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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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February 5, 2008

The Honorable J. Clay Sell
Deputy Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Mr. Sell:

The Defense Nuclear Facilities Safety Board (Board) believes that independent validation of line management's implementation of new or substantially revised safety basis controls is warranted for all defense nuclear facilities. The proper implementation of these controls into equipment, procedures, and personnel training is essential to ensure that operations are conducted safely and within the risk envelope accepted by the Department of Energy (DOE). However, complex-wide requirements for conducting independent validations of control implementation are lacking.

In the past, DOE sites have conducted independent validations in many areas such as project design reviews, facility startup/restart operational readiness reviews, and nuclear explosives safety studies. Some sites also conduct independent validation reviews and have established protocols to confirm the proper implementation of safety controls derived from new or revised Documented Safety Analyses. In a March 18, 2003, letter to the National Nuclear Security Administration (NNSA), the Board commended NNSA's Pantex Site Office for its decision to perform an independent validation of the implementation of new safety basis controls, noting that the validation effort was essential to identifying significant implementation-related safety issues. Several sites, including the Los Alamos National Laboratory, the Y-12 National Security Complex, and Hanford Tank Farms have instituted various protocols for independent validation of new or revised safety basis controls implementation.

While the importance of such validations is widely recognized, DOE has not issued complex-wide requirements and guidance regarding the need and expectations for independent validations of the implementation of new or revised safety basis controls. Independent validation is generally performed as part of a nuclear facility startup or restart readiness review in accordance with DOE Order 425.1, *Startup and Restart of Nuclear Facilities*. However, independent validation is often omitted for new or revised controls being implemented in a facility with ongoing operations where DOE Order 425.1 would not necessarily apply.

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There are a number of examples where safety controls identified by a new or revised Documented Safety Analyses were discovered to have been inadequately implemented. The need for independent validation reviews is clearly illustrated by such examples, which include:

- The discovery that seismic restraints of nuclear material storage racks, assumed to be in place, were not fully installed.
- The discovery in multiple nuclear facilities that a required "semi-annual" operability test for fire system power supplies was incorrectly specified as an "annual test" in the implementing procedure.
- The determination that responsible operations personnel were unaware of a new safety basis inventory control for certain hazardous materials, and that shift management personnel lacked knowledge of new safety basis controls to effectively respond to certain scenarios.

Based on these findings, the Board feels it is appropriate to require independent validation of the implementation of safety basis controls at all DOE sites. Further, the Board believes that DOE should consider performing independent validations on a recurring basis to ensure the facility equipment, procedures, and personnel training have not degraded over time. Protocols at the Y-12 National Security Complex had required re-validations every three years, but the periodicity was recently changed to every five years. The Board considers five years as too long a time interval for re-validation of safety controls.

The Board believes the defense nuclear complex would benefit from requirements and guidance from DOE Headquarters for independent validations of safety basis control implementation that would capture the lessons-learned and best practices from those sites that have conducted these reviews. Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests a report within 90 days of receipt of this letter regarding DOE's evaluation of the need for such requirements and guidance and any actions taken or to be taken by DOE in this area.

Sincerely,



A. J. Eggenberger
Chairman

c: The Honorable James A. Rispoli
The Honorable Thomas P. D'Agostino
Mr. Glenn S. Podonsky
Mr. Mark B. Whitaker, Jr.