DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 29, 2008

TO: Timothy Dwyer, Technical Director
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending August 29, 2008

Staff members D. Gutowski and A. Gwal reviewed electrical systems in various Y-12 facilities.

Building 9212 Facility Risk Review (FRR): This summer, NNSA Headquarters authorized Y-12 to prepare a Critical Decision-0 (mission need) submittal on a new project—the Nuclear Facility Risk Reduction Project (NFRR)—that is intended to fund and accomplish much of the upgrade work items identified in the FRR (see the 7/25/08 site rep. report). This submittal was recently forwarded to NNSA Headquarters and an Independent Project Review of the submittal package was conducted last week. Both the FRR and the NFRR outline facility upgrades and other actions considered necessary by NNSA for safe operation of Building 9212 until the planned Uranium Processing Facility is operational. The scope of the NFRR includes replacing specific equipment in the following systems during the 2011 to 2015 timeframe:

- mechanical utility systems (piping and valves),
- electrical utility systems (motor control centers, switchgear, and panels),
- ventilation systems (controllers, fans, motors, ductwork, and filter housings), and
- special process systems (chip cleaning fluid disposal and Holden gas furnaces).

Building 9212 Electrical Systems: The staff reviewed electrical systems for Building 9212 and noted observations regarding electrical distribution short-circuit calculations, lightning protection, electrical cable condition assessments, and battery power supply ventilation. During a walkdown in Building 9212, the staff and site rep. observed substantial combustibles placed against the sides of a 480-volt electrical control panel. This panel is in an area used by maintenance personnel for storage of various equipment, parts, etc. In response to this observation, Building 9212 management indicated that some form of control (e.g., signs) would be implemented to keep combustibles adequately separated from the panel.

Conduct of Operations/Feedback and Improvement: In May, B&W implemented a new protocol to issue "initial event information" reports to site management immediately following the discovery of an event (see the 5/23/08 site rep. report). The site reps. believe that use of this protocol has increased management awareness and involvement in the proper follow-up to such events. This week, B&W management noted that these reports helped identify a trend over the last several weeks involving increased personnel errors (e.g., wrong size part installed in an assembly and failure to properly identify a criticality safety deficiency as noted in the 8/15/08 site rep. report). B&W management noted that a review of procedure use practices and determination of other corrective actions is in progress.

Highly Enriched Uranium Materials Facility (HEUMF): Months ago, the HEUMF project issued a Non-conformance Report that identified approximately 21,000 (of approximately 120,000) fastener assemblies in the safety-class storage racks were installed incorrectly. Specifically, direct tension indicating washers were installed in contact with the nut as opposed to the head of the bolt or a hardened washer, which could give a false indication of the pre-tensioned load of the assembly. B&W had proposed to gather data from a test installation of five left-over fastener assemblies and use a mean torque value as the criteria to determine if the incorrectly installed assemblies are adequately pre-tensioned. The staff questioned this path forward, in particular the effect certain factors (e.g., time, lubrication, etc.) would have on attempts to accurately replicate the condition of the installed assemblies. This week, B&W tested 33 fastener assemblies and obtained data that correlates applied torque and turn-of-the-nut measurements to the tensile load of the assembly during installation.