

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 8, 2002

TO: J. Kent Fortenberry, Technical Director
FROM: Matt Forsbacka, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending February 8, 2002

D. Winters was on site this week to review the status of the Melton Valley Transuranic Waste Treatment Project (MVTWTP) and the corrective actions for uncontrolled drum lid releases at Bechtel Jacobs Co. (BJC) waste disposition facilities which occurred in January 2002.

A. Y-12 Disassembly: Disassembly of the first unit restarted on Thursday, but was halted Friday afternoon following the discovery of a potential out-of-date o-ring gasket on the glovebox. Other events of interest:

1. A root cause investigation of the lathe cutting operation identified a procedural inadequacy which caused a programming error resulting in the cut being made at the wrong location. A mockup for this phase of the operation was not made available for the readiness assessment activities.
2. Progress was further impeded by the discovery of a data recorder containing explosive elements during a collocated activity to fit-test tooling on a Joint Test Assembly (JTA). The JTA is isolated in a safe condition. Five other JTAs are on site and BWXT personnel are working to determine if similar conditions exist in those units. (2-A)

B. Wet Chemistry Restart: On Monday, during a walkdown of the Primary Extraction System, BWXT personnel indicated how a simple modification to the system can provide surge capacity to avoid system overflows from the volume control boundary. In addition, a fluid level indicator, emplaced in the surge tank, would give system operators sufficient time to secure the system should fluids flow to the surge tank. (2-A)

C. BJC Waste Disposition Operations: On Thursday, the staff held discussions with BJC and DOE representatives concerning their treatment of recent incidents where radioactive waste drum lids had "popped" off and could have caused injury to workers. The BJC investigation of the root cause of the incidents and resultant remedial actions appears adequate. BJC did not confine its investigation and corrective actions solely to the mitigation of the immediate hazard, but also addressed the generic underlying problems. The operation is currently suspended.(3-A)

D. MVTWTP Criticality Safety: On Wednesday, BJC personnel briefed the staff on the methodology and results of a Nuclear Criticality Safety Determination (NCSD) for the Low-Level Liquid Waste system which will feed the MVTWTP. The premise for nuclear criticality safety is to denature fissile materials to reduce enrichment below the single parameter limit for U-235 metal homogeneously mixed in an aqueous solution (equivalencies were developed for U-233 and Pu isotopes) is. Fundamental issues identified by the staff were:

1. The NCSD does not account for differential settling while mixers are turned off.
2. The MVTWTP contractor indicated that conservative waste acceptance criteria on either end of the treatment process would bound the entire process. The staff believes that a more accurate depiction and appropriate bounding of the actual process would lead to a fuller understanding of any potential criticality safety issues. (3-A)

cc: Board Members