DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 9, 2017

MEMO TO: Steven Stokes, Technical Director
FROM: Ramsey Arnold and Zachery Beauvais
SUBJECT: Pantex Plant Report for Week Ending June 9, 2017

Qualified Containers: CNS continues to evaluate the condition of the external drums on AL-R8 sealed insert containers (see 5/12/17 report). CNS engineering personnel discussed their proposed approach for an updated container and pit sampling plan with representatives from the weapons design agencies (DA) and the resident inspectors. In development of the plan, CNS is considering several variables including effects of the 2010 flood, thermal output of the container contents, storage location, initial packaging location, and time since initial packaging. CNS presented the results of their field inspections to-date, including the overall fraction of containers that have received external visual inspections as part of the ongoing extent of condition, binned by pit thermal output category. The fractions ranged from 5 to 25% of the total inventory for each thermal output category. The updated sampling plan is under management review. The resident inspectors accompanied CNS engineering and DA personnel on further inspections of containers currently housed in Zone 4 nuclear material storage magazines. The field inspections focused on magazines that were not impacted by the 2010 flood. The team noted multiple containers with visible signs of potential corrosion, ranging from single spots of discoloration to visibly evident surface bubbling, flaking, and rust. The identified containers predominantly hold the highest thermal output pit type. Additionally, CNS safety analysis engineering (SAE) determined that the previously identified container damage (see 5/26/17 report) met the criteria for a positive unreviewed safety question. The initial compensatory measure restricting movement of the highest thermal output pit type remains in place (see 6/2/17 report). CNS plans to develop a justification for continued operations to resume these activities.

Electrical Test: The cognizant DA provided CNS with a specific instruction engineering release (SIER), detailing their authorization for continued operations on an anomalous unit that recently failed a mechanical safe and arm detonator (MSAD) electrical test (see 6/2/17 report). The MSAD electrical test is performed in multiple stages, involving the testing of two separate circuits within the component to verify that the MSAD is in the safe position. The initial test failure occurred during the first stage of this test. The SIER instructs CNS to proceed with the next stages of the test, and to treat any positive tests as acceptable indications that the MSAD is in the safe position. The SIER allows CNS to return to normal operations if an acceptable reading is obtained in any stage of the test. A nuclear explosive safety (NES) study group will evaluate the operation through a NES change evaluation, currently planned for early next week, prior to CNS resuming operations.

Planned Improvements: In March, CNS committed to provide NPO a status and schedule for completion of numerous planned design and operational safety improvements listed in the documented safety analysis, many of which had been included as part of its initial approval, over ten years ago. CNS provided the status of these items this week. A number of the improvements, including evaluation of specific phenomena associated with lightning insults, can be addressed based on work previously performed. Several others are dependent on receipt of additional weapon response from the DAs, outside CNS's direct control. The schedule for completing improvements within CNS and NNSA's control, such as overhead hoist replacements and updating the seismic qualification of nuclear explosive facilities, extends into the 2020s.