

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 11, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: Miranda McCoy, Resident Inspector
SUBJECT: Pantex Plant Activity Report for Week Ending September 11, 2020

Safety Basis: Late last week, CNS transmitted an evaluation of the safety of the situation (ESS) to NPO for approval regarding a material-at-risk quantity error and a rule mapping issue for one weapon program (see 9/4/20 report). The ESS asserts that the safety basis is adequate and no changes to the current control set are necessary. The scenarios affected by the errors include a low order consequence event, which the safety basis currently controls through the personnel evacuation specific administrative control. The weapon response rule for this scenario is not dependent on material quantity; therefore, material-at-risk errors do not affect the control set. A second scenario involves impacts to sensitive components that, when mapped to the correct weapon response rule, result in an increase in consequence, but are already adequately controlled by special tooling design features.

External Dosimetry: Pantex dosimetry and dosimetry processing equipment have degraded and experienced functionality issues, likely due to aging and inadequate cleaning of the system. Last October, CNS noted a higher percentage of abnormal dosimetry readouts than typical. Following an investigation of the dosimetry processing equipment, CNS determined potential causes of the abnormal readings, cleaned the equipment, and replaced some components, such as heating elements. However, the equipment is approximately 40 years old, and functionality issues culminated in a full loss of dosimetry processing capability at Pantex early this year. CNS has since been working both short term solutions and long term resolutions to provide Pantex site personnel and visitors with DOE Laboratory Accreditation Program (DOELAP) accredited dosimetry.

As a long term path forward, Pantex intends to receive external dosimetry from Y-12, and provide worn dosimetry back to Y-12 for processing. CNS has performed a dose study at Pantex to determine a typical neutron spectrum; this study will allow Y-12 to process the dosimetry accordingly. The use of different equipment than previously specified for Pantex also requires a temporary exemption to DOELAP requirements. Pantex expects to receive the first shipment of Y-12 dosimetry early next week and perform a dry run of dosimetry change out shortly after. CNS intends to perform a full swap of dosimetry by the end of the month.

In addition, CNS implemented several measures to manage dosimetry while awaiting Y-12 equipment, including the following:

- Site dosimetry requirements were reduced from within the full material access area to only within radioactive material areas or areas of greater risk. Last month, subcontractors and a CNS employee violated the new dosimetry requirements (see 8/14/20 report).
- CNS authorized visitors from several sites to use their dosimetry at Pantex via a memorandum in June. NPO subsequently discovered that CNS had not appropriately verified one authorized site's DOELAP accreditation.
- CNS temporarily extended quarterly dosimetry to a six-month replacement cycle.