

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 17, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Miranda McCoy, Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending July 17, 2020

Facility Structure: Last month, during structural in-service inspections of the safety class facility structure, the structural engineer noted what appeared to be concrete spalling in one ramp (see 6/26/20 report). The damaged concrete extended around an anchorage for an I-beam that spanned the width of the ramp. Since the discovery of the damage, CNS has completed designing and constructing a support structure for the affected I-beam, and has excavated the damaged concrete to determine whether the internal rebar was damaged or rusted. The internal rebar showed no signs of rust or damage, indicating that the concrete failure mechanism was not concrete spalling due to rusting of the internal structure. CNS structural engineers believe the most likely cause of the damage is thermal expansion and contraction, which could have caused the I-beam to be under tension and caused a subsequent tensile failure of the concrete surrounding the I-beam anchor.

Following construction of the I-beam support, CNS quality personnel noticed that one of the bolts used in the support structure for the I-beam and existing nearby piping did not meet nuclear quality assurance (NQA-1) requirements. The construction work was completed on Friday, following which barricades in the area were removed; CNS quality personnel performed a review of the work order the following Monday and noted the discrepancy. During the fact finding meeting, CNS personnel noted that the bill of materials (BOM) for the support design was created using components meeting NQA-1 requirements that CNS already had onsite, but the BOM neglected to capture one of the bolts specified later in the design drawings. Metal shop crafts workers performing the support construction noticed that the bolt was not identified in the BOM and therefore not available at the job site. A similar bolt to that specified in the design drawings was located, and infrastructure and project engineering agreed to move forward with the bolt but did not notice that it did not meet NQA-1 requirements. The drawings were both revised and subsequently red-lined in order to allow for the similar bolt to be used, but neither noted quality requirements. As a path forward to confirm the adequacy of the non-NQA-1 anchor, CNS engineering intends to document a load test of the anchor in an engineering evaluation.

Construction: While performing work for facility upgrades in a ramp, subcontractors damaged a live conduit approximately three inches into the concrete of the ramp ceiling. Neither available facility drawings nor CNS locator equipment identified the conduit, so the permit provided to the subcontractors did not include it. Pantex has experienced previous impacts to energized sources, notably resulting in an operational emergency last summer and a similar event involving direct hire workers damaging an energized conduit in the material access area (see 8/23/19, 12/13/19, and 1/31/20 reports). CNS has implemented a number of corrective actions as a result of previous events. Additionally, CNS has noted previous inaccuracies with as-built drawings within the material access area, including rebar discrepancies within the safety class facility structure (see 1/10/20 report).