

**[DNFSB LETTERHEAD]**

November 15, 1993

The Honorable Victor H. Reis  
Assistant Secretary for Defense Programs  
U.S. Department of Energy  
Washington, D.C. 20585

Dear Dr. Reis:

Staff members of the Defense Nuclear Facilities Safety Board (DNFSB) and an outside expert visited the Department of Energy Nevada Operations Office (DOE-NVOO) during the period of August 17-19, 1993. The Staff reviewed the status of administrative Order Compliance and the self-assessment process at the Nevada Test Site (NTS).

The Staff members' reviews indicated that NTS has expended a considerable amount of effort performing self-assessments and is generally following the Defense Programs (DOE-DP) guidance on the subject (DP-AP-202, "Order Compliance Self-Assessment Instruction"). The Staff has noted weaknesses in certain areas, however, including qualification, training and guidance for personnel involved in the assessments, use of the assessments in an on-going process to identify and correct compliance deficiencies, and independent technical appraisal of the detailed information in the self-assessments.

The limited progress in completing Order Compliance self-assessments for the NTS Area 27 facilities, where nuclear explosive devices are assembled and staged, was also noted during this review. Subsequent discussions on the subject of Area 27 were held between DNFSB Staff members and members of your staff on October 28, 1993. During these discussions your Staff indicated that corrective actions regarding Area 27 (as well as the overall NTS Order-compliance program) would be developed by December 1993 as part of the implementation of Board Recommendation 93-1.

The enclosed trip report is provided for your information. The Staff observations should be useful as you develop the corrective actions related to the Order compliance self-assessment program at NTS, as part of implementation of Board Recommendation 93-1.

Sincerely,

***John T. Conway***  
***Chairman***

c:     RADM Charles Beers, DP-20 w/enclosure  
       Mr. Victor Stello, DP-6 w/enclosure  
       Mr. Mark Whitaker, EH-6 w/enclosure  
       Mr. Nick Aquilina, Manager NFO w/enclosure

Mr. James Hirahara, Acting SFFO w/enclosure  
Mr. Bruce Twining, Manager AFO w/enclosure

Enclosure

## **DEFENSE NUCLEAR FACILITIES SAFETY BOARD**

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director

**COPIES:** Board Members

**FROM:** Donald Owen

**SUBJECT:** Trip Report of Order Compliance Review at the Nevada Test Site (NTS)

1. Purpose: This report documents the results of a visit by members of the DNFSB Staff to the DOE Nevada Operations Office (DOE-NVOO) to conduct an initial review of administrative Order compliance at NTS. The review was conducted by J. Preston, D. Owen, T. Arcano, G. George, M. Helfrich, and R. Zavadoski of the DNFSB Staff, and J. Porter, outside expert.
2. Summary:
  - a. The scope of this review included DOE-NVOO, the NTS contractors that report to DOE-NVOO, and the NTS user organizations from the Los Alamos National Laboratory (LANL) and the Lawrence Livermore National Laboratory (LLNL).
  - b. Based on a sampling of seven DOE Orders, the status of administrative compliance with DOE Orders at NTS appears to be uneven, with satisfactory program implementation in some areas and programmatic deficiencies existing in other areas as follows:
    - (1) Based on discussions with NTS personnel (DOE-NVOO, NTS contractors and NTS user organizations), deficiencies were apparent in the qualification, training and guidance for personnel regarding the performance and use of the self-assessments.
    - (2) There appears to be a general lack of use of the assessments as part of an ongoing process to periodically evaluate performance in meeting DOE requirements and identifying and correcting deficiencies.
    - (3) Independent technical appraisal of the detailed information in the assessments, such as adequacy of objective evidence of compliance, was not being performed for most of the assessments.
    - (4) Self-assessments by NTS user organizations, LANL and LLNL, have not been completed for their device assembly activities in Area 27.
  - c. DNFSB staff members will review NVOO actions for upgrade of the NTS Order

compliance self-assessment program and other actions to be done as part of implementation of Recommendation 93-1.

