

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 26, 1997

**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 September 26, 1997

**Recommendation 94-1.** The attachment discusses four milestones that will be missed or have a high probability of being missed. Lack of funding is not a direct cause for any of these delays. Although some of the milestones are more than a year away, action is required today to get them back on schedule. These issues warrant discussion during the Board's next visit to RFETS.

**Shift Manager Oral Board.** The Site Reps attended the second requalification board for a B371 shift manager. The candidate's responses to upset conditions were still weak (see 8/15/97 report). The candidate missed hints that two workers may have been overcome by smoke. He did not realize that they were missing until the accountability system indicated they were missing, by which time the facility manager admitted they were probably dead. Despite this and other weaknesses, the candidate passed the board. This issue has been discussed with SSOC operations management.

**Hydrogen.** As of September 29, all Plan of Action milestones for aqueous and spent organic solvent tanks and piping systems should be completed, mostly ahead of schedule. Fifty-seven tanks and sixty-one pipes containing spent organic solvents were sampled or otherwise dispositioned. Nearly all of these tanks and pipes were in B776/777. Eleven tank systems were found to contain between 1 and 25% hydrogen or methanol in the headspace gas. The last tank system was purged Friday. The gas in one pipe contained 33% hydrogen. It was purged twice and is to be sampled Monday to confirm that it is below 1% now. Five tanks and one pipe will continue to be sampled periodically until they are drained.

**Recommendation 97-2.** Last Spring, the number of criticality fractions that had been open for more than 90 days peaked at 62, some of which had been open for years. Since then, SSOC has been successful in closing old infractions. All of the >90 day infractions for B771 and B776/777 have been closed and the remaining seven >90 day infractions are to be closed in a couple of days. Newer infractions are also being closed out in a timely fashion.

cc: Board Members

## Attachment 1: Rec. 94-1 Milestones at Risk

### Begin stabilization by pyrochemical oxidation 8/97

This milestone has already been missed. The start of the K-H Readiness Assessment (RA) has been indefinitely delayed. There are several issues that still need to be addressed: the calibration of the segmented gamma scanner, furnace heater element reliability (another element failed this week), drill performance, Modula A fire barriers, other fire deficiencies, B707 seismic capability, transportation authorization basis, and WIPP product suitability.

The Site Reps had previously been concerned that the contractor would try to start the RA prematurely. However, since it became obvious that they would miss their performance measure, K-H has decided to take their time and make sure that they do things right the first time. In response to problems with the recent readiness reviews, K-H has made it clear that this will be a more rigorous RA. RFFO has also said that they will perform a separate RA. Although this means that oxidation will likely not start till November, the Site Reps support their positions.

### Complete Removal of all liquids in B771 9/98 (proposed)

### Complete Processing of all liquids in B771 9/98 (current-no longer doing oxalate)

The start of tap and drain work has slipped from October to January. Although this satisfies the proposed milestone for starting, current schedules indicate that they would not finish until December 1998-nearly three months late. Some of the delays have been due to equipment problems with the portable filling station, but progress on the procedures and operator training has been slow. Part of the problem appears to be caused by building management focusing on tank draining at the expense of tap and drain preparations. The upcoming major reorganization in B771 will probably not help in the short term while everyone tries to figure out their new responsibilities. In response to Site Rep discussions on this issue, RFFO has requested that the contractor develop a critical path schedule and identify any open issues that need to be resolved to meet the milestones. K-H has also asked SSOC to develop a recovery plan. The use of a third tap and drain team is one option under consideration to help them meet the milestone.

### Repackage all plutonium metals and oxides to the metal and oxide standard May 2002

Last year, RFFO decided that they did not need a second Plutonium Stabilization and Packaging System (SPS). This decision was justified based on the delivery schedule and technical specifications included in the SPS contract. However, problems with functional acceptance testing have slipped the delivery date a couple of months. In addition, the laser welding of the outer can will have to be modified to reduce weld porosity (see 8/29/97 report). The K-H President has stated that the SPS may not operate at all in FY98. The biggest concern is that the throughput will likely be significantly reduced. The technical specifications required that at least one oxide batch would be processed per *shift* and it was hoped that this could be doubled. However, the SPS may not be able to process one oxide batch per *day*, even with three shifts working, because it is taking more than 20 hours for the furnace to cool down. While the cooling time may be reduced somewhat, it is very unlikely that it can be reduced 80% or more to meet the required throughput. K-H and RFFO management are both very aware of this issue. There is a lot of hope that shipping RFETS plutonium to SRS will help alleviate this problem although it is unclear whether SRS has enough excess processing capability to handle all the RFETS plutonium by May 2002. Another option may be to use water rather than air to cool the furnace faster.

### Begin stabilization of graphite fines 3/98

SSOC does not expect to start vitrification until late June 1998. This is due to construction delays and difficulty in determining a suitable glass formula. Although one cold and ten hot vitrification runs have been completed, the glass formula and operating parameters still have not been developed. The Site Reps believe there may be two options that could also address this milestone. First, the graphite fines may be calcined before vitrification to improve the quality of the glass. Since calcination oxidizes any reactive metals, if they starting calcining the graphite fines before all the vitrification issues are worked out, they would still satisfy the milestone. Second, the contractor has repeatedly claimed that this material was calcined after it was produced, but they were not able to prove this at the time. This could be verified now by examining the water reactivity data from characterization. If the data verifies that they have already been calcined, no additional processing would be required.