

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 18, 2010

TO: Timothy Dwyer, Technical Director
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending June 18, 2010

Staff members Andrews and Deplitch visited Y-12 to observe an emergency management exercise.

Uranium Processing Facility (UPF). In May, B&W had proposed technical interchange meetings with YSO to address YSO's concerns on the UPF safety-significant confinement ventilation system design (see the 5/28/10 site rep. report). YSO's primary concern was a lack of redundancy of exhaust fans and power sources for primary (glovebox) and secondary (room) confinement zones. This month, YSO and B&W have been conducting technical interchanges on these concerns. A key action defined to date is for B&W to develop a much more detailed definition of the safety functions of the UPF confinement ventilation system (to include addressing credible system/equipment failures and be specific to various process areas). B&W has assembled a task team to develop this detailed definition by early July. B&W also intends to perform additional reliability and maintainability analyses in the near term to further address YSO's concern. Separately, B&W is planning a longer-term effort to evaluate and potentially propose downgrading the functional classification of the confinement ventilation system from safety-significant to defense-in-depth.

Y-12 Emergency Management. The Purification Facility is a non-nuclear facility that contains various chemical hazards. This week, Y-12 personnel performed a full-scale emergency management exercise that involved a spill of acetonitrile (ACN) in the Purification Facility. The exercise scenario included ignition of the ACN about 30 minutes after the spill and the ACN burning itself out after 15-20 minutes. One of the decomposition products of burning ACN is hydrogen cyanide (HCN) gas.

The Board's staff and site rep. observed the Incident Command, Technical Support Center, Oak Ridge Emergency Operations Center, and Joint Information Center. The staff had the following observations during the exercise: (1) key participants did not fully understand the physical properties and hazards associated with the ACN and HCN, (2) personnel did not recognize that the HCN plume would significantly dissipate within a few minutes of the fire being extinguished, (3) field monitoring teams weren't deployed until 80 minutes after the fire was extinguished, (4) on-site sirens did not enunciate, and (5) some communications between various response entities, both onsite and offsite, were poor. B&W's exercise evaluators did not appear to identify some of these observations. The site reps. provided these observations to Y-12 management.

Highly Enriched Uranium Materials Facility. This week, B&W conducted a first-use evolution of the procedure to recontainerize fuel elements for the High Flux Isotope Reactor (recontainerize elements from the shipping container to the storage box). Unlike the first use of the can recontainerization procedure noted in last week's site rep. report, a few steps were either missing (e.g., disconnecting a sling) or were redundant (removing a label). The work crew stopped work, notified the shift manager and obtained necessary approvals to complete the evolution; however, first-use controls (i.e., additional management oversight) will remain in place for at least another evolution. B&W and YSO personnel noted to the site rep. that a demonstration of this procedure was not performed for the NNSA or B&W Operational Readiness Reviews.