DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 30, 1999

TO: G.W. Cunningham, Technical Director
FROM: Paul F. Gubanc, Oak Ridge Site Representative
SUBJ: Activity Report for Week Ending April 30, 1999

Outside Expert Bob Lewis was at ORNL this week observing the DOE Phase-1 Integrated Safety Management System (ISMS) verification which started on April 19th.

A. Y-12 Criticality Safety: High enriched uranium turning machines in M-Wing are equipped with catch pans which collect coolant and metal chips. The catch pans are designed to hold just enough coolant (about 3 inches) to keep the chips submerged (reduce fire hazard) but not overmoderate the metal (criticality safety). Last summer, it was discovered that some of the catch pans overflow holes were not passing sufficient flow and coolant level was as deep as 5 inches. Immediate actions were taken at that time to cut overflow weirs in the pans to assure the 3 inch maximum coolant depth.

This week, DOE's criticality safety staff became concerned that the other criticality safety control depended upon to provide double contingency criticality safety in the catch pans (i.e., mass) is not being sufficiently controlled. Machinists typically keep the amount of chips in the catch pans below several hundred grams though the pans can collect much more and there is no explicit control on the mass accumulated. Additionally, a defense in depth control (boron in the coolant) was removed after the coolant drain catch tanks were redesigned to a critically safe configuration. As a practical matter, the criticality analysis still appears to possess significant margin. I will follow up on Monday. (II-B.)

B. ORNL ISMS Phase-1 Verification: On April 30, the DOE verification team delivered its exit brief and draft report. The team concluded that the ORNL ISMS Description should be approved by DOE once several additional features are incorporated into the ORNL Site-level ISMS Program Description. I do not believe that the review was adequately concluded; my reasons include:

1. Per the DOE team report, the ORNL ISMS Description is composed of the lab-wide "Program Description, LM-003," the 30+ division and facility-level "ISMS Plans," *and all of the implementing procedures referenced in these documents*. The reason such a sweeping definition is necessary is because LM-003 does not adequately describe the roles of the various organizations and how their manuals of practice support the ISMS core functions.
2. As of Friday, ORNL had still not provided the team clarification of what it considers a "line organization." Per LM-003, any direct or external staff who perform R&D or support work is in a line organization. By this definition, *everyone* at ORNL is in a line organization.
3. Overall, the team identified that 3 of 160 objectives and 49 of 893 criteria were not met. Of a 24-person team, over *one third* of the failing marks came from one reviewer. When I sampled the division-level plans examined by this reviewer (e.g., Fusion Energy), I found them to be solidly average compared with others (e.g., Physics) which were significantly less detailed and received only glancing criticism from the team. Additionally, about 25% of the failed criteria were all were for the same basic issue; guidance on stop-work and resumption.

I will work with staff member Tim Hunt to prepare a staff report on the ORNL verification. (I-A.2.)

C. Emergency Management: Last week, I reported that the 800-number pagers used by some Oak Ridge personnel are unreliable for emergency notification purposes. In response, LMES has verified

their emergency response cadre all use local pagers, DOE has identified ten persons who require pager changes (to be completed by May 5), and DOE is taking action with its other primes. (I-B.)

cc: Board Members