

A.J. Eggenherger, Chairman  
John E. Mansfield, Vice Chairman  
Joseph F. Bader  
Larry W Brown  
Peter S. Winokur

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700 Washington, D.C. 20004-2901  
(202) 693-7000



January 13, 2009

The Honorable Jeffrey F. Kupfer  
Acting Deputy Secretary of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Mr. Kupfer:

The Defense Nuclear Facilities Safety Board (Board) has reviewed the *Department of Energy Annual Report on Nuclear Criticality Safety*, dated July 23, 2008, and was briefed by your staff on September 18, 2008. The Board is pleased with the progress made in some areas, especially staffing and personnel qualification for nuclear criticality safety (NCS) oversight at the site offices. Several issues of substance related to NCS within the Department of Energy (DOE) complex remain to be addressed to ensure further improvement.

The Board expressed concern in a letter dated January 29, 2008, about the effectiveness of DOE's NCS reviews. DOE responded that ongoing reviews by the Chief of Nuclear Safety and Chief of Defense Nuclear Safety should be effective for monitoring site NCS programs. It is not clear that this is the case. The criteria used in previous site reviews, which are contained in DOE Standard 1158, *Self-Assessment Standard for DOE Criticality Safety Programs*, are intended to confirm that the basic elements of an adequate NCS program are in place. However, DOE Standard 1158 may be insufficient to uncover more complex implementation problems such as those discovered this year by DOE at the Y-12 National Security Complex (Y-12) and identified in the DOE Annual Report regarding Los Alamos National Laboratory. It is advisable for DOE to consider development of another technical standard or a supplement to DOE Standard 1158 that would provide appropriate guidance when reviewing NCS program element implementation.

Information in DOE's Annual Report indicates that DOE's contractors still do not use a consistent approach in categorizing and identifying the underlying causes of NCS noncompliances. This was also noted previously by DOE's Criticality Safety Support Group (CSSG) in an August 29, 2006, letter to Dr. Jerry McKamy of the National Nuclear Security Administration: "The categorization or scoring of events is different between sites," and "It is not evident that the significant underlying causes of these occurrences are understood well enough for effective corrective actions to be taken." Identification of underlying causes leading to NCS noncompliances (both ORPS and non-ORPS reportable) is essential in order for DOE's contractors to (1) implement effective corrective actions, (2) promulgate appropriate lessons learned, (3) ensure continuous improvement in the site NCS programs, and (4) utilize scarce health and safety resources more effectively.

Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests that DOE supplement the 2008 NCS Annual Report to include the items listed below. In order to allow DOE sufficient time to satisfy this request, the due date for the 2008 report is extended from January 31, 2009, to February 28, 2009.

- DOE's plans for ensuring its standards provide sufficient and appropriate guidance for the review of NCS program element implementation, including the need for another technical standard or supplement to DOE Standard 1158.
- The approach to be used by DOE to ensure that the categorization of NCS noncompliances is consistent, so that the correct root causes, corrective actions, and lessons learned will be identified.
- An initial list of leading and lagging indicators for monitoring the effectiveness of NCS program implementation.

The DOE Annual Report uses metrics to monitor program performance. The Board considers this a good practice but believes ongoing efforts to refine and potentially standardize NCS metrics are necessary to give an accurate indication of how the program is functioning and to incentivize program improvement. Y-12 is unique in using leading indicators in its NCS metrics. This meritorious practice should be extended to all other sites.

Sincerely,



A. J. Eggenberger  
Chairman

c: The Honorable Thomas P. D'Agostino  
The Honorable Robert L. Smolen  
Dr. Inés R. Triay  
Dr. Don F. Nichols  
Mr. Richard H. Lagdon, Jr.  
Mr. Mark B. Whitaker, Jr.