

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 22, 1994

MEMORANDUM G.W. Cunningham, Technical Director
FOR:
COPIES: Board Members
FROM: D. F. Owen
SUBJECT: Order Compliance Self-Assessment at Sandia National
 Laboratories-New Mexico (SNL-NM)

1. **Purpose:** This report documents a review of the Department of Energy (DOE) Order Compliance Self-Assessment (OCSA) program at the SNL-NM. S. Krahn, D. Owen, A. Jordan, and R. Zavadski of the Defense Nuclear Facilities Safety Board (Board) staff and outside expert T. Quale conducted the review from October 25-27, 1994.
2. **Summary:**
 - a. It was evident that much effort was invested by SNL in performing the initial assessments at the Annular Core Research Reactor (ACRR). Based on a review of eight DOE Orders, the staff found that operations at ACRR generally met the intent of the Orders. Independent technical review of the assessments, however, have not yet been performed by SNL; nor has there has been a detailed review of Phase 1 assessments by DOE Headquarters, DOE-Albuquerque (DOE-AL) or DOE-Kirtland Area Office.
 - b. There was no universally recognized policy statement by SNL of the value and importance of compliance with requirements of DOE Orders.
 - c. Requests For DOE Action (RFAs) have not been generated to address the non-compliances identified by the ACRR assessments.
 - d. For non-compliances involving potential radiation exposure to workers or the public, the criteria for determining whether or not compensatory actions are required are set so high that they effectively preclude mandatory compensatory measures.
 - e. Numerous instances were identified where requirements have been incorrectly designated by SNL as not applicable. The staff observed many instances where the requirements of applicable DOE guidance for performing the assessments were not followed or understood by personnel performing the assessments.
 - f. SNL has not implemented an issues management program for tracking Order compliance actions. As a result, the overall status of completion of implementation actions for Order implementation plans or actions on RFAs are not tracked sitewide.

- g. The implementation status of DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, and DOE Order 5700.6C, *Quality Assurance* could not be determined. The process in use at SNL did not provide objective evidence that the requirements of these two DOE Orders are being implemented. The requirements of DOE Order 5480.31, *Startup and Restart of Nuclear Facilities*, have not been implemented into procedures by SNL.
2. **Background:** In response to Recommendation 90-2, SNL completed initial Order compliance self-assessments at ACRR. This trip was the Board's staff initial review of SNL's OCSA program and addressed Orders: 4330.4A, *Maintenance Management Program*, 5000.3B, *Occurrence Reporting and Processing of Operations Information*, 5480.11, *Radiation Protection for Occupational Workers*, plus the RadCon Manual, 5480.19, *Conduct of Operations Requirements for DOE Facilities*, 5480.20, *Personnel Selection, Qualification, Training, and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities*, 5480.21, *Unreviewed Safety Questions*, 5480.23, *Nuclear Safety Analysis Reports*, and 5500.3A, *Planning and Preparation for Operational Emergencies*.
3. **Discussion:** Based on review of the assessments of several safety-related Orders and discussions with SNL and DOE personnel, the staff has the following observations:
 - a. **OCSA Program Status:** SNL stated that Phase 1 assessments of compliance with DOE Orders for the ACRR facility were completed in April 1994. Assessments of remaining SNL facilities have yet to be completed. DP-AP-202, *Order Compliance Self Assessment Instruction*, Revision 2, was cited by SNL personnel as governing the OCSA process for the ACRR assessments.
 - b. **OCSA Program Direction and Oversight:**
 1. Independent technical review of the assessments has not been performed internally by SNL. Additionally, while some aspects of the SNL OCSA **process** have been reviewed, there has been no detailed review of the Phase 1 assessments by DOE Headquarters, DOE-AL, or DOE-KAO. This lack of independent review of the assessments by SNL and DOE is not consistent with DP-AP-202 and DOE Order 5700.6C requirements on independent quality verification.
 2. Changes in SNL management have taken place in conjunction with Martin-Marrietta becoming the contractor for SNL. While the Board staff observed an increased high-level management emphasis on conduct of operations, there was no universally recognized policy statement of the value and importance of compliance with the requirements of DOE Orders.

