

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 2, 2003

TO: J. Kent Fortenberry, Technical Director
FROM: Donald Owen, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending May 2, 2003

A. Building 9212 Enriched Uranium Operations (EUO) Wet Chemistry Restart. On Wednesday, the site rep. observed the “first use” operation of the Primary Intermediate Evaporator (PIE). Several technical support and oversight personnel were observing and available to support the crew per the EUO Startup Plan for Wet Chemistry. Following system line-ups, steam and uranium-bearing feed solution were introduced to the PIE (the feed mixing with water already present in the evaporator). After a short period of time, condensate was observed to be flowing to the condensate discharge tanks as expected. After several more minutes, however, the product density indication (from the control system that diverts product to a receiving tank) had not changed since the start of the operation; all the while feed was being introduced and condensate was flowing. The PIE procedure and other abnormal response/alarm procedures did not specifically address this situation (nor require monitoring of the density indication). After several more minutes, the technical and oversight personnel along with crew supervision decided to shutdown the PIE. Also, an alarm for high condensate discharge tank level activated during the operation indicating the on-line pump from the discharge tanks had not properly operated.

Sampling of the PIE indicated that the liquid had concentrated past the desired level. Actions were then recommended to transfer the solution to product tanks and add and mix water (via the transfer actions) to reduce the liquid density. Some of the actions were not covered by the PIE procedure. As time following shutdown was of concern, these actions were verbally discussed with the Wet Chemistry Startup Review Board and executed under verbal direction. These actions were successful in lowering the density to the desired level.

A post job review was conducted on Thursday and several actions to investigate and repair equipment, revise procedures to cover this situation, look at implications to other wet chemistry operations, and prepare to re-perform the PIE operation under first use controls were discussed and outlined. There was no formal Management Review or Critique called by EUO Management, however, to review Wednesday’s events to ensure all relevant facts are determined, any issues are identified, and any action items are properly assigned. On Friday, the site rep. inquired with YSO personnel on the need for conducting such a review for this situation. (2-A)

B. Y-12 Building 9202 - Update. As reported the past two weeks, an explosion and fire occurred in a Building 9202 glovebox when product from a process being tested (and related to uranium metal production) had been placed in a sealed container that had no pressure sensing or relief mechanism. A damaged glovebox window was replaced this week to support sampling of materials from the glovebox, but work planning for the sampling activity (e.g., Job Hazard Analysis) was in progress at week’s end.

As noted last week, a team of personnel from outside of Y-12 experienced in chemical, fire, and operational safety has been appointed to lead and complete BWXT’s investigation. The team convened this week, started analysis of information gathered to date, and are evaluating various potential reactions that may have led to the explosion. On Friday, the team members left Y-12 to continue their analyses and are to reconvene at Y-12 during the week of May 12th. (2-A)