DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 10, 1999

TO: G. W. Cunningham, Technical Director
K. Fortenberry, Deputy Technical Director
FROM: D. F. Owen, D. J. Grover, RFETS Site Representatives
SUBJECT: RFETS Activity Report for the Week Ending September 10, 1999

Building 771 Deactivation. Size reduction operations using the new Inner Tent Chamber (ITC) were completed on the first post-startup glovebox. Airborne radiological data for this glovebox indicate that general area airborne levels during cutting operations in the ITC has been below 100 DAC; however, there were two spikes of airborne levels (up to about 3400 DAC) during transfer of size-reduced glovebox pieces from within the ITC to the waste box located outside the ITC.

As previously reported, RFETS is obtaining operational data with the goal of downgrading personal protective equipment (PPE) after sufficient size reduction experience is obtained. Currently, measurement of airborne contamination levels is chiefly based on fixed-location air samplers overhead of the operators and outside the ITC structure; no lapel air sampler external to the outer garment of the workers is being used. It is not clear that the overhead air sampler data will provide an adequate picture of airborne contamination near the workers' breathing zone to justify downgrading PPE. This is of particular concern as the workers can, and often must, lean into the ITC through the open doors during operations. The site reps and staff have started discussions of this issue with RFETS personnel.

Review of the engineering design package for the next generation ITC indicates that certain improvements have been incorporated, such as a waste box integral to the ITC and hand ports used for access in lieu of sliding doors. However, only very top-level operational/functional requirements and user needs appear to have been formally defined. While this is an improvement over the situation existing during the design of the original ITC, the up-front definition of operational/functional requirements and user needs in a systematic manner to support proper design was lacking. This issue has been discussed with RFETS management. (III-B.1.a)

Building 776/777 Criticality Infraction. A criticality infraction was identified during a facility walkdown by RFETS personnel in the Building 776/777 Complex. An existing criticality evaluation from Building 707 allowing storage of 8 containers (or "lobster pots") containing plutonium metal was supplemented with additional calculations to develop the Building 776/777 nuclear materials safety limit (NMSL) that allowed an infinite storage array. However, calculations for upset conditions, such as flooding, were not performed and certain controls assumed in the evaluation were not incorporated into the NMSL, apparently without sufficient technical justification. The site is working to develop a technically justifiable evaluation to support material movements. A RFETS critique of this occurrence is planned the week of September 13.

cc: Board Members