

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 5, 1995

MEMORANDUM
FOR: G. W. Cunningham, Technical Director
COPIES: Board Members
FROM: C. A. Miller
SUBJECT: Trip Report - Observation of DOE Readiness Assessment of the Lawrence Livermore Laboratory Plutonium Facility

1. **Purpose:** This trip report documents Defense Nuclear Facilities Safety Board (Board) staff and outside expert observations of the DOE Readiness Assessment (RA) of the Lawrence Livermore Laboratory (LLNL) Plutonium Facility (Building 332) August 28-September 1, 1995. The review was conducted by D. Owen, J. Preston, C. Miller, and outside expert D. Boyd.
2. **Summary:** Readiness Assessments for Building 332 were conducted by LLNL and DOE-Oakland Operations Office (DOE-OAK). The RAs are in response to LLNL's decision in April 1995 to place operations in Building 332 in "standby mode" after the Board's staff identified a lack of implementation of Surveillance Requirements (SRs) from the Safety Analysis Report (SAR). The DOE-OAK RA Team adequately identified significant issues that must be addressed prior to restart of the facility. However, final reports of these RAs have not been issued at this time.

LLNL has developed and implemented numerous new and upgraded processes, policies, and training packages to implement SRs since April 1995, in accordance with their restart corrective action plan. While progress has been made in implementing approved procedures for SRs, the DOE-OAK RA Team identified deficiencies with configuration management, conduct of operations, and management commitment and control. Further action appears necessary to put in place a truly integrated safety management system.

There is no defined training program for Building 332 "facility operators;" training for these individuals is based solely on informal apprenticeship. Additionally, an assessment of the DOE-OAK Facility Representative program revealed inadequate staffing by Facility Representatives to meet DOE-OAK's own monitoring plan.

The Board's staff will review the LLNL and DOE-OAK RA reports when available and provide further assessment.

3. **Background:** LLNL Plutonium Facility management suspended operations on April 7, 1995, following Board staff observations that certain facility SRs were not being implemented and that deficiencies in procedures and records associated with SRs and training were not being identified.

LLNL's corrective action plan for SR implementation appropriately covered these

areas. DOE determined that LLNL and DOE RAs would be conducted following corrective action and that restart of operations would require authorization by the DOE Oakland Operations Office (DOE-OAK).

4. Discussion/Observations:

- a. **Root Cause**: The Building 332 SAR was approved and made effective by DOE-OAK on March 6, 1995. However, at the time the SAR was made effective, LLNL did not have a system in place to ensure that all the SAR requirements would or could be met. LLNL's decision to suspend operations in Building 332 was precipitated by the Board's staff determination that SRs were not being conducted as defined in the SAR's Technical Safety Requirements (TSRs). However, LLNL's analysis of the root cause of the management breakdown was flawed in that it does not acknowledge that the SAR should not have been made effective without the assurance that the surveillance requirements and administrative controls contained in the SAR were implemented into procedures and personnel trained for those procedures.
- b. **Configuration Management and Integration and Use of the New Systems in Place**: Several new and upgraded facility policies, procedures, and training have been developed and implemented. These include: validated and approved surveillance requirements procedures (SRPs); training on individual SRPs; a new revision to the SAR/TSR that incorporates changes resulting from walking down SRPs, checking as-built conditions and reviewing bases for TSRs, and a team responsible for timely completion of milestones contained in the SAR/TSR implementation plan. These important initiatives are in the early stages of implementation and progress has clearly been made. The DOE-OAK RA Team, however, identified deficiencies requiring correction. These included:
 1. Direction was lacking on how to perform procedures in accordance with guidelines set forth in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*. Conduct of operations good practices were not followed in performing procedures. Matrixed support personnel appeared less aware of these practices than facility operators.
 2. A listing of current approved revisions of SRPs was not readily available to the facility operators responsible for the procedures.
 3. Several deficiencies were noted with implementation of the administrative controls. Section 5 of the TSR establishes administrative controls to ensure that operations in the Radioactive Materials Area (RMA) of the Plutonium Facility will be bounded by the conditions and assumptions used to perform the SAR safety analysis. Failure to comply with an administrative control constitutes a SAR violation. The LLNL Superblock Manager committed to DOE to a pre-start milestone of implementing or establishing compensatory measures for 50 administrative controls called for in the Plutonium Facility TSR.

- c. **Personnel**: Improvements to training and qualification programs have been made for certified material handlers and limited material handlers (those individuals who actually perform the research activities with nuclear materials). These improvements include upgraded training in several facility-specific areas, particularly detailed training on the SAR and SRs. Training required for personnel performing specific Building 332 SRs has also been upgraded.

There is not, however, a defined training program for Building 332 "facility operators." Facility operators oversee performance of SRPs and support research personnel during operations to ensure the building safety envelope is maintained. This includes responding to safety-related alarms and ensuring actions required by the Limiting Conditions of Operations specified in the TSR are implemented. Training for these individuals is based solely on informal apprenticeship and on-the-job training. At the time of this review, there were no formal commitments to develop and implement a defined training program for facility operators. This issue was not identified by the DOE-OAK RA Team.

- d. **DOE-OAK Coverage**: DOE HQ reviewed coverage of Building 332 operations by DOE Facility Representatives. The review resulted in a pre-start finding regarding inadequate facility representative coverage to meet even DOE-OAK's own oversight plan. Additionally, a post start finding was issued on improvements needed in DOE-OAK Subject Matter Expert support to Facility Representatives.
 - e. **RA Process**: DOE Order 5480.31, *Startup and Restart of Nuclear Facilities*, requires that DOE Operations Offices and contractors establish local procedures for defining requirements and for performing RAs. These implementing procedures have not been developed by DOE-OAK or LLNL. Without local implementing procedures, there are no set guidelines for disciplined conduct of these reviews. As a result of the lack of defined procedures implementing DOE Order 5480.31, the Building 332 readiness review process has not been consistent with typical readiness reviews practices. For example, the review portion of the LLNL RA was completed, but the LLNL RA report had not been issued at the time of the DOE-OAK RA review. LLNL management indicated that the report would not be released until all issues/concerns from the RA were identified as "Completed." As a result, the DOE-OAK RA team was not in a position to clearly determine all the LLNL RA findings and evaluate the adequacy of corrective actions and their implementation during the review. LLNL management indicated that although undocumented, this was the "accepted LLNL practice" for readiness reviews. As such, LLNL's RA functioned more as a management assistance tool for achieving readiness than an independent check after achieving readiness.
5. **Future Staff Actions**: The Board's staff will review the LLNL and DOE-OAK RA final reports when available. The staff will also review the closure of LLNL and DOE-OAK RA findings, as well as DOE-OAK response to DOE-Headquarters findings on its monitoring of Building 332 operations. The staff will also conduct a Building 332 safety basis review in the near future at LLNL.