

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 9, 2000

TO: J. Kent Fortenberry, Technical Director
FROM: Paul F. Gubanc and David T. Moyle, Oak Ridge Site Representatives
SUBJ: Activity Report for Week Ending November 10, 2000

Staff members Andrews, Duncan, Helfrich, and Moury and Outside Expert West visited Y-12 to review the status of open Board issues. Mr. Gubanc was out sick Tuesday. The office will be closed Friday for the Federal holiday.

A. Y-12 Disassembly Operations: The staff reviewed Y-12's progress in resolving issues identified by the Board and in the contractor's management self-assessment (MSA). Key observations:

1. While there has been effort to close issues, some of the actions to date seem narrow in scope and not addressing of the more fundamental issues (e.g., evaluating open issue lists for applicability to the upcoming campaign but only in the area of fire safety). The staff was informed that broader searches are planned but had only been identified as necessary the day before.
2. It was apparent that the timing of staff's review had accelerated the involvement and scrutiny by both BWXT and YAO senior management in this matter. As a result, BWXT senior management committed to conduct a "validation of the technical basis" for the upcoming campaign. Given the newness of this decision, an exact definition of what this will entail is still evolving.
3. The facility continues to struggle to resolve an issue involving two competing safety concerns. BWXT's current direction is to acquire more experimental data to further quantify one of these concerns. We do not believe that this will resolve the issue. The staff strongly suggested that YAO and BWXT specifically evaluate the merits of the issue using probabilistic and consequence significance arguments. (2-A)

B. Y-12 Enriched Uranium Operations (EUO) - Reduction: BWXT has made significant progress in the technical basis to begin reduction operations. The list of controls and safety limits on temperature and pressure appear appropriate, however, the implementation of these controls has not yet been demonstrated. Some issues noted this week:

1. The requirements for data review and approval of safety to proceed with each run need to be fully fleshed out. BWXT did indicate that approval will be required of both the design authority and the process engineer. We agree with the need for this cross-discipline approval, but the roles and responsibilities and approval criteria still appear uncertain.
2. The creation of the blend sheet and the execution of the blending operation must be controlled to ensure that the correct batch makeup is achieved. While in previous operations, blending was a product quality issue, it will now also serve a safety function as it controls the amount of moisture in the final blend. The staff noted several opportunities for errors in blending a batch, which may require independent verification. These steps include: blend sheet preparation, loading UF₄ batches into the feed tubes, and executing the blend by adding the correct mass of UF₄ from each feed tube.
3. While centering of the liner (such that insulating sand can be evenly distributed between the liner and the vessel wall) is highlighted as an important step in reactor preparation and loading, there is no engineered control to ensure the correct liner position. We believe that an operator aid could easily be fabricated to accomplish this.

We will review of the final technical basis when available, and follow up to ensure that safety controls are adequately implemented. (2-A)

cc: Board Members