

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 18, 2016

TO: Steven Stokes, Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending July 15, 2016

Staff member J. Meszaros was on site shadowing site rep activities.

Uranium Processing Facility (UPF): NPO issued an Evaluation Report approving a CNS request for limited work authorization (LWA) of the Mechanical/Electrical Equipment Building (MEB) subproject. The MEB is designed as a standard industrial, non-nuclear facility but it will house utility equipment that supports the other more hazardous UPF buildings. In general, 10 CFR 830 requires a contractor to have an approved Preliminary Documented Safety Analysis (PDSA) prior to beginning construction, but it allows DOE to authorize limited construction activities if those activities will not be detrimental to the future safety of the facility. In the Evaluation Report, NPO documents its basis for approval of the LWA. This includes NPO's determination that the support utilities in the MEB will meet appropriate nuclear safety design requirements, the utilities will not require upgrade after installation, and work authorization at this time is in the best interest of the government. Critical decision 2/3 approval for the MEB is forecasted for early January 2017 followed by the start of construction several months later.

Building 9204-2: In the third quarter of fiscal year (FY) 2016, CNS qualified a subset of new production ovens for use in Building 9204-2E. Qualification of all new ovens is necessary to relocate a process involving nuclear material from Building 9204-2 to Building 9204-2E and thus facilitate the downgrade of Building 9204-2 from a hazard category-2 nuclear facility. The previous Y-12 contractor initiated work that supports the Building 9204-2 downgrade after NPO issued a letter in January 2014 that requested a review of the hazard categorization of several nuclear facilities (see 1/17/14 report). In FY16, CNS also completed relocation of all nuclear material from the remaining storage area in the facility (see 3/18/16 report). Provided CNS qualifies all ovens by the end of October 2016 and completes necessary safety basis modifications, Building 9204-2 will be ready to downgrade by the end of October 2017.

Material-at-Risk (MAR) Reduction: The current inventory of enriched uranium (EU) briquettes is the single largest contributor of any material form to the dose consequences of a radiological release event at Y-12. Therefore, one of the key MAR reduction initiatives detailed in CNS's EU mission transformation implementation plan (see 6/13/16 report) involves reducing this inventory by using the casting furnaces to convert briquettes into a less hazardous oxide form. NNSA established a goal for CNS to process 150 briquette containers in FY16. However, by the end of April 2016, CNS was well behind the schedule for achieving this goal. Two of the challenges limiting briquette throughput were the time it took to cool the briquettes after casting and the limited number of cooling positions on the casting line. In May, CNS implemented two process changes to address these challenges. The first change eliminated a nuclear criticality safety (NCS) requirement to install a cover on the crucible while casting briquettes. Removal of the cover allowed the oxidized briquettes to cool faster after being cast. To support this change, CNS NCS engineers updated the NCS analysis to demonstrate that the cover was no longer needed to prevent moderation of the oxide. The second change added an extra position to the cooling tunnel, which gave EU operations personnel the flexibility to process additional briquettes without impacting other programmatic deliverables. As of last week, CNS had processed 125 briquette containers and is on schedule to meet the FY16 deliverable.