

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 22, 2000

TO: J. Kent Fortenberry, Technical Director
FROM: Paul F. Gubanc and David T. Moyle, Oak Ridge Site Representatives
SUBJ: Activity Report for Week Ending September 22, 2000

A. Y-12 Dismantlement: Key developments concerning the upcoming dismantlement campaign:

1. The contractor's Management Self-Assessment (MSA) concluded their review and debriefed line management on Wednesday. The MSA identified 26 pre-start and 5 post-start findings and 12 observations. The final MSA report is expected to be issued next week.
2. This week, DOE concluded that it would retract its previous delegation of restart authority to the contractor and conduct an independent DOE Readiness Assessment (RA).
3. Mr. Gubanc emphasized with line management that the MSA was not chartered to evaluate the line's preparation process but that the nature and number of the MSA's findings suggest serious deficiencies in this area. The MSA team also suggested that if these underlying issues are not addressed, the chances of successfully passing both contractor and DOE RA's is nil. (2-A)

B. Y-12 Response to ISM Verification: Since completion of the DOE ISM verification review on August 31, LMES has taken several actions, the status of which follows:

1. LMES's efforts to upgrade maintenance work planning are going extremely slowly due to the magnitude of ignorance of relevant procedures by responsible workers and managers. On Monday, it became clear that the full impacts of the effort were not identified or understood, senior management's involvement had waned, and there was little vision as to where the effort was headed. As a result of our and DOE's comments, LMES senior management has re-engaged.
2. A corrective action plan to address overdue tests and inspections is still in draft.
3. On September 21, LMES formally communicated to DOE what additional resources it was committing to address fire protection deficiencies. Interim measures are also reportedly being taken although without a formalized plan (e.g., accelerated dry-pipe system testing).
4. We are unaware of any actions to address the ineffectiveness of commitment tracking and closure.
5. There does not currently exist any effort to prepare a comprehensive response to the ISM report findings as suggested by the Board in the videoconference on September 21. (1-C)

C. Lithium Hydride (LiH) Reactivity: LiH reacts exothermically with water to form lithium hydroxide and hydrogen gas. The reaction rate used in a recent safety analysis is based on experiments which were conducted by fully submerging small solid pellets of LiH in water at nearly constant temperature (approx. 35 and 60°C). Accidents involving water from fire sprinklers impinging on solid LiH are expected to be much hotter due to the high heat of reaction. We are concerned that this analysis is unconservative for the following reasons:

1. Higher temperatures should result in a faster reaction rate.
2. High temperatures may create lithium hydroxide vapor, making emergency response difficult.
3. Evolved hydrogen may ignite in the air, more than doubling the net heat of reaction. In addition, this may further agitate or fracture the reacting surface thus increasing the reaction rate.
4. The actual surface area of LiH available for reaction in proposed scenarios may be higher than assumed, resulting in a faster reaction rate than currently predicted.

We have communicated our concerns to DOE. We will continue to follow this issue as it applies to specific accident scenarios across the Y-12 Plant. (1-C)

cc: Board Members