

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Timothy Dwyer, Technical Director
FROM: Wayne Andrews and David Kupferer, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending April 6, 2012

Uranium Processing Facility (UPF). This week, B&W issued a corrective action plan to address all of the observations, deficiencies, and weaknesses identified by YSO's Pre-Technical Independent Project Review (Pre-TIPR) team (see the 3/30/12 report). Last week, in response to comments provided by both YSO and the Board's staff, B&W submitted a revision of the Safety Design Strategy (SDS) to YSO for approval (see the 3/9/12 report). The submitted SDS includes the following strategies that are intended to address concerns identified by the Board:

- Confining hazardous material within the building structure following a seismic event by requiring a portion of the active confinement system (exhaust of processing hoods) to be designed to Seismic Design Category-2 (SDC-2) criteria. This confinement function, in combination with the facility structure, will be designed to ensure a minimum flow rate into the process areas following a seismic event (i.e., the area within the confinement boundary will be at a negative differential pressure relative to the surrounding areas).
- Preventing criticality accidents following a seismic event by requiring engineered criticality safety controls necessary to prevent criticality accidents be designed to SDC-2 criteria; however, in cases where the failure of an engineered criticality safety control has the potential to result in a criticality accident following a seismic event (i.e., there are no other controls that would be able to prevent the subject criticality accident), the control will be designed to SDC-3 criteria.
- Limiting potential fire scenarios by requiring fires be controlled through use of safety-significant fire barriers (rated for 2 hours and designed to SDC-3 criteria) and a safety-significant fire suppression system (also designed to SDC-3 criteria).

This week, YSO approved the revised SDS with one condition of approval; specifically YSO identified that a safety strategy for small fires that do not activate the fire suppression system needs to be incorporated into the SDS. In its approval letter, YSO requested that B&W take additional measures to provide a high-quality Preliminary Safety Design Report as quickly as possible (see the 3/2/12 report). Also this week, YSO submitted a request to NNSA Headquarters for clarification of DOE requirements related to several of the key changes in the proposed SDS. Specifically, YSO requested a position from the Chief, Defense Nuclear Safety (CDNS) on the following questions: (a) do non-safety systems (e.g., the SDC-2 active confinement system identified in the proposed SDS) need only be designed to SDC-1 criteria, (b) is a deposition velocity of 1 cm/sec acceptable for use on the UPF project, and (c) what is the proper SDC for criticality safety controls?

Fire Protection. Last week, B&W entered its Potential Inadequacies in the Safety Analysis (PISA) process to evaluate an unanalyzed failure mode associated with four safety-significant, dry pipe fire suppression systems associated with Buildings 9212 and 9215 (see the 3/30/12 report). B&W subsequently identified this new information as a PISA, determined that a positive Unreviewed Safety Question exists, and submitted two Justifications for Continued Operations (JCOs) to YSO for approval (one for Building 9212, one for Building 9215). The JCOs include an action for B&W to develop and implement a new surveillance requirement for the subject dry pipe systems to be inspected, flushed, and repaired on a five-year periodicity.