c. *OCSA Process and Product Quality:*

1. SNL stated that no Requests For DOE Action (RFAs) have been generated to address non-compliances identified by the ACRR assessments. RFAs were generated for certain non-compliances identified by a SNL sitewide assessment in 1992, but those RFAs generally lack compensatory measures. Lack of adequate resources and priority were cited as reasons by SNL personnel.
2. The staff identified numerous instances in several Order assessments where requirements, including both mandatory and nonmandatory requirements, have been designated by SNL as not applicable. For example, SNL reported access control requirements for very high-radiation areas (section 9.1.(1) of DOE Order 5480.11) were not applicable. In fact, the facility does at times have high-radiation areas associated with retrieval of irradiated test materials from the ACRR.
3. The staff observed many areas where DP-AP-202 requirements were not followed or even understood by personnel performing the assessments. For example:
 - a. There were numerous instances where inadequate objective evidence of Phase 1 compliance was cited. The review team observed numerous cases where the evidence cited did not incorporate the Order requirement or did not provide proper actions to satisfy the requirement as outlined in DP-AP-202 Appendix B.
 - b. DP-AP-202 states that in cases where mandatory requirements are adhered to during work activities but are not yet incorporated into documented programs, policies, procedures, or practices, a compliance "deficiency" should be identified. This is to ensure that requirements where actions are still required to fully incorporate the requirement are identified. The staff identified numerous instances where such situations were classified by SNL as full compliance and SNL personnel were not aware of this use of the deficiency classification.
 - c. Some SNL personnel were not aware that actions under Order Implementation Plans that had not been completed to the approved Implementation Plan schedule needed to be addressed by a RFA. Some SNL personnel did not know the difference between corrective actions and compensatory measures.

These observations and discussions with SNL personnel indicate that many assessment personnel were not properly trained in the methodology and implementation of DP-AP-202. The OCSA training materials

reviewed by the staff appeared to place emphasis on more administrative aspects, such as data recording and entry. Little guidance or examples illustrating technical aspects of assessment performance were provided.

4. Compensatory Measures: The SNL Management Integration and Implementation Manual established a set of criteria for determining whether or not compensatory actions were necessary in the event of a noncompliance. These criteria are reproduced in the SNL OCSA WI 3-2.2, Compensatory Action and state:
 - a. If the criteria are met, compensatory measures are mandatory. If the criteria are not met, compensatory measures need only be ***considered***.
 - b. The criteria include a radiation exposure of ***100 rem*** as determined at on-site and off-site locations as the threshold for mandatory compensatory measures. This level is 20 times the maximum annual exposure allowed for occupationally exposed personnel by DOE Order 5480.11 and 10 CFR Part 835.

The radiological criteria for compensatory actions appear to bypass the concept of providing immediate action for ensuring health and safety where SNL is not compliant with a DOE Order requirement. The radiological criteria are set so high that they effectively preclude mandatory compensatory measures for radiological risks. Use of such criteria for determining compensatory measures has not been observed in other OCSA programs reviewed by the staff.

- d. ***Issues Management***: SNL has not implemented and DOE is not requiring SNL to implement a comprehensive issues management program for tracking Order compliance actions as required by DP-AP-202. As a result, neither senior SNL nor DOE management can readily assess the overall status of completion of implementation actions for Order implementation plans or compensatory measures and corrective actions on RFA's. Monitoring the status of completion of implementation or corrective actions is supposedly the responsibility of the individual managers.
- e. ***Implementation of DOE Order 5480.19***: In lieu of preparing a conventional implementation plan for DOE Order 5480.19, *Conduct of Operations Requirements at DOE Facilities*, SNL has developed a Management Integration and Implementation Manual. The methodology employed in the manual was to integrate the requirements of DOE Orders 5480.19 and 5700.6C. Personnel from DOE-KAO stated they have more recently found that the manual did not address specific Order requirements. Further, the process used at SNL did not provide

objective evidence that the requirements of the two Orders are being implemented. At DOE's request, a new SNL Implementation Plan for DOE Order 5480.19 was submitted in November 1994.

- f. ***Implementation of DOE Order 5480.31***: The requirements of DOE Order 5480.31, *Startup and Restart of Nuclear Facilities*, have not been implemented into procedures by SNL, even though full implementation of the Order was called for by early 1994. Delays in adding the Order to the SNL contract were cited during the review. DOE-KAO personnel stated that existing DOE Albuquerque guidance is being used by DOE-KAO in oversight of SNL activities.
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3. **Future Staff Actions**: The staff will continue to evaluate the OCSA program at SNL in accordance with the Implementation Plan for Board Recommendation 90-2.