

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 30, 1996

**MEMORANDUM FOR:** G.W. Cunningham

**COPIES:** Board Members

**FROM:** Farid Bamdad

**SUBJECT:** Trip Report - Safety and Authorization Basis Review at Rocky Flats Environmental Technology Site, May 23, 1996

1. **Purpose:** The safety and authorization bases for operations in Building 771 at the Rocky Flats Environmental Technology Site (RFETS) were reviewed by the Defense Nuclear Facilities Safety Board's (Board) staff (F. Bamdad and R. Kasdorf) and the Board's site representatives (R. Warther and M. Sautman).
2. **Summary:** The methodology presented by Kaiser-Hill (K-H) representatives, when implemented, would enhance safety reviews and implementation of the Authorization Basis process at RFETS. Specifically:
  - a. K-H plans an activity-based process that will identify the need for application of a Process Hazards Analysis (PrHA) methodology that is presented in 29 CFR 1910, *Occupational Safety and Health Standards*. This methodology will be applied to higher hazard activities such as oxalate precipitation and high-level tank draining in Building 771 prior to startup.
  - b. The Technical Safety Requirement (TSR) section of the Basis For Operation (BFO) document has been improved. The safety programs, relied upon for safe operation in the facility, are now identified in the Administrative Control section of the TSRs. The building TSRs will be supplemented by additional controls that may be warranted as determined by application of the PrHA to higher hazard activities.
3. **Background:** During a meeting at RFETS on April 22-26, 1996, the Board's staff noted that the Authorization Basis for Building 771 did not ensure adequate protection of the environment, and the health and safety of the public and the workers. In summary, the Board's staff noted that:
  - a. The BFO was based on bounding worst case accidents identified as Scenarios of Concern (SOC). These SOCs were not identified based on a systematic process hazards analysis. Events with less severe consequences than the worst case SOCs, which may require additional controls, were not identified in the BFO.
  - b. The BFO did not adequately identify and commit to implementation of safety programs required for prevention or mitigation of potential accidents.

- c. The TSRs were developed based on the assumption that the existing safety systems were operable. Furthermore, the TSRs did not provide quantitative safety limits which should ensure operability of the systems within the prescribed limits analyzed in the Authorization Basis document.
4. **Discussion:** The Board's staff discussed the resolution of these issues during a meeting with K-H representative on May 23, 1996. The following enhancements and deficiencies were noted:
- a. K-H has adopted an activity-based screening methodology that will result in application of a PrHA, as prescribed in 29 CFR 1910, to higher hazards activities. The process hazard analysis approach described in this Code of Federal Regulations is a systematic approach that would identify the vulnerabilities in an activity. Application of a PrHA to the activities performed at RFETS would complement the BFO and would provide any additional controls needed to ensure worker safety.
  - b. The Administrative Controls section of the BFO now identifies the safety programs relied upon for prevention or mitigation of the SOCs. Implementation of these programs will reportedly become commitments in the Authorization Basis. A representative from K-H stated that, to the extent necessary, K-H would comply with the site manuals which describe these programs. The extent of implementation, however, is not described in the BFO. It was stated that implementation of the safety programs, as described in the site manuals, is contractually required, and consequently, K-H is committed to full compliance with these manuals.
  - c. Engineered barriers and safety systems are identified in the TSR as safety functions rather than equipment performance parameters. The Limiting Conditions of Operation (LCO) for these systems are identified in separate documents, called Systems Evaluation Reports (SERs). These SERs are not considered by K-H to be part of the Authorization Basis. Therefore, DOE review and approval of the SERs and specific performance parameters would not be required. For example, LCO 3.1.1 requires "Operational Area pressure differential shall be maintained negative with respect to atmospheric reference." The quantitative value for this differential pressure is only found in the SER. The Board staff believes that the quantitative performance parameters need to be specified as part of the Authorization Basis.
5. **Future staff activities:** The Board staff will follow generation of the activity-based PrHA and implementation of the commitments derived in the Authorization Basis documents.