DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 14, 2003

TO: J. Kent Fortenberry, Technical Director
FROM: Tim Hunt, Oak Ridge Site Cognizant Engineer
SUBJ: Activity Report for Week Ending February 14, 2003

Staff member Don Owen was on site this week providing site representative coverage.

A. BWXT Y-12 Enriched Uranium Operations (EUO) Wet Chemistry Restart Preparations: As noted in the site representative report last week, the National Nuclear Security Administration (NNSA) Operational Readiness Review (ORR) was completed last week. The ORR team expects to issue its final report within the next few working days. It is anticipated that the report will identify 7 prestart and 4 post-start findings, and 5 observations. BWXT Y-12 is addressing the findings, including evaluations of root causes, any programmatic implications, and corrective actions. Corrective action plans documenting these evaluations are to be submitted for approval by the NNSA Y-12 Site Office (YSO) during the week of February 17th and resolution/closure of prestart findings is expected to be completed by early March.

Also noted last week was that one of the NNSA ORR prestart findings concerned the Unreviewed Safety Question (USQ) screening process. The primary example cited in the draft documentation was the screening out (i.e., not performing a full USQ Determination) of a design change to the level indicator for the denitrator feed tank, which is described in the Building 9212 Basis for Interim Operation (BIO). The negative response to the USQ screening question on whether the design of such a component was being changed was found to be improper by the ORR team. A broad look at prior USQ screens for wet chemistry is a principal action being considered in response to this finding. (2-A)

B. BWXT Y-12 EUO Building 9212 E-Wing Casting Operations: On Wednesday, during a casting run of various material forms in six separate E-wing casting furnaces, power was lost to the furnaces and several other loads. The power loss occurred about 10 minutes into the furnace runs. The power loss tripped an undervoltage alarm for the water detection system in the furnaces, requiring, per the BIO, that each furnace bottom section be lowered (i.e., separated from the upper section) for criticality safety purposes. This required action was taken in the time frame specified by the BIO. As of this report, actions to perform knockout of the partially reformed materials are being planned.

The power loss appears to be the result of overloading the single switchgear feeding power to the E-wing loads. In late 2002, a second switchgear had been locked open for servicing/replacement. Since that time, less than six furnaces (typically four or less) had been operated at any one time. The load from the simultaneous operation of six furnaces is thought to have tripped the switchgear.

Some of the material being processed involved about 40 kg of dry briquettes (compacted chips) loaded in two furnaces. In reviewing the occurrence, EUO personnel noted that BIO safety analysis assumptions regarding material-at-risk may not be adequately protected if several furnaces are loaded with dry briquettes. As a result, EUO management has suspended casting of briquetted materials pending an evaluation of this issue through the USQ process. (2-A)