

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 November 12, 2010

Nuclear Facility Risk Reduction (NFRR) Project/Building 9212. Two weeks ago, DOE Headquarters approved Critical Decision-2 (CD-2) and CD-3A for the NFRR project (see the 10/8/10 report). The scope of CD-3A, Long-lead Procurement and Minor Construction, includes removing Kathabar equipment, modifying an exhaust stack, procuring switchgear equipment, and installing vacuum system pumps for casting furnaces. B&W is planning to submit the CD-3B package for the NFRR project to DOE later this fiscal year. The scope of CD-3B, Start of Construction, includes installing ventilation, electrical, and steam system equipment.

Conduct of Operations. Some operating procedures include the flexibility for process engineers to direct work (see the 8/13/10 report). B&W previously trained its process engineers that this direction must be written, peer reviewed, and concurred with by the Shift Manager. Two weeks ago, B&W issued a form that production personnel are required to use to implement this process. Utilization of this form will significantly improve the formality of operations that process engineers are directly involved with (see the 10/2/09 report).

Feedback and Improvement. Earlier this year, B&W issued its final lessons learned report for the Highly Enriched Uranium Materials Facility (HEUMF) project (see the 2/27/09 report). The report includes 28 high-level lessons learned during all phases of the project (e.g., planning, design, construction, startup, etc.). The report concludes that the specification of quality assurance requirements was insufficient and that the major difficulties in the project could be attributed to quality assurance failures (see the 2/27/09 report). The report made numerous recommendations including the following:

- Quality requirements should be defined early, documented, and formally transmitted to all parties involved with the project.
- A systems approach should be utilized that begins with definition of functional and operating requirements for each system and ensures that these requirements are integrated throughout the design, construction, testing and startup phases of the project.
- Full-scale mock-ups should be used to discover design issues early and facilitate training of operators and validation of operating procedures (see the 6/27/08 report).
- A process similar to the Readiness Certification Assurance Process could be beneficial to management in their assessment of readiness for operations (see the 1/8/10 report).

Despite that this lessons learned report lacks specificity with regards to the primary construction quality assurance issues encountered during construction of HEUMF (i.e., reinforcing steel installation, concrete placement, fastener procurement and installation), the site representatives believe that this report could significantly benefit other major projects throughout the DOE complex. The HEUMF project team made a concerted effort to pass on real-time lessons learned to the Uranium Processing Facility (UPF) project team. An example of the UPF project team utilizing these recommendations is the use of full-scale mock-ups. Last week, the site representatives conducted a walkdown of the mock-up area for UPF. B&W has constructed more than 20 full-scale mock-ups to evaluate equipment designs and solicit the feedback of operators that currently use similar equipment throughout Y-12.