

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 16, 1999

TO: G.W. Cunningham, Technical Director
FROM: Paul F. Gubanc and David T. Moyle, Oak Ridge Site Representatives
SUBJ: Activity Report for Week Ending July 16, 1999

A. Y-12 Enriched Uranium Operations (EUO):

1. **Reduction-** LMES now plans to reduce UF₄ to uranium metal on August 20, 1999, but has not yet proposed what type of readiness verification should be conducted for this operation. Given EUO's restart history, we believe it is not prudent to proceed without an independent DOE review. During sampling of the UF₄ "green salt" intended to be used in these first reduction runs, the material was observed to be black, suggesting impurities which might result in a poor quality uranium metal product. While the quality of the metal button is not of utmost importance for the first few runs, we are concerned that even minor amounts of moisture (e.g., <1 w/o) in the feed material could overpressurize the sealed reaction vessels which operate at high temperature (i.e., > 1100 °C) but do not typically experience high pressure. We are continuing to pursue this concern with the process experts on-site. The staff will review the preparations to start up the reduction process in more detail during the week of July 26, 1999.
2. **Hydrogen Fluoride (HF) System Hardware** - This week, LMES discovered that the electrical insulation on the wiring to the system heaters had deteriorated during testing. As a result, approximately 275 feet of wiring will be replaced with wiring that has insulation with a higher temperature rating. LMES also found that the annular tank installed in the B-1 scrubber system does not conform with the controlled drawing (the annulus thickness is a criticality safety design feature). While technically this can probably be easily dispositioned, initial indications are that this critical dimension was not formally controlled. This event, along with others, (weeklies of May 27 and April 30) suggest that criticality safety is still not always being crisply controlled.
3. **HF System Schedule** - Despite the continuing problems with HF system construction, LMES is driving to declare the system "process complete" on August 10, though several items required for production operations will still not be available. For example, off gas filters for the fluid beds are not expected to be received until September 15. EUO expects to conduct detailed system walkdowns early next week in an attempt to establish a configuration baseline on this new system; we and the DOE will observe some of these walkdowns.(I-A, II-B)

B. Chemical Hazard Assessments and Emergency Preparedness: On July 14, we met with the DOE-OR Manager and Deputy Manager and discussed the Board's letter of July 8 regarding the need for leadership in the areas of chemical hazards and emergency management. They both acknowledged the validity of the issues raised by the Board and committed to take prompt action. We discussed several options for instilling a strong focus and sense of urgency into the existing infrastructure which depends heavily on a large committee and consensus process to make decisions. We will continue to monitor this area for progress. (I-A)

C. U-233 Inspection Program: On Thursday, Mr. Gubanc assisted in a staff teleconference on ORNL's U-233 inspection criteria. While some minor corrections remain to be incorporated, ORNL has made significant progress in both developing the details and realizing the value of this effort. ORNL also advised that they would be delaying the contractor ORR for Phase-1 of the inspection from August 8 to September 20. (III-A.1)

cc: Board Members