

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 17, 2005

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for Week Ending June 17, 2005

A. Building 9212 Seismic Deficiencies. In response to the Board's April 20, 2005 letter concerning the seismic deficiencies of Building 9212, BWXT has submitted a proposal for addressing upgrades to YSO. The BWXT proposal is a phased approach that includes near term corrective actions and longer term actions related to Building 9212 upgrades as follows:

- Phase I – This phase, which will begin this month, includes near term actions to restore systems and components to their original design configuration (e.g., replace missing bolts). The required repairs will be identified based on facility walk downs performed by engineering, operations and maintenance personnel. This phase will also include upgrades to the C-1 mezzanine and Building 9818 first floor structural supports and installation of seismic cut-off valves for natural gas lines that supply Building 9212.
- Phase II – Outside experts will be used to identify state-of-the-art seismic enhancements that are cost effective and practical. This phase will commence in October 2005.
- Phase III – Based on the Phase II results and previous structural analyses, YSO and BWXT will conduct a risk-based assessment to identify additional structural improvements that are appropriate for Building 9212. For such potential upgrades, the assessment will be based on the impact on facility operations, upgrade cost and risk reduction. In addition, YSO and BWXT will identify a trigger based on potential delays for the Building 9212 replacement facility (i.e., the Uranium Processing Facility) from which additional seismic upgrades or other remedies would be performed.

B. Chip Oxidation Operation - Update. As reported on May 20th and May 27th, a chip oxidation vessel failed (i.e., burned through) during an operation in the Enriched Uranium Operations building. YSO and BWXT investigation of the event and development of corrective actions and design changes continues. Initial BWXT calculations indicate that oxygen was being supplied to the vessel (a pipe component) at a rate several times higher than necessary to sustain the reaction. BWXT management noted to the site rep. this week that this excessive oxygen flow caused the vessel wall melting in an area almost diametrically across from where the oxygen was introduced. This is also an area where the pitch of the vessel cooling coil is much wider than other areas of the vessel, likely contributing to the high temperatures reached. BWXT management noted that a test program is being formulated using a replacement oxidation vessel with a much lower oxygen flow to confirm acceptable wall temperatures.

As noted on May 27th, BWXT operators had identified a concern with visually identifiable hot spots on the vessel during a prior operation in September 2004, but the concern was dispositioned with no changes deemed warranted. Last week, the site rep. inquired on whether this concern was communicated to shift management at that time. BWXT management informed the site rep. this week that the concern was not reported to shift management but rather handled by production crew management and a system engineer. BWXT management stated to the site rep. that the concern should have been reported to shift management and dispositioned by facility management who are responsible for this facility system. The site rep. discussed this issue with senior YSO and BWXT management.

C. Microwave Casting. Last Friday, BWXT successfully completed their first of 15 prototype test casts with enriched uranium in the Enriched Uranium Operations Facility.