS has been convening a fact finding meeting and performing a causal analysis for nuclear criticality safety deficiencies (see 8/2/2019 report). The fact finding and causal analysis typically focus on details of the specific deficiency. CNS considers prior, related events during closure of the deficiency at the corrective action review board meeting. CNS recently performed a more extensive review of nuclear criticality safety infractions (deficiencies and minor non-compliances) to identify any common themes among them. For this review, CNS developed new categories to organize the infractions and may use this information as part of an ongoing effort to reformat some of the CNS nuclear criticality safety metrics. CNS found that the container loading and storage category had the most infractions in 2019 and 2020. The review team identified two common items related to requirements in the general handling procedure and waste transfer between the production and maintenance organizations. The general handling procedure contains a broad set of nuclear criticality safety requirements that apply to fissile material activities in Buildings 9212 and 9215. The review team recommended revising this procedure to improve its scope and organization. The review team also made several other recommendations such as increasing production personnel attendance at maintenance pre-job briefings to discuss waste handling, developing operator aids for material movement, benchmarking the coordination between waste separation and maintenance at other nuclear facilities, and evaluating storage limits and container loading.