

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 25, 2000

**TO:** G.W. Cunningham, Technical Director  
**FROM:** Paul F. Gubanc and David T. Moyle, Oak Ridge Site Representatives  
**SUBJ:** Activity Report for Week Ending February 25, 2000

Staff members Burns, Ogg, and Davis were at Y-12 for a criticality safety program review. Staff members Helfrich, McConnell, Blackman, and Linzau were at Y-12 to discuss project management.

A. Criticality Safety Review: The Y-12 process for performing criticality safety evaluations and identifying controls and requirements appears to meet the ANSI standard. There are some weak points in implementation and traceability of controls to the scenarios which they protect against. Additionally, the staff was not satisfied with how violations of criticality safety requirements are reported. Initially, violations are called "deficiencies" until experts can analyze the situation and see if at least two controls still remain in place. Deficiencies are only reported as off-normal events if, after analysis, it is concluded that only one contingency remains to protect against criticality. The staff also questioned the lack of strict adherence to identified parameter limits in calculations. In some cases, analysts choose between the more forgiving of expected and worst case conditions. (1-C)

B. Y-12 NaK Explosion Investigation: On February 24, DOE released its Type-A investigation report on the December 8, NaK explosion at Y-12. Gubanc and Helfrich attended both a workforce briefing and a DOE/LMES senior management debrief. One issue which was reiterated several times by the report and senior management was the need to improve management's field presence. While we strongly agree and have provided DOE and LMES objective evidence that improvements are called for, we have yet to observe any strong action to effect this change. On Thursday, we reiterated our concerns to the top DOE and LMES managers in the strongest of terms. (1-C, 2-A)

C. Chemical Safety: On February 22, LMES concluded that the potential formation of hazardous levels of organic peroxides due to degradation of dibutyl carbitol (DBC) does not constitute an unreviewed safety question. While this determination is supported by literature and calculation, the analysis depends on the likely (but not experimentally validated) assumption that DBC peroxides will be soluble in the bulk DBC. If peroxides form a separate phase, then explosions become a real possibility; a matter we will continue to evaluate. LMES intends to relax the compensatory measures on movement of DBC. Additional sampling will continue in accordance with a statistically justified sampling plan in both 9206 and 9212 to verify that low peroxide levels currently exist. (1-C)

D. Y-12 Project Management: On February 23, the staff met with DOE and LMES to discuss progress in improving Y-12 modernization project management (PM):

1. Based on the information provided, the staff believes sufficient progress has been made to provide a reasonable response by the Board's reporting requirement due date (end of March 2000).
2. In addition to the report, the staff suggested that DOE/LMES visit the Board to more fully explain their understandings of the root causes, their proposed PM model, and near-term priorities for corrective action (especially in support of the new HEU storage building).
3. The DOE-DP representatives accepted and supported several key elements of the proposed PM model although the staff expressed concern that certain key interface issues had not been fully developed. Mr. Rice is working with DOE/LMES to identify and formalize these interfaces.
4. A beneficial dialogue was held regarding how ISM is supported in the design process. (1-C)

cc: Board Members