REVIEW PENDING

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 7, 1998

TO: G. W. Cunningham, Technical Director

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

SUBJECT: RFETS Activity Report for Week Ending August 7, 1998

Recommendation 94-1. The July 17 weekly report discussed a potential issue with the moisture content of sand, slag, and crucible (SS&C) residues that could affect their shipment to SRS in 9975 shipping containers. This issue has become bleaker since the allowable moisture content may be lowered to 0.5% rather than increasing it above 1.5%. Most of the RFETS SS&C has a moisture content around 1%. Some individuals involved in the SARP revision believe it would be more appropriate to use the DOE-STD-3013 radiolysis methodology, which assumes complete radiolysis of all hydrogenous material, rather than a time dependent one. On the surface, this appears to be overly conservative since SS&C will only be in the 9975 for the time it takes to package it at RFETS, ship it to SRS, and unpack it for canyon processing. Shipments of SS&C samples and standards to SRS, needed to verify process flowsheets, have also been delayed because the necessary RFETS procedures are not ready. Furthermore, DOE does not plan to issue the final residue EIS, much less the ROD, until the appropriations bill language for residue shipments to WIPP is resolved in Congress.

The Site Reps observed tap and drain work in B371 Tuesday. Since starting five weeks ago, only six drain points have been drained. The solution drained to date is just uncontaminated nitric acid. This slow progress is partially due to diverting operators to other activities and very long purge times for pipes that are capped at one end. Some sections have had three or more purge cycles, each 17 to 26 hours long. At this rate, it is extremely unlikely that the June 1999 milestone will be met. The Site Reps believe it might be quicker just to take gas samples or perform more realistic calculations for purge times for pipes expected to contain little or no hydrogen. One other issue is that operators continue to receive unnecessary radiation doses from nearby high plutonium loading drums that could be moved or shielded.

The Site Reps reviewed the contractor's strategy for combining piping removal with tap and drain activities in B771. The expected completion date has slipped more than a year from earlier estimates to December 31, 2001. The Site Reps provided DOE several comments on system prioritization, resource management, and integration with other deactivation activities.

BNFL performed a demonstration of the plutonium packaging system to show resolution of test exceptions that occurred during the 2 and 6 can demonstrations last Spring. No problems occurred while the Site Reps were observing, but there were later reports of problems with seating the outer can lid. More information will be provided when the results are compiled.

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Rec. 94-3/95-2. On August 1, the BIO became the authorization basis of record for B371.

B707 Material at Risk (MAR) Readiness Assessment (RA). K-H began their RA Thursday to address the repeated problems in the MAR tracking program. (See recent weekly reports). The K-H team is strong and is doing a thorough job so far. Overall, the new personnel in charge know what they are doing and the revised process is better. However, the MAR procedures have many weaknesses. Many of the activities being performed are not addressed in the procedures or are addressed incorrectly. Three operations orders are used to compensate for weaknesses with the MAR procedure. The people running the MAR program are competent, but additional qualified personnel are needed and a program for qualifying them needs to be developed.

The Site Reps also identified a hole in the MAR tracking program. Because the radiological consequences from a gram of Am-241 are 110 times more than weapons-grade plutonium, the relatively small amount of Am often contributes more to MAR than the plutonium that contains it. Am values are not available for many items. Default multipliers are used for certain high Am containing residues, mostly molten salt extraction and salt scrub residues. A Site Rep review of residue characterization data found that more than 40% of residue packages with *contact* gamma dose rates exceeding 200 mrem/hr were from residues that did not have default multipliers. The high dose rates, some as high as 440 mrem/hr *at 30 cm,* indicate that they contain a significant amount of Am-241 that may not be included in the MAR. The Site Reps provided the B707 facility manager a list of 10 dispersible residues that will be repackaged and/or processed in B707 whose Am is being ignored. They are looking into possible ways to address this issue.

Recent Events. Here is a summary of some recent incidents at RFETS.

- During excavation of Trench 1, depleted uranium metal chips in two containers rapidly oxidized when exposed to air. The uranium was in glass containers inside gallon cans. This was an anticipated event and it appears to have been controlled appropriately.
- In B771, it was discovered that a glovebox whose differential pressure was nearly zero for the month of July was not due to a failed magnehelic gage, but because the air inlet filter had been sucked into the glovebox. During this time, there was an 8 in^2 hole in the glovebox since the filter was laying on the glovebox floor. Upon discovery, the room was posted as an airborne contamination area and the filter was replaced.
- In B779, as a worker was preparing to exit a size reduction tent, he accidentally disconnected his breathing air hose. Upon discovery, he used his emergency bottle and safely left the tent, without any uptake.
- During the RA, a stationary operating engineer found smoke coming from a junction box on the second floor of the B707 annex. The Fire Department responded and discharged a fire extinguisher on a fan motor to cool it since it was glowing red. No flames were observed. The cause is not known yet, but it is suspected that the motor seized up.

cc: Board members