

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 22, 1998

**TO:** G. W. Cunningham, Technical Director  
S. L. Krahn, Deputy Technical Director

**FROM:** M. T. Sautman, R. F. Warther

**SUBJ:** RFETS Activity Report for Week Ending May 22, 1998

**Recommendation 94-1.** DOE-NN and DOE-EM approved the safeguards termination limits variance request, but this approval has not been officially released yet. This makes the disposal of residues in pipe overpack containers a feasible disposition strategy. Unfortunately, all Recommendation 94-1 activities have stopped at RFETS except the caustic waste treatment system in B371. All residue activities (pyro-oxidation, SS&C and LECO crucible repack, characterization, and drum movement) have been terminated for 2½ weeks because of plutonium assay concerns. (See May 8, 1998 report). Tap and drain work in B771 has been shutdown for 3½ months since hydrogen was discovered in the piping and building operations were terminated (see below). Cementation of low-level radioactive solution and ion exchange resin residues in the B774 Bottlebox has not occurred since early April. Room decontamination (i.e., fogging), needed to conduct B371 tap and drain activities, has been delayed for several months and is now the critical path. DOE has still not accepted the Plutonium Stabilization and Packaging System because of outstanding operational problems. While the critical path for implementing Recommendation 94-1 still requires DOE-HQ to integrate complex-wide issues, these recent issues are all local issues. Resolution of these issues is expected to take weeks to months.

The Site Reps have been reviewing K-H's strategy and schedules for satisfying Implementation Plan commitments. The Site Reps have been working with RFFO and the contractor to resolve concerns the Site Reps have with the strategy and to discuss milestones that may be missed. The attachment discusses these issues in more detail.

K-H recently found 31 plutonium metal alloy items that may contain more than 50% plutonium, which they believe are potentially pyrophoric. In addition, 2 of these items were in direct contact with plastic. Other items containing less than 50% plutonium may also be packed in direct contact with plastic inside produce cans. The technical staff is following this issue to see if the Implementation Plan commitments for repacking plutonium metal in direct contact with or close proximity to plastic apply. Even if this material is not pyrophoric because of its size (i.e., a button) or alloying, the Site Reps believe that any plutonium alloy packaged in direct contact with plastic should be repackaged if the packaging configuration does not allow hydrogen to be vented.

**Recommendation 95-2.** Last week, SSOC suspended their Phase III Management Assessment of the implementation of the B371 Basis for Interim Operations because of the large number of deficiencies being identified. At the time of suspension, approximately 25 pre-start findings had already been identified. The main deficiency was that the level of knowledge of key individuals with the functional aspects of the control set was less than adequate. This deficiency was attributed to the facility being too schedule driven. The assessment is expected to restart around June 8 once the B371 management has addressed the identified pre-start findings.

B771 has been shut down since March because of 6 Basis for Operation/JCO violations and 8 programmatic administrative control requirement (ACR) issues. A recent SSOC annual assessment of the ACRs has identified more than 100 deficiencies and areas for improvement. At RFFO's direction, K-H began their implementation validation review of the B771 authorization basis implementation status. The team has identified problems with the work control process. Work has been performed that was not on the Plan of the Day. Evolution request forms have been approved even when the form identified that not all the personnel performing the evolution were trained and qualified or that a job hazards analysis had not been performed. A site-wide Unreviewed Safety Question is also being issued since it was discovered that the Fire Department did not have a process to notify buildings when the department was undermanned, although their response is a credited control.

**Personnel Changes.** Steve Polston has accepted the position as K-H executive vice-president. He previously worked at the Paducah Gaseous Diffusion Plant.

Attachment  
cc: Board Members

## Attachment 1: Discussion of Recommendation 94-1 Issues

**B771 Tap and Drain/Piping Removal.** SSOC will not meet the September 1998 milestone for complete removal of liquids from B771 because of the building shutdown. The Readiness Assessment for the remaining systems has been delayed until mid-July. SSOC has proposed removing the piping immediately after draining the system. Although this is projected to accelerate the removal of all process piping by 26 months, solution removal would not be completed until December 2000—over 26 months later than the current milestone. The Site Reps met with SSOC because the project plan did not appear to be giving sufficient prioritization to the actinide systems. For example, 7 of the first 9 systems were reagent systems. Meanwhile, 5 high concentration actinide ( $> 6$  g/l) solution systems and 3 other high solution risk systems (because of chemical hazards) were not scheduled until late 1999 or 2000. SSOC explained that in some cases, reagent or lower risk systems are being drained sooner because they are leaking, might contain a lot of salt in the piping, or may generate hydrogen through corrosion. SSOC admitted that their prioritization was still preliminary and stated that they planned to review their prioritization based on our comments and to develop a technical basis for their schedule.

**Combustible Residues.** The Site Reps met with RFFO and contractor personnel to discuss all the available combustible characterization data, surrogate testing, chemistry, and past safety problems to determine the path forward. Since no immediate safety hazards are expected, treatments would be focused on preparing the combustibles for WIPP. Nitric acid-contaminated combustibles would have any free liquids removed and absorbents and neutralizing agents added, as necessary, rather than washing and drying all of them. Instead of thermal desorption, organic-contaminated combustibles would have absorbent(s) added, possibly one that would neutralize any corrosive chemicals generated through hydrolysis or radiolysis. Filter testing would continue until the drum was disposed. In addition, SSOC is looking at possible design changes to the filters to make them more resistant to plugging or failing open. Although the site reps agree with this strategy, they did not agree with two aspects of K-H's proposal. K-H is proposing an aggressive repacking strategy utilizing 3 repack lines that could have most of the combustibles repacked for WIPP within a year. However, K-H was planning to start repacking high-risk combustibles as low-risk ones before completing characterization to a 95/5% confidence level. The Site Reps made it clear that it would not be acceptable to start repacking high risk combustibles until characterization and other analyses were completed to justify their reclassification as low risk residues. In addition, the Site Reps told K-H that seeking an exemption from the Interim Safe Storage Criteria would be premature until K-H had demonstrated the ability to dispose combustibles at WIPP. As a result of these meetings, RFFO only approved K-H's Baseline Change Proposal to start repacking low risk combustibles. K-H is revising their strategy for high risk residues to meet the technical staff's and RFFO Engineering's expectations that the technical justifications are completed before starting repacking operations.

**B371 Tap and Drain.** Although SSOC expects to meet their June 1998 milestone for starting tapping and draining, their schedules show them missing the completion milestone by over 4 months. In addition, room decontamination to prepare the rooms for draining continues to be delayed and is now the critical path. Much of the piping is expected to contain just water from SO testing or reagent chemicals. The Site Reps have asked K-H whether any of the areas to be drained after the milestone contain actinide solutions. The Site Reps told K-H that draining the actinide solutions should have a higher priority than the water or reagent solutions.