

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 9, 2008

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/David Kupferer/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending May 9, 2008

This is last Oak Ridge report for Mr. Davis pending his new assignment as a site representative at Los Alamos National Laboratory. Mr. Kupferer was out of the office this week.

Oxide Conversion Facility Restart: As reported on March 21st, YSO directed that B&W halt efforts to restart the Oxide Conversion Facility (OCF) due to funding issues. YSO has recently authorized B&W to resume OCF restart efforts and conduct OCF operations until September.

During a recent surveillance test on the dock scrubber, an operator noted that a scrubber solution flow sensor did not provide an expected low-flow alarm upon loss of the local power supply to the sensor. As such, a shutdown signal to close the Hydrogen Fluoride system isolation valves would not be generated. B&W declared a Potential Inadequacy in the Safety Analysis. This week, B&W submitted an Unreviewed Safety Question Determination (USQD) to YSO on this issue that concluded no USQ exists. The USQD notes that loss of power to the flow sensor creates a signal that the safety controller does not treat as a valid input to initiate a shutdown, but that another, separately-powered flow sensor maintains the low-flow shutdown function. The USQD notes that the common-mode loss of power to both instruments would include the main safety controller and initiate a shutdown, and that loss of one of these instruments is addressed in the safety basis. B&W is considering potential design changes addressing this issue.

Uranium Processing Facility (UPF): The UPF Project plans to use various wet chemistry processes for chemical recovery of enriched uranium in UPF. The operational experience of wet chemistry processes in the Enriched Uranium Operations Building since startup authorization in 2003 shows a lack of sustained operational tempo and other numerous safety-related lessons-learned. A defined risk item in the UPF Risk Analysis Report regarding wet chemistry design appears warranted. Such a defined risk item would prompt appropriate mitigation strategies such as formal capture of operational experience and the use of that information in design of UPF wet chemistry systems.

UPF Project personnel stated in discussion with the site reps. that individual risk items on specific wet chemistry technology development efforts are defined for UPF (e.g., use of centrifugal contactors for primary extraction); however, there is no general risk item on wet chemistry design. UPF Project personnel noted that several UPF Project team members have prior Y-12 wet chemistry experience and that input from current wet chemistry operations personnel is actively solicited by the UPF Project for various technical reviews. No clear mechanism was noted, however, that ensures systematic capture of various operating experience and proper use of that information for UPF design. Such a mechanism(s) could apply beyond wet chemistry to operating experience in any current Y-12 nuclear process systems that are to be used in UPF.