

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 14, 1997

**TO:** G. W. Cunningham, Technical Director  
**FROM:** R.F. Warther, M.T. Sautman  
**SUBJECT:** RFETS Activity Report for Week Ending February 14, 1997

Tim Hunt was on site this week to review D&D activities and the Integrated Work Control Planning process.

**Recommendation 94-1 Solutions** Draining of tank 452 (500 liters at 5 g Pu/l) in Building 771 was delayed because operators were not able to properly sparge the tank. Tanks are sparged before draining to thoroughly mix the solution. In this case, the vacuum header line for the tank was improperly lined up. As a result, a vacuum was inadvertently drawn from a nearby glovebox rather than through the tank for sparging. No glove box spill occurred. The cause of the misalignment was that the system was not adequately walked down during procedure development and validation. More importantly, this mistake was not detected during the management review of the procedure. Draining of tank 452 will commence after the system lineup is field checked and procedures modified. Although the impacts of this incident were minor, the consequences of valve misalignments can have more serious consequences. SSOC will be draining four tanks containing plutonium solutions with concentrations between 95 and 140 g/l beginning this summer. A trend that shows management reviews are not catching errors is beginning to develop. The staff and site reps will ensure that the readiness review for draining activities include a rigorous validation of the management review process.

**Recommendation 94-1 Residues** A summary of residue characterization results to date is shown below:

- Of 35 containers sampled, 14 samples were found to exceed DOT's water reactivity criteria. One Molten Salt Extraction sample was believed to be borderline pyrophoric since it showed a 139°C temperature spike at an onset temperature of 308°C.
- Of 110 containers sampled, most were in good condition, but three showed a loss of containment. There were nine containers whose drum and can labels disagreed.
- Real time radiography of 80 drums found that three contained free liquids, 18 were not packed to current TRU waste standards, 18 showed materials that should not have been in that waste form, and one that was improperly identified.
- Testing of 154 drum filters found two clogged filters and three that failed open (i.e., no longer was filtering air passing through).

**Performance-based Contracting** RFFO personnel have developed a new type of performance measure to manage the IMC contract. *Gateway performance measures* were developed to ensure that award fees are not paid for work that should have been previously completed. For example, K-H has a FY-97 performance measure to decontaminate three rooms in B371. If K-H completes only two rooms they will receive 2/3 of the available fee for room decontamination. If RFFO establishes a FY98 performance measure to decontaminate another two five rooms, and K-H completes this task, they will receive their fee only if they completed the third room from FY97 in addition to the five rooms from FY98. This is a feature that ensures fees are not paid for work accomplished after it was originally missed in a previous fiscal year. RFFO is also making additional use of superstretch performance measures. These performance measures are awarded for work completed which is unfunded at the beginning of the fiscal year, but possibly could be achieved with a systems approach to the site's activities. Generally, the fees associated with these performance measures are higher because the risk of completion is higher.

**Recommendation 95-2** K-H's proposed plan to drain high level solution tanks from B771 and process the solutions in B371 may affect implementation of the B771 Basis for Operations. The current scope of the B771 BFO includes two missions: oxalate precipitation of high concentration solutions and storage. D&D activities

are not included in the scope of the BFO. If the solutions are processed in B371, additional site resources will become available that could be used to start deactivation of B771 (SNM removal). If B771 personnel can complete some hazard reduction activities (e.g., remove drums from the annex, remove Benelex shielding from the gloveboxes), these hazard reduction activities might obviate the need for some controls needed to address prevent or mitigate some accident scenarios covered in the BFO. This point was discussed with Board Member DiNunno. This planning is preliminary, but if this approach is taken, it would require a change to the Recommendation 95-2 IPP. However, the staff and site reps believe that this approach may have some merit if it accelerates risk reduction activities in B771.

cc: Board Members