3. Background:

- a. NTS is the only remaining operational test site for underground nuclear testing. DOE is currently in a planned hiatus from nuclear testing at NTS until sometime in 1994, at the earliest. Capability to resume nuclear testing at NTS is currently being maintained, however, as nuclear testing may be required, in response to potential international developments.
- b. This review, conducted from August 17-19, 1993, was the initial assessment by Staff members of the status of process of administrative Order compliance at NTS as part of DOE implementation of Board of Recommendation 90-2. To facilitate a clear and logical approach to assessing the status of Order compliance, the DNFSB Staff members focused this initial review on administrative Order compliance--that portion of the process which is associated with the first criterion of Order compliance in DP-AP-202, Order Compliance Self-Assessment Instruction. Administrative Order compliance is referred to in DP-AP-202 section 4.2 as, "applicable DOE Order statements (mandatory and non-mandatory) are included in appropriate documented policies, programs, and procedures." The second aspect of Order compliance, or "adherence-based Order compliance," is taken from the second part of the definition in DP-AP-202, which states that, "...documented policies, programs, and procedures are demonstrably adhered to during office or facility activities." This aspect of Order compliance will be reviewed in future trips to NTS.

4. Discussion/Observations:

a. Review Scope:

- (1) Nuclear test activities at NTS include device assembly, on-site transportation, insertion/emplacement, detonation, and post-shot operations. Nuclear test activities are controlled and directed by DOE-NVOO and user organizations including LANL, LLNL, and the Defence Nuclear Agency. Other nuclear-related activities at NTS include waste management and environmental restoration operations. NTS management and operations (M&O) contractors provide various support for nuclear-related activities. M&O contractors at NTS include the Reynolds Electrical and Engineering Company, Raytheon Services Nevada, EG&G, and Wackenhut Security Incorporated. These organizations were included in the scope of this review.
- (2) The DNFSB review team conducted reviews of the status of administrative order compliance through a sampling of seven DOE Orders of interest to

the Board. The self-assessments, the objective evidence of compliance and Requests for DOE Approval (RFA's) developed by DOE-NVOO, the user organizations, and M&O contractors were the main focus of the individual reviews of the DOE Orders. The DNFSB review team also reviewed the conduct of independent assessments, and the training provided to personnel involved in the selfassessments.

- b. Status of Administrative Order Compliance at NTS: The following summarizes information presented regarding the status of administrative order compliance at NTS:
- (1) Order compliance self-assessments have been completed by DOE-NVOO and the M&O contractors for the Orders DOE-NVOO considers applicable to the activities at NTS. Documentation supporting these self-assessments were made available for review, including objective evidence of compliance and RFA's for the requested sample of seven DOE Orders of interest to the Board.
  - (2) DOE-NVOO and M&O contractors discussed training of personnel in the performance of the self-assessments. Training for certain DOE-NVOO and M&O contractor personnel appears to have generally consisted of a one-day seminar on DP-AP-202, given to most individuals about two years ago.
  - (3) DOE-NVOO stated that their independent evaluation of the quality of the Order compliance self-assessments has only recently begun (July 1993). These independent evaluations, outlined by Section 11 of DP-AP-202, have typically been limited to the general process and methodology for conducting the selfassessments. The quality of specific information in the individual assessments (e.g., technical adequacy of specific objective evidence of compliance) has not been independently evaluated in most areas by either DOE-NVOO or the M&O contractors.
  - (4) DOE-NVOO stated that self-assessments (recently initiated at DOE-NVOO direction) for LANL and LLNL activities in Area 27, Able Compound, have not been completed. The Area 27 facilities include those where nuclear explosive devices are assembled and staged in support of testing operations. DOE-NVOO stated that self-assessments developed by the user organizations in anticipation of this review were not completed to DOE-NVOO's satisfaction. DOE cited inadequate training of personnel performing the self-assessments as a primary cause of the assessment inadequacies. As a result, no Order compliance selfassessments by user organizations were made available for review.
- c. Observations: Overall, the review of administrative Order compliance with the

sample of seven Orders indicated that a considerable amount of effort had been expended by the DOE-NVOO and M&O contractor personnel who conducted the assessments. The status of administrative compliance with DOE Orders at NTS appears to be uneven, with satisfactory program implementation in some areas and programmatic deficiencies existing in other areas. The following summarize the review team's observations:

