

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 June 3, 2011

Uranium Processing Facility (UPF)/Criticality Safety. In December 2010, NNSA issued a Technical Bulletin that included a report issued by DOE's Criticality Safety Support Group (CSSG) regarding the treatment of seismically induced criticality accidents in the design of new nuclear facilities such as UPF. In its report, the CSSG concluded that, due to the limited consequences of a seismically induced criticality accident, Seismic Design Criteria-1 (SDC-1) is appropriate for systems, structures and components (SSCs) that are important to criticality accident prevention.

In response to questions raised by the DNFSB staff regarding prevention of post-seismic criticality accidents (see the 4/1/11 and 4/15/11 reports), NNSA tasked the CSSG to review the UPF project team's strategy to prevent criticality accidents. The CSSG completed this task two weeks ago. In its report, the CSSG states that SDC-1 is an appropriate designation for SSCs that are important to criticality safety assuming that damage and deformation to the subject SSC resulting from a seismic event could not credibly result in a criticality accident. Regarding the specific SDC category currently assigned to the SSCs of UPF for preventing post-seismic criticality accidents, the CSSG stated that "there may be cost savings realized during final design by downgrading the facility structure and some components from SDC-3 ... to SDC-2 or SDC-1" In response to direction from YSO (see the 4/15/11 report), B&W is still revising its Safety Design Strategy including documenting its strategy for analyzing and preventing post-seismic criticality events.

Conduct of Operations/Criticality Safety. Two weeks ago, B&W declared a Technical Safety Requirement (TSR) violation in Building 9402-2E. The subject TSR requires verification that normal power is available to each detector in the applicable Criticality Accident Alarm System (CAAS) detection stations on days when fissile material handling activities are to be performed. In this specific case, operators had requested for the Shift Manager to perform this verification, but initiated fissile material movement operations prior to this verification being completed. The reason given for initiating operations prior to the verification being performed was perceived schedule pressure. Soon after the operations were initiated, the Shift Manager became aware of the situation and placed the area under Administrative Control. The verification was subsequently performed and was satisfactory. B&W determined the preliminary direct cause of this event to be personnel error and identified corrective actions including briefing material management personnel on lessons learned from this event.

Utilities/Critical Nuclear Utilities Upgrade Project. This week, NNSA Headquarters directed YSO to develop a Critical Decision-0 package—to include a Mission Need Statement, Acquisition Strategy, and Programs Requirements Document—for a new project to upgrade utilities that are vital to sustaining nuclear operations at Y-12. B&W intends for most of the project scope to focus on upgrades to electrical systems including replacing breakers, transformers, cable, and switchgear. However, the project will also include upgrades to steam systems, cooling towers, and the potable water system (e.g., labeling valves, see the 7/16/10 report). In its tasking letter, NNSA Headquarters stated that it is planning to include the initial capital funding request for this project in the budget for Fiscal Year 2013.