DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 24, 1997

TO: G. W. Cunningham, Technical Director
FROM: R.F. Warther, M.T. Sautman
SUBJECT: RFETS Activity Report for Week Ending January 24, 1997

Bob Warther was on military leave this week. David Hayes was on-site to observe RFFO's assessment of the Nuclear Criticality Safety Program.

1. Residues The table below illustrates the possible impacts of the residue rebaselining effort. If an EIS is needed, these may slip even more. Unfortunately, nearly three years after Recommendation 94-1 was issued, RFFO is still debating how to treat most of the residues.

Rec. 94-1 Implementation Plan Milestone	Original	Revised	Rebaselined Projected Date
Begin pyrochemical oxidation of high risk salts		8/97	3/99 (Path C*)
Stabilization of 10,000 kg of higher risk salts by pyrochemical oxidation	12/97	6/98	3/01 (Path C*)
Begin stabilization of SS&C and graphite fines		9/97	7/98 (microwave vit) 2/98 (furnace vitrification)
Stabilize all SS&C and graphite fines	5/97	5/98	7/99 (microwave vit) 8/98 (furnace vitrification)
Begin stabilization of higher risk combustibles		11/97**	3/98
Stabilize higher risk combustibles (11,000 kg)	11/98	11/98	9/00 (nitrated residues) 9/99 (organic residues)

*Path C delays the start of pyro-oxidation until salt distillation is ready.

** Not an Implementation Plan milestone, but current schedule for wash/dry process.

Rather than delaying the start of pyro-oxidation for seventeen months, the site representatives believe that RFFO should start oxidizing the calcium chloride-based salts this year since they are not suitable for distillation anyway.

2. Solutions: On Tuesday, approximately 660 liters of plutonium solution were drained from Tank 49C in 371. Since December, 2750 liters of solution have been drained from four tanks. Despite their late start, SSOC has recovered their schedule and should satisfy their February milestone for draining all six Category B tanks if the Caustic Waste Treatment System (CWTS) continues to operate. In 771, many of the problems that were reducing building availability or slowing down the hydroxide precipitation process have been resolved.

Schedules in both buildings remain very tight and operators are being worked very hard. The site representatives are watching for signs of operator fatigue since the operators are working up to sixteen hours a day and some weekends.

Partly in response to Board pressure, the contractor is evaluating options for accelerating the deactivation of Building 771. SSOC is seriously considering stabilizing the high concentration plutonium solutions from 771 in 371. One option would be to perform oxalate precipitation in 371. The other option would be to blend the high concentration 771 solutions with the low concentration 371 solutions and then process them in the CWTS. CWTS can handle solutions up to 6 g/l plutonium. The possibility of no longer performing oxalate precipitation in 771 is causing several RFFO and contractor individuals to question the benefit of spending millions of dollars to implement the 771 Basis for Operations.

3. Building 707 Material at Risk (MAR): The 707 Resumption Rebaseline report determined that a 500-year earthquake could cause Modules A - H to collapse and result in a public whole body dose of approximately 24 rem. At the time little activity was being conducted in those Modules; thermal stabilization is conducted in Module J. Nuclear Safety has been reexamining the impacts of a 500-year earthquake since residue stabilization activities are to be performed in Modules A, D, E, and F and the Plutonium Stabilization and Packaging System installed in J. Preliminary analyses show that the public dose could increase to 33 -36 rem at peak processing times. K-H and SSOC are evaluating several options to reduce the consequences to below 24 rem, which has become the unofficial dose acceptance criteria. First, rather than assume all the residues are as dispersible as plutonium oxide, off-site experts will determine if lower dispersion coefficients could be justified. Second, they are looking into the use of robust containers (i.e., pipe components). Third, they are evaluating seismically upgrading Module F, where many drums will be staged, or storing the more dispersible material in the Module K hallway, which has previously been upgraded. Fourth, they will perform a risk assessment that will examine the building and site risk profiles under various scenarios. Fifth, they are determining if some of the building's SNM or waste could be transferred to another building. Since it has already been seismically upgraded, even Building 779 is under consideration although they just spent the last year removing all the drums from it and emptying the vaults. While these alternatives may help, stabilizing the residues and plutonium and packing them in more robust containers as fast as possible is what is really going to reduce the overall site risk.

4. Building 707 Stripout: A plastic tent has been constructed around Glovebox A-110, which is being size reduced in place. While performing decontamination activities inside the tent, a RCT's Positive Air Purifying Respirator (PAPR) became disconnected from his face piece. although the individual was exposed to unfiltered air (7.5 DAC) during his egress, nasal/mouth smears were negative and no contamination was detected on the face piece. Use of PAPR's has been suspended until the incident investigation has been completed.

5. Conduct of Operations/Radiological Protection: Two K-H accountants and a DynCorp facility maintenance manager violated numerous requirements when they transferred contaminated precious metals from a Radioactive Material Area (RMA) in 881 through uncontrolled areas to a non-RMA, where the container was opened. The violations include: not using accountability badge boards, not signing visitor logs, ignoring posting to check in with building supervisor, performing actions not on the Plan of the Day, not being Rad Worker I trained (which is required for unescorted access to a RMA), not wearing TLDs, no RCT support for the transfer or container opening, not using a RWP, and disregarding radioactive material signs on the safe's door and container. Luckily, no contamination was spread and the individuals should have received little, if any, radiation dose.

cc: Board Members