

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 17, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: Ramsey P. Arnold and Zachery S. Beauvais, Resident Inspectors
SUBJECT: Pantex Plant Activity Report for Week Ending August 17, 2018

Gouge Hazards: Last week, CNS safety analysis engineering (SAE) declared a potential inadequacy of the safety analysis (PISA) related to gouge hazards presented by the use of a pump fixture on one nuclear explosive program (see 8/10/18 report). SAE completed their unreviewed safety question (USQ) determination for the PISA and determined that the situation represented a negative USQ. The approved hazard analysis report dispositions gouge hazards involving the pump fixture based upon initiating event probability arguments and concludes that no controls were necessary to prevent possible high order consequences related to these hazards. DOE Standard 3016, *Hazard Analysis Reports for Nuclear Explosive Operations*, stipulates that for events other than natural phenomenon hazards, “initiating event probability information must not be used to dismiss the need to apply controls for plausible accident scenarios resulting in [high order consequences].” In their USQ determination and evaluation of the safety of the situation (ESS), SAE concludes that the use of probability arguments without the application of additional controls is an “undesirable situation from an overall risk perspective,” but does not trigger any of the conditions that would necessitate a positive USQ determination. As part of their ESS, CNS documented their proposed steps to adequately control these hazards. The steps include modifying the pump fixture to reduce its weight, remove alignment pins that could cause a gouge and modifying the applicable nuclear explosive operating procedures to remove the tool in pieces. These measures are not protected with credited design features or specific administrative controls. Operations with the pump fixture remain paused while CNS implements the modifications.

Flame Detector Misalignment: Over the past month, CNS discovered ultraviolet flame detector heads out of alignment in two nuclear explosive bays. The Pantex safety basis requires that maintenance personnel perform a detector head alignment inspection annually to ensure detection coverage of the facility operating area remains adequate. During the annual surveillance, maintenance personnel discovered that alignment marks on the detector heads and associated fixtures did not meet the acceptable criteria. In each instance, CNS initially categorized the event as a performance degradation of a safety class system when not required to be operable. During the issues management meetings, CNS personnel discussed how it is plausible that the detector heads were bumped by crafts personnel while completing a deluge flow test that requires steps to be performed in the vicinity of the detector head; however, none of the crafts personnel interviewed recall bumping the detector heads. CNS personnel also discussed how in the past, craft workers optionally determined alignment from the facility floor as opposed to using an elevated lift to confirm the alignment marks. With the second misaligned detector head, the alignment marks lacked the precision necessary to allow maintenance personnel to align the head; it is not clear how long the alignment marks had been inadequate. The resident inspectors do not believe enough data has been presented to support the categorization of the events. It is not clear whether the detector heads were in alignment prior to the facility turnaround period last month, and whether the detector heads were providing their safety function for the past year. The resident inspectors have provided these observations to NPO and CNS personnel. CNS plans to develop corrective actions to prevent reoccurrence.