DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 9, 2004

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending July 9, 2004

On Monday and Tuesday the Y-12 National Security Complex was on holiday routine.

A. Conduct of Operations - Warehouse Material Storage. Late last week, a YSO Facility Representative (FR) in the Warehouse was observing receipt of nuclear material containers from another Y-12 facility, as part of a campaign (several hundred containers) begun in late 2002 and nearing completion. The YSO FR inquired on performance of a procedural step calling for ensuring that written data on moderator to nuclear material ratios ("H/X") was received for each container. This step is part of assuring that the container loadings would be consistent with criticality safety analysis. The initial response from the work crew was that written H/X data for the material had not been checked but that the material coming from the source facility would have no moderator. The YSO FR then prompted an inquiry with the shift manager who initially was informed by other building personnel that the data was available; the evolution was then completed. Further follow-up, however, revealed that the written data was not available and a criticality safety deficiency was declared.

Critique of the incident led to determination that Werehouse personnel were not deliberately following the procedure and had a lack of understanding of the relevance and use of H/X data. Training in this area was determined to be inadequate. The crew indicated they had (incorrectly) assumed the step applied to receipts from another building. The supervisor and shift manager did not properly demand to see the H/X data nor stop the evolution as would have been expected. BWXT personnel stated that all containers in the campaign have been checked and the loadings are consistent with the criticality safety analysis. Senior YSO and BWXT management met to discuss the implications to conduct of operations from this event and actions to address the identified issues are in development.

B. Conduct of Operations - Assembly/Disassembly Operations. As reported on May 28th, as part of taking apart an assembly, workers had exceeded a predetermined machining depth in a lathe cutting operation. Investigation had been in progress. This week, BWXT management briefed YSO management on their investigation. A number of issues contributed to the event including:

- there was lack of a formal pre-job briefing for this work which was to repair a defective weld on the assembly;
- process engineer instructions on how deep to cut were verbally transmitted and misinterpreted by the workers;
- procedural instructions were somewhat ambiguous, literally permitting three options that included cutting to a specified depth, or to a depth determined by the process engineer, or until an observed condition; the workers intentionally went beyond the depth they had understood had been determined by the process engineer and continued the cut looking for the observed condition;
- the tool adapter mechanically failed after long-term use, allowing unintended tool holder translation; a corrective design change to prevent motion between the tool adapter and tool holder on a separate machine (see January 30th report) was not taken on this machine as management had assumed a different design was used.

Actions addressing the identified issues have been determined.