

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 1, 2002

TO: J. Kent Fortenberry, Technical Director
FROM: Matt Forsbacka, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending February 1, 2002

A. Y-12 Disassembly: Disassembly of the first unit continued this week. Key observations from this week's activity were:

1. Contamination due to the presence of an oxide layer was higher than anticipated, but it was controlled by thoroughly cleaning parts and tooling in the work station.
2. Unanticipated difficulty in separating some parts required the reprogramming of certain cutting operations. Recovery from this condition is on-going, and it appears that corrective actions are being formulated in a deliberate manner. (2-A)

B. ORNL Building 3019: This week ORNL performed a series of tests to determine how canisters are grappled as they are extracted from storage drums into the Shielded Transfer Cask (STC). The results of the investigation, motivated by the misaligned cannister reported last week, include:

1. It was found that the STC grapple can lift a canister with only one tooth engaged in the canister lid, thus allowing it to be in a cocked orientation when lowered into the tube vault. The suspected cause for a single tooth engagement is attributed to the steel wool used as the storage-drum liner (to mitigate vibration during transport). The steel wool allows the canister lids to be non-parallel with the plane-of-action of the grapples (i.e., that canisters can slump in the drum). An alternate drum liner is being investigated.
2. As a compensatory measure, the canisters will be placed on the STC shield (after being decoupled from the storage drum), and then the grapple will be reseat to ensure all teeth are engaged in the cannister lid. (3-A)

C. Wet Chemistry Restart: On Wednesday, BWXT declared an Unusual Occurrence resulting from a positive Unreviewed Safety Question Determination (USQD) regarding the overflow of organic liquids from the Primary Extraction System on November 9, 2001. This overflow event challenges the magnitude and frequency of organic liquid fire scenarios evaluated in the safety basis for the system in full operational status. Key observations include:

1. The overflow occurred when an airlift pump used to transfer organic liquids malfunctioned.
2. Primary Extraction loop-test operations have continued under a continuous fire patrol. A negative USQD was declared for loop-test operations due to smaller volumes of organic liquids involved. Additional programmatic controls for fire patrols will be instituted for full operational status of the system.
3. The USQD provided no formal consideration of engineering controls to prevent overflows.

Safety basis documents are being revised to incorporate USQD findings and will be submitted to NNSA for approval. (2-A)

D. Y-12 Enriched Uranium Reduction Vessel: NNSA continues to develop a Safety Evaluation Report (SER) in response to BWXT's request to resume reduction operations. The SER is expected to be issued next week (2-A)

cc: Board Members