DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 21, 1997

TO:	G. W. Cunningham, Technical Director
FROM:	R.F. Warther, M.T. Sautman
SUBJECT:	RFETS Activity Report for Week Ending March 21, 1997

Recommendation 94-1 Keith Klein held a residue summit that was attended by senior RFFO, K-H, and SSOC managers as well as LANL and DOE-HQ personnel. It was decided that salts would be treated with pyro-oxidation followed by salt distillation. Since this choice takes advantage of most of the preparations already completed, salt distillation should be cheaper and quicker than the alternatives. Aqueous dissolution could be more expensive since it requires extensive stripout in B371. Disadvantages of the old RFETS salt scrub process are the perceived need to pyro-oxidize the residual salt, the reduced efficiency in scrubbing older salts containing more oxide, and its smaller batch size.

The Site Reps expressed concern that since K-H's processing schedule did not optimize their processing capacity, the June 1998 Implementation Plan milestone would not be met until June 2001. K-H proposed running only four of the ten furnaces for a single shift between August 1997 and September 1999. Three shift operations would not start until 2000 when distillation became operational. The reasons for this would be to allow time for the residue Environmental Impact Statement (EIS) to be completed, to avoid double handling of salts, and to perform distillation construction during other shifts. RFFO agreed with the site reps that K-H needs to maximize their processing rate, even if it requires some double handling.

Salt distillation is the logical choice only if LANL can deliver a production unit to RFETS on schedule. Distillation has repeatedly missed development schedules. RFETS is taking a much more active role in telling LANL exactly what research they need performed by when. RFFO wants to be able to issue a Request for Proposals for the production units as soon as the EIS Record of Decision is released next December or so. This is very aggressive since the Demonstration and Testing Plan will not be developed until April 30, several operational issues need to be resolved in the prototype, and technical specifications for the production units need to be developed. In addition, RFFO wants LANL to continue performing research on aqueous dissolution or salt scrub as a backup.

The other major decision made at the summit was that sand, slag, and crucible would be shipped to SRS for processing if the cost and transportation issues can be worked out favorably. The backup plan would be to use in-furnace vitrification at RFETS.

One justification for eliminating oxalate precipitation and treating the B771 solutions with CWTS was that the money saved could be used to adequately fund the B771 room draining program. This program was behind schedule and underfunded. However, the recently approved budget change did not increase this program's funding at all. K-H now says increased funding will not occur until FY98. The Site Reps expressed concern that the September 1998 milestone for removing and processing all the B771 holdup solutions was at risk unless adequate resources were applied now to perform room walkdowns and start tap and drain activities. RFFO agreed and has asked K-H to develop a recovery plan and find the money to support it.

Recommendation 95-2 and Work Control Last week the Site Reps reported that Safe Sites of Colorado is planning to partially decontaminate room 3559 in Building 371. Two potential issues associated with the high pressure water stream were identified: (1) the worker would be exposed to industrial hazards; and (2) that use of high pressure water may result in a spread of contamination, not a containment of contamination. The issue of

worker protection was resolved during mockup training. SSOC personnel demonstrated that one operator in a supplied air suit could easily control the nozzle, that there was not enough splashing to affect visibility, and that a suit could not be cut by the water stream during the evolution. The effectiveness of using water remains a question. However, this process was used in B371 about ten years ago to decontaminate a room formerly used as a canyon. The room is now a radiological buffer area. Additionally, given that SSOC and K-H desire to attempt decontamination using water, Room 3559 is a good choice because a criticality drain exists that will provide feed for CWTS.

Recommendation 94-3 The subcontractors who conducted a review of Recommendation 94-3 implementation briefed RFFO personnel Wednesday. Essentially, the report provided to the Board staff last week was summarized for the RFFO Assistant Managers. Unfortunately, the presentation did not proceed very well. The K-H engineers responsible for the project took issue with many specifics associated with the subcontractor observations, and therefore, did not capture the essence of the review. One of the K-H executives attended the meeting and realized that K-H engineers were missing the point of the review. He stopped the meeting, accepted the comments, and committed to effect corrections to the program.

Building 779 Hydride Pre-filter. SSOC removed a very highly contaminated glove box pre-filter formerly used in the hydride lab this week. The Site Reps reported on 2/9/96 that approximately 2500 ± 500 grams of plutonium were discovered as holdup in a glovebox filter formerly used for hydride operations. The 12"X12"X6" filter was located in a housing below the glovebox. SSOC was initially concerned that removal of the filter could potentially cause a criticality, and subsequently concerned that removal of the filter with pyrophoric hydride could cause a fire or spread contamination. A soft-sided hood with about 80 linear feet per minute of air flow through a portable HEPA blower provided the controls to limit contamination spread and the operators wore full-face respirators. The filter housing was cut on each end where it attached to the system piping. Surprisingly, no plutonium was released and no contamination was spread. The material on the filter had oxidized over time and was a very fine powder. The operators conducted one of the best pre- evolutionary briefs observed to date and executed the work very well.

Interactions with the Public - The Site Reps attended a Citizens Advisory Board Plutonium Subcommittee meeting on Thursday. The meeting was relatively uneventful. Topics discussed included decontamination of Room 3559 and progress on Recommendation 94-3 upgrades. The public asked if the upgrades would support a long term mission. The Site Reps replied that the plutonium could be safely stored at RFETS if upgrades contained in the 94-3 Integrated Program Plan were implemented and if the Basis for Interim Operations was adequately implemented.

cc: Board Members