

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 29, 2016

TO: Steven Stokes, Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending April 29, 2016

Staff members M. Bradisse, D. Brown, D. Grover, C. March, R. Oberreuter, and A. Powers were on site conducting a review of the Calcliner project and the ventilation systems at Building 9212.

Highly Enriched Uranium Materials Facility (HEUMF): On Saturday, April 23, the Plant Shift Superintendent (PSS) office received an alarm indicating a problem with HEUMF's criticality accident alarm system (CAAS). The PSS contacted the on-call HEUMF Shift Manager who investigated and discovered that a CAAS equipment cabinet experienced a temperature rise above the alarm set point. CNS had planned several on-site utility outages during the weekend, but the reduced ventilation flow in HEUMF should not have caused a problem as the cooling ventilation for the room with the CAAS equipment cabinet remained operational. The Shift Manager declared the CAAS inoperable and entered the appropriate limiting condition of operation (LCO). Subsequent investigations revealed that the temperature switch for the alarm had been inadvertently set to the same value as the temperature switch for the cabinet's cooling fan. It should be noted that the cabinet's cooling fan set point was below the maximum operating temperature recommended by the vendor. The fact-finding meeting for the event identified several apparent causes, including poor configuration control of the alarm set point, an error in the annual surveillance procedure, and technicians failing to identify and initiate correction of the procedure error before the last several maintenance cycles. Technicians subsequently executed a corrected surveillance package to ensure proper operation of the CAAS.

HEUMF/Material-at-Risk (MAR) Reduction: NPO approved a safety basis supplement to allow the storage of multiple units of a specific canned subassembly (CSA) in HEUMF. The storage of multiple units of this specific CSA had been authorized in Building 9204-2E, but CNS was seeking to expand its approved storage locations to HEUMF as part of efforts to reduce MAR in aging nuclear facilities (Area 5 De-inventory Project, see 8/15/14 report). CNS will conduct a readiness assessment (RA) prior to commencing storage of these CSAs in HEUMF. The RA is currently scheduled for June 2016.

Building 9204-2/Aging Infrastructure: On April 25, Building 9204-2 hydraulic elevator equipment overheated and caused a sprinkler head to activate. Fire Department personnel responded, noted an oily haze in air, and found that a sprinkler had activated in a first floor elevator equipment room. The Fire Department verified there was no fire and immediately closed the water supply valve for the sprinkler. The Buildings 9204-2 and 9204-2E Shift Managers entered the appropriate LCO for loss of one of the credited fire sprinkler systems. The exact cause of the activation has not been confirmed, but the elevator technician believes that the hydraulic motor continued to run after the elevator was last operated. This in turn heated the hydraulic oil in the reservoir above the motor and caused the ambient room temperature to rise. The sprinkler head was designed to activate at 165°F. The water from the sprinkler interacted with the heated oil in the reservoir causing the oily haze and a spill covering roughly 2500 ft² of the first floor of the building. No damage to equipment in the area was observed. The technician noted that this 1960s-vintage elevator did not have a timed automatic shut-off that would de-energize the hydraulic motor if it continued to run when the elevator was idle. The technician also noted that 1960s elevator code did not require this timed shut-off function but modern consensus codes would require a motor limit timer. CNS management noted that this elevator was slated for replacement dependent on funding and has directed an extent-of-condition review to determine if other elevator systems have similar vulnerabilities.