(1) Qualification, Training and Guidance for Self-Assessment Personnel:

- (a) It appears that inadequate attention was given, in some instances, to the qualifications of the personnel coordinating or conducting the assessment. In one example, an undergraduate intern was tasked to coordinate the DOE-NVOO self-assessment and compliance with DOE Order 5820.2A, Radioactive Waste Management -- an Order with a significant degree of technical complexity. The coordination work performed by this individual was reviewed by other DOE-NVOO waste management personnel just prior to this review at NTS. Their review determined that numerous requirements related to low-level and transuranic wastes and decontamination and decommissioning of facilities had not been properly assessed.
- (b) Some of the DOE and M&O contractor assessors did not understand what constitutes proper objective evidence of compliance with a requirement. There seemed to be a misperception among several NTS personnel that an example of adherence to a requirement was sufficient objective evidence of administrative compliance with that requirement. In one instance an entire file of implementing instructions was referenced for DOE-NVOO compliance with all applicable requirements of DOE Order 5480.19, Conduct of Operations. Such citation is not consistent with the requirement of DP-AP-202, Appendix B, that citation of objective evidence of compliance be for a specific policy, program, or procedure. Lack of adequate training has resulted in an uneven application of the self-assessment methodology, as assessors have, in several instances, made their own determination of what constituted objective evidence of administrative compliance.
- (c) While many assessors received some training about two years ago, it appears that the only recent training that most assessors received was a copy of the current revision of DP-AP-202. There does not appear to have been training in any specialized methodology for conducting the assessments to meet the requirements of DP-AP-202.

- (d) DOE-NVOO and M&O contractor Order compliance assessment plans and procedures reviewed by DNFSB Staff members do not provide adequate guidance in the specialized methodology for conducting the assessments to meet all DP-AP-202 requirements. In particular, the guidance provided does not adequately address how to assess whether technically adequate objective evidence of compliance, meeting all DP-AP-202 requirements, is provided in the self-assessments. The DOE-NVOO compliance coordinator noted during the review that there has been an average rejection rate of between 40 and 50% of the self-assessments submitted to his office during the past two years, yet there does not appear to have been any effort taken towards improving guidance or training.
- (e) Based on this review by DNFSB Staff members, there does not appear to have been adequate communication of a proper and consistent set of expectations and proper training for performance and use of self-assessments provided to appropriate DOE-NVOO and M&O contractor personnel.

(2) Implementation of an Ongoing Process by Line Management:

- (a) Many of the self-assessments were done 12-24 months ago and have not been updated, even though documented evidence of compliance has changed in certain instances. Several individuals (including contractor compliance coordinators) indicated that they perceived the self-assessments as a one-time exercise to be done to meet an external commitment. Consequently, update of many of the self-assessments was not performed when internal programs policies or procedures were changed. A sampling review of DOE-NVOO and M&O contractor self-assessments by DNFSB Staff members revealed errors, including instances where non-compliances existed which were not found by the self-assessment process. In one instance, a draft document was cited as objective evidence of compliance to certain requirements of DOE Order 5700.6C, Quality Assurance by Raytheon Services. This is contrary to the requirement of DP-AP-202 Appendix B that the document be controlled and approved. This deficiency was not identified or acted upon by a RFA.
- (b) Although statements to the contrary were made by DOE-NVOO, the review team observed little evidence that the Order compliance self-assessment process is being used as an ongoing tool to indicate the status of administrative compliance, identify and correct compliance deficiencies, and ensure changes to procedures, policies, and programs are consistent with applicable DOE Order

requirements. The observed approach to assessment of administrative compliance to DOE Orders by line management is not in keeping with criterion 9 of DOE Order 5700.6C, Quality Assurance, which requires that management periodically assess performance, and identify and correct problems; nor criterion 4, which requires that documents and records be reviewed and maintained. Lack of use of the Order compliance selfassessments in an ongoing process to identify and correct deficiencies in complying with DOE requirements may be partially related to the issue of guidance and training in this area, as previously discussed. Based on the review by DNFSB Staff members, it appears the commitment to using Order compliance as an on-going process and management tool at NTS is lacking.

