

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 18, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending September 18, 2020

Building 9212: Since July, CNS has been working to resolve oxide conversion facility equipment issues (see 7/3/20 and 7/24/20 reports). This week, CNS resumed operations and completed the reduction fluid bed portion of the process. While shutting down the reduction fluid bed system, operators initiated remote closure of the safety significant valve that is used to isolate the hydrogen supply line. Operators noticed that indicators in the control room showed the valve did not close. An operator went to the building roof to verify the valve position and found that it was open and did not close as intended. The shift manager entered the appropriate limiting conditions of operation for the reduction fluid bed hydrogen supply interlocks and the seismic shutdown system. Both limiting conditions of operation have the same required actions to isolate the hydrogen supply and to place the reduction fluid bed system in warm standby. Personnel established an alternate isolation (block) and vent capability (bleed) for the hydrogen supply and the system was placed in warm standby later that afternoon. CNS declared this event as a reportable occurrence under DOE Order 232.2A for performance degradation of a safety significant system. CNS developed initial corrective actions to repair/replace the valve, evaluate whether an abnormal operating procedure should be developed for this situation, and evaluate exercising equipment after long periods of idle time prior to operating the equipment.

Nuclear Criticality Safety: Based on discussions that nuclear criticality safety personnel had with personnel from the production and program organizations, they investigated the use of plastic in and around containers and items. They ultimately determined that nuclear criticality safety requirements for the use of plastic in fissile containers have been misunderstood and misapplied. Personnel were not able to pinpoint when the misunderstanding in the requirements started or within which group it began. At least one personal account of the misapplication of plastic extended back to approximately fourteen years ago. The misapplication of plastic invalidated an assumption in the container loading limits for two types of fissile containers. Due to having non-compliant containers, additional nuclear criticality safety requirements that apply to fissile material storage areas were violated. Nuclear criticality safety personnel classified the condition as a deficiency. Personnel are in the process of locating and posting all non-compliant containers as deficient. The containers will remain under administrative control. CNS assigned several corrective actions to revise affected procedures and nuclear criticality safety evaluations to clarify the existing requirements for the use of plastic in fissile containers. CNS created additional corrective actions to develop a briefing for production personnel regarding the intent behind using plastic in fissile containers and to evaluate whether the existing requirements can be revised to allow the use of plastic in the manner that production personnel had been incorrectly using it.