

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 29, 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 October 29, 1999

Staff members Massie, Zull and Outside Expert Lewis were at ORNL Thursday and Friday to review the DOE-directed "pause" and open issues on the U-233 inspection program.

A. Enriched Uranium Operations (EUO) Reduction Process: Late this week, vessel integrity remained the final issue requiring resolution prior to the start of the DOE readiness assessment (RA). On October 27, a trial vessel was hydrostatically tested to 470 psi when the gasket leaked, and the proposed test pressure of 575 psi could not be reached. LMES has proposed the 470 psi test be accepted as sufficient to prove the adequacy of the vessel design. The first production vessel was hydrostatically tested on October 28 to 240 psi. The test was successful, and no leaks were noticed. Pending successful closure of this issue, the DOE RA will commence on Monday. (2-A)

B. Y-12 EUO Phase-B Restart: On Monday, LMES submitted its first draft of a resource-loaded schedule to DOE. As it stands, the schedule shows a significant funding shortfall as well as limiting resources which do not meet predicted peak requirements (e.g., pipefitters and chemical operators). Furthermore, to achieve milestone goals, some resources may be stripped from other priorities (e.g., Building 9206). LMES is still expressing significant uncertainty in the scheduled tasks due to the unknown physical state of many systems in EUO. (Many of these systems have not received periodic maintenance for several years making operability of components like pumps and valves highly suspect.) Over the next two weeks, LMES will attempt to level the resources to give more manageable requirement estimates. A final schedule must be submitted to DOE headquarters by November 12 to satisfy a material control and accountability corrective action plan. (2-A)

C. DOE Oak Ridge (DOE-OR) Chemical Safety:

1. This week it became clear that DOE-OR ES&H management is taking a passive role to implementing the DOE-OR chemical safety plan issued September 23 (i.e., will support the line but only if asked). Recent experience with emergency management shows this approach a failure.
2. This week a minor fire occurred at Y-12 when some LiH material from the Development group was being prepared for chemical recovery by the lithium process facility. Unlike the monolithic LiH typically fed into the recovery process, Development's LiH was finely divided and had not been stored under well-controlled conditions (see 8/28/98 report). Per facility management, they did not see this material as presenting any new form of hazard - even after the fire.
3. Dibutyl carbitol (DBC) is an ether used as the organic solvent for primary extraction of uranium in EUO. When ethers are allowed to stand for long periods of time exposed to air, light or heat, peroxides can form which create a fire and explosion hazard. DBC has been stored in glass columns and safe bottles exposed to air for more than 5 years in Buildings 9212 and 9206. The Basis for Interim Operations addresses organic peroxide reactions only as a potential hazard in the presence of nitric acid, even though peroxides can form in the pure organic. A vendor manual states that DBC should be stored in a cool dark place under a nitrogen pad. We have discussed this issue with both LMES and DOE and we will follow up to ensure that stored organics are addressed with appropriate urgency and caution.

We expect to pursue all of the above issues with DOE and contractor management next week. (1-C)

cc: Board Members