- (3) Performance of Independent Assessments:
  - (a) The approach to independent assessment by DOE and the M&O contractors, whereby only the process is reviewed for conducting Order compliance selfassessments and not the adequacy of the detailed information contained in the self-assessments, does not appear to be in keeping with criterion 10 of DOE Order 5700.6C, Quality Assurance. Criterion 10 requires that independent assessment be conducted to measure item quality. Additionally, DP-AP-202 (Section 11) requires that DOE Field Offices monitor their M&O contractors to verify that the self-assessment process is "accurately completed." While proper conduct of the overall process is important, the review team does not consider that the quality of the assessments can be properly measured and verified without systematic and on-going technical assessment of the adequacy of the detailed information contained in the self-assessments (e.g. technical adequacy of objective evidence of compliance to all the requirements of DP-AP-202).
  - (b) The recent start of DOE's independent verification of most self-assessment activities, which have been in progress for about two years, may be indicative of a lack of commitment to the overall process. The process cannot be considered to be fully implemented until the "quality verification" portion of the process, as outlined in DP-AP-202, has been implemented and is functioning in a systematic manner.
- (4) EG&G Compliance with DOE Orders 5700.6C and 5610.11 A positive area noted during the review was EG&G's process of compliance with the requirements of DOE Order 5700.6C, Quality Assurance and the Personnel Assurance Program (PAP) requirements of DOE Order 5610.11, Nuclear



Explosive Safety. The EG&G process incorporated line-by-line requirement verification, timely detailed review by their quality assurance organization, and timely update of the assessments when their implementing plans, policies and procedures change (as well as when the Order changes). EG&G demonstrated their use of the compliance assessments as a management tool including support for the periodic DOE reviews of compliance to the PAP requirements of DOE Order 5610.11.

- (5) LANL/LLNL Area 27 Reviews: The recent DOE-NVOO initiative to implement an assessment of compliance to DOE Orders for specific facilities in Area 27 is commendable. It is indicative of good management that the approach used to develop the initial assessments was abandoned when DOE-NVOO determined that deficiencies existed in the process (particularly in the area of training).
  - (6) Implementation of Recommendation 93-1:
    - (a) In the DOE Implementation Plan for Board Recommendation 93-1, regarding use of standards at facilities that are involved in nuclear explosive operations, DOE committed to "the timely upgrade of the Order Compliance Self-Assessment Program at Defense Programs facilities in accordance with DPAP-202." At the time of this review, DOE-NVOO did not identify specific plans for upgrade of their programs for the M&O contractors. Such plans, however, are to be developed as required by the DOE 93-1 Implementation Plan.
    - (b) There are some similarities between the status of the Area 27 effort and the site-wide compliance efforts in the areas noted above. Both are at a stage where lessons can be learned and where efforts can be undertaken to correct deficiencies via the actions to be taken under Recommendation 93-1. The lessons learned in Area 27 offer an opportunity for a more deliberate effort to be made to turn the compliance assessment process into an on-going, effective management tool at NTS.
5. Future Staff Actions: DNFSB Staff members will continue to review the implementation of Board Recommendation 90-2, as well as future implementation of Board Recommendation 93-1 related to the Order compliance self-assessment program at NTS. This review was an initial effort focused on the overall implementation of administrative Order compliance, and included only a subset of DOE Orders of safety significance. Future functional or topical reviews will include review of both adherence-based assessments and administrative compliance assessments, as well as detailed review of actions to resolve non-compliances, including technical adequacy of RFA's.