

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

MEMO TO: Timothy Dwyer, Technical Director
FROM: Matthew Duncan and Rory Rauch, Pantex Site Representatives
SUBJECT: Pantex Plant Report for Week Ending July 16, 2010

DNFSB Activity: B. Laake was at Pantex to observe the third week of the B53 SS-21 Nuclear Explosive Safety Study. J. Anderson and D. Campbell were onsite to review a sampling of calculations that form the basis of the Pantex documented safety analysis.

Flooding Event: B&W determined that the potential inadequacy of the documented safety analysis declared in response to last week's flooding was a positive unreviewed safety question. B&W submitted an evaluation of the safety of the situation (ESS) to PXSO that referenced new rainfall analyses recently completed by a subcontractor working on the 10-year site-specific natural phenomena hazards update. These analyses determined that the maximum credible (defined as a frequency of 1 every 10,000 years) water depth in nuclear explosive facilities would be 12 inches as a result of approximately 18 inches of rainfall over a 24 hour period. The ESS evaluated three hazard scenarios for potential nuclear safety consequences, including nuclear criticality, electrical coupling from either AC power or lightning, and chemical effects. It concluded that the risk of continuing operations is acceptable and that no compensatory measures are necessary. B&W plans to submit a justification for continued operation within 30 days of PXSO's approval of the ESS. Ultimately, B&W will incorporate the new rainfall and flooding analyses along with the resulting hazard scenarios into the existing DSA.

Engineers continued to evaluate the condition of facilities; infrastructure; safety-related structures, systems, and components; nuclear explosives; and weapon-related materials. B&W has determined that flooding affected roughly half of the nuclear facilities. No nuclear explosives or nuclear explosive components came in direct contact with water, although some tritium reservoir containers and approximately 1000 pit containers were exposed.

B&W has prioritized restart of each nuclear facility based on operational requirements. For every facility proposed for restart, a management team will collect all documentation (including engineering evaluations) affirming that it is safe to resume operations. Once this team's review is complete, the package will be sent to the manufacturing division. The manager for nuclear facility operations will lead a team that will also review the package, ensure that all surveillance requirements and in-service inspections have not expired, and perform a final inspection of the facility. So far, B&W has restarted one nuclear explosive facility.

Contamination Event: During the flooding event, storm water contacted several tritium reservoir containers that had been sitting on the floor of a nuclear explosive bay. During cleanup and recovery activities, radiation safety personnel entered the bay and surveyed the empty containers. These containers contain foam, and the interior appeared to be dry. While awaiting survey results, the technicians were told it was acceptable to reseal the containers. While lifting a container, contaminated water that had pooled in the bottom of a container spilled onto a technician's lap and onto his leg through his coveralls. The technician contacted radiation safety personnel, who responded and took samples of the water from several containers, which ranged from 3000-8000 dpm/ml. Later that morning, a second technician spilled water onto his (regular) coveralls, but it did not reach his skin. Both technicians submitted bioassay samples, both of which were below detectable limits. B&W chose not to critique this event.