DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 18, 2008

TO: Timothy Dwyer, Technical Director
FROM: Donald Owen and David Kupferer, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending July 18, 2008

Furnace Reduction Operations: In preparation for a furnace reduction operation (reducing uranium tetraflouride to a metal button), the reactor vessel lid is inspected to ensure the flow path to a safety-significant pressure relief line and rupture disk is clear. Late last week, operators discovered blockage from what is believed to be calcium deposits in the relief line of a reactor vessel lid being inspected for use. The vessel had been used in a recent reduction run. In the lid of another vessel, blockage was found in the adjacent port for the gas supply/pressure sensing line. In a third vessel lid, heat discoloration was observed and calcium deposits were found downstream of the rupture disk (believed to be a heat stress failure of the rupture disk). B&W personnel noted that these are the first such deposits found since resumption of furnace reduction operations in late 2005 with the new vessel design (incorporating pressure relief capability).

B&W's documented evaluation on safety basis implications indicates that the calcium deposits occur during the latter stages of the reduction run, not when peak pressures are encountered and the rupture disk is needed for over-pressure relief. Based on this assessment, B&W determined that a Potential Inadequacy of the Safety Analysis does not exist and does not intend to externally report this issue. B&W is evaluating the cause of the deposits and any recommended changes.

Integrated Safety Management (ISM): YSO recently submitted its annual declaration that ISM is, in general, being effectively implemented at Y-12. YSO noted that weaknesses were identified during ISM assessments that were conducted during the past year; in particular, the B&W corporate review that was conducted in October 2007 and the DOE Office of Health, Safety and Security (HSS) assessment conducted in April 2008 (see the 5/2/08 site rep. report). DOE HSS has issued the final report on its Y-12 assessment. Findings in the HSS report included instances of deficient conduct of operations where supervision allowed or directed deviations from site processes, established requirements, and hazard controls.

Integrated Facility Disposition Project (IFDP): YSO and DOE-ORO have continued their joint planning for the IFDP and submitted the Critical Decision-1 (CD-1) package to DOE Headquarters last month. The CD-1 package includes the conceptual design report and preliminary project execution plan. The proposed scope of the IFDP project is decontamination and decommissioning of more than 400 buildings during the next 20 years, including more than 100 Y-12 buildings and 300 ORNL buildings. The CD-1 package states that the project will be executed in a phased approach (nominally 5-year phases) and that specific facilities will be prioritized based on risk reduction, security, maintenance cost reduction and land reuse benefits. The initial phase of the project is expected to include two major Y-12 nuclear facilities, Buildings 9201-5 and 9206. CD-1 approval is projected for later this year.

Wet Chemistry/Criticality Safety: As reported on June 20th, a B&W Readiness Assessment (RA) was planned to confirm readiness to use a new gamma radiation monitor in the transfer line for Primary Extraction raffinate. This week, the RA was conducted and results were briefed to B&W personnel. The RA team identified procedure errors and use of certain valves not rated for service with organic fluids among the RA findings and observations. A RA report is to be issued next week.