DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 21, 2006

TO: J. Kent Fortenberry, Technical Director
FROM: R. Todd Davis/Donald Owen, Oak Ridge Site Representatives
SUBJECT: Activity Report for the Week Ending July 21, 2006

A. Control of Maintenance/Conduct of Operations. Late last week following a maintenance activity, operators in the Enriched Uranium Operations Building performed a furnace reduction activity with nuclear material without shift manager knowledge or approval and without performing appropriate post-maintenance equipment surveillance.

The safety basis for furnace reduction activities requires that the furnace be designed and operated in accordance with NFPA 86, *Standard for Ovens and Furnaces*. As required by NFPA 86, the furnace system includes several furnace shutdown interlocks (e.g., loss of cooling water). These interlocks are to be tested annually in accordance with a facility surveillance procedure. Last Thursday, maintenance personnel were troubleshooting these interlocks with help from engineering. Maintenance personnel replaced a timer, re-soldered a joint, and corrected a loose neutral wire. After the troubleshoot and repair was complete, the maintenance instruction required maintenance personnel to request production personnel to function the furnace under operating conditions. The maintenance instruction made no mention of need for any testing related to the annual surveillance. Both available reduction vessels had already been loaded with uranium tetrafluoride. After the request from maintenance, production personnel performed the furnace reduction activity with nuclear material without contacting the shift manager and obtaining approval. The next day, the shift manager was informed of the activity and a critique was held.

This week, the site reps. met with YSO and BWXT personnel to discuss this event. Relative to shift manager and production personnel communication, facility management noted the site-wide requirement for the shift manager to be informed and grant approval to start such an activity. Facility management noted that based on the interlock maintenance performed, the annual surveillance would need to be performed prior to operation with nuclear material. Facility personnel also noted that the maintenance instruction (that included the post-work testing) was not approved by facility personnel. These control of maintenance and conduct of operations deficiencies are to be further evaluated by BWXT as part of a causal analysis to be performed for this event. The site reps. noted to YSO and BWXT management that efforts to respond to the Board's letter of June 12, 1998 regarding control of maintenance activities at Y-12 may need to be revisited and may assist with causal analysis and development of corrective actions.

B. Feedback and Improvement. As reported on July 7th, an Implementation Validation Review (IVR) had been performed for interim safety basis controls identified to address high concentration of tributyl phosphate in the secondary extraction process. One of the pre-start findings involved deficiencies with control of laboratory equipment for determining the specific gravity of process solution. The IVR team noted that assumptions for use of specific equipment were not implemented, no procedural controls were applied, and equipment to be used was out of calibration. Actions to address the specific gravity measurement for secondary extraction were being taken. In response to a site rep. inquiry, however, BWXT personnel indicated that no action was being taken to evaluate whether similar deficiencies exist for other laboratory measurements. The site rep. discussed this observation with YSO and BWXT management.