

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 2, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending October 2, 2020

Building 9212: CNS recently completed an event investigation regarding work that was performed without receiving work start approval from the Building 9212 shift manager. Earlier this month, calibration personnel received the appropriate work start approval and performed field calibrations for secondary extraction system components. The following week, operations personnel encountered flow control issues with the secondary extraction system. Engineering personnel thought that the calibrators may have switched the electrical connections between two components. A calibrator checked the terminal connectors of the components and found that the electrical leads were switched. The calibrator corrected the terminal connectors at that time. Later, the shift manager learned about the repair activity and verified that work start approval had not been granted. The shift manager placed the secondary extraction system on hold. CNS developed initial corrective actions that involve briefing calibrators regarding work start authority and reviewing previous events for lack of work start approval.

CNS continues to execute the Building 9212 transition strategy, which is meant to allow elimination of the safety basis and transfer of responsibility to Environmental Management by 2035. As part of that effort, CNS has been permanently isolating old systems and equipment. This fiscal year, CNS successfully completed work on seven systems, which was more than each of the last two years and exceeded the goal. The latest isolation was an old chloride system that CNS isolated last week. CNS proposed isolating twelve systems next year.

Nuclear Criticality Safety: CNS nuclear criticality safety engineers have discovered multiple issues while updating the special nuclear material vehicle (SNMV) criticality safety evaluation. The most recently discovered errors concern the analysis of a vehicle accident involving the SNMV when transporting chip dollies. CNS found the vehicle accident analysis did not use the current formulation of covering fluid used to fill the chip dollies. Specifically, the analysis did not account for a change to the formulation several years ago that added alcohol to the solution. CNS was already resolving an issue with this analysis due to a cargo area dimension discrepancy. When CNS corrected the cargo area dimension and the covering fluid composition, the results of the accident condition exceeded the upper subcritical limit. CNS developed a standing order to limit the number of loaded chip dollies that the SNMV can transport at one time and reported this issue as a management concern occurrence under DOE Order 232.2A.

Over the past two weeks, CNS had another situation where actions from one nuclear criticality safety issue led to the discovery of another issue. The first issue involved two pumps placed near each other, exceeding four liters in volume. This configuration was not compliant with the large geometry exclusion area (LGEA) program. CNS discovered a second issue during an extent of condition walkdown of a maintenance and construction laydown area meant for waste, tools, and equipment, where CNS found equipment that should have been considered contaminated with fissile material. CNS has had several issues involving the LGEA program and compliant storage of fissile material over the past year (see 1/17/20, 6/19/20, 7/24/20, and 9/11/20 reports).