DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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January 18, 2007

The Honorable Samuel W. Bodman
Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Secretary Bodman:

The Defense Nuclear Facilities Safety Board (Board) has long recognized that significant risk reduction can be achieved by the shipment off-site of the large inventory of high-activity transuranic waste drums stored at the Los Alamos National Laboratory (LANL). The Board believes it would be prudent to either expeditiously develop a viable pathway for shipping these drums off-site or, if an acceptable approach cannot be implemented in a timely manner, then improvements to the storage area safety posture should be implemented on an urgent basis.

Several postulated accidents involving these transuranic waste drums result in very high consequences because of their significant radioactive material inventory, the proximity of the storage area to the site boundary and the lack of robust engineered controls to mitigate or prevent these scenarios. This waste is stored in drums and other containers within several hundred meters of the site boundary. The containers are stored above and below ground at Area G in Technical Area-54. Despite the good intentions to date of the National Nuclear Security Administration (NNSA) and the Department of Energy's Office of Environmental Management, programs to reduce this waste inventory remain only partially implemented. For example, in 2002, the Department of Energy committed to a goal of shipping half the above ground radioactivity off-site by 2004. That goal has not been met, and the means to achieve it remain elusive.

Risk reduction at Area G depends largely on shipping this waste off-site to the Waste Isolation Pilot Plant (WIPP) in New Mexico. Roughly 50,000 containers are stored at LANL; approximately 20,000 of these are currently above ground. Of the 20,000 above ground containers, 320 (two percent by volume) contain about one-third of the above ground radioactivity. A comparable number of high-activity drums are buried below ground.

Preparing and shipping these high activity drums to WIPP has been restrained by limits placed upon the LANL repackaging and shipping facilities. The high-activity drums exceed the radioactive material inventory limit of the repackaging facility, while the shipping facility radioactive material inventory limit is well below the limit for the shipping package. The limits have been imposed because the facilities' engineered safety systems cannot be relied upon to prevent or mitigate certain accident scenarios, such as a full facility fire or a significant seismic event.

In 2004, NNSA conditionally approved short-term use of a new glovebox in an existing radiological facility to repackage the high-activity drums for subsequent shipment to WIPP. However, in 2005, efforts to start up this operation were discontinued, primarily because of deficiencies in critical designated engineered safety systems.

In November 2006, the LANL contractor proposed raising the inventory limits for the current repackaging and shipping facilities for specified durations to prepare the above ground high-activity drums for shipment to WIPP. The proposal submitted to NNSA identified additional administrative controls intended to compensate for the known facility vulnerabilities. The fundamental premise of the proposed strategy is that accepting additional risk in these facilities to process a small number of high-activity drums is warranted in order to achieve timely risk reduction at Area G. In December 2006, NNSA suspended its review of the proposal because of deficiencies in the safety basis documentation for the proposed activities.

The Board is concerned regarding the continuing lack of a viable disposition pathway for the high-activity transuranic waste drums at LANL, particularly given the previous failures to resolve this problem. Given the risks associated with continued above ground storage of these high-activity drums, the Board believes it would be prudent to either expeditiously develop a viable pathway for shipping these drums to WIPP or, if an acceptable approach cannot be identified in a timely manner, implement additional engineered measures, such as thermal, mechanical, or confinement barriers, to improve the Area G safety posture on an urgent basis.

However, the argument to accept additional risk to achieve timely risk reduction for the above ground drums should not translate unchallenged to the longer term plan to retrieve and ship below ground waste containers. While the above ground drums are being re-packaged in the near term, there is adequate time to develop a more measured strategy for fully implementing engineered safety controls to fully compensate for existing facility vulnerabilities when shipping below ground drums to WIPP.

Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests a report and a briefing within 45 days of receipt of this letter describing (1) the risks and priority associated with LANL transuranic waste operations, (2) either a timely pathway for shipping the above ground high-activity drums to WIPP or urgent actions to improve the current safety posture at Area G, and (3) a prudent strategy for shipping additional transuranic waste that will be retrieved from underground storage in the future.

Sincerely,

A. J. Eggenberger
Chairman

c: The Honorable Thomas P. D'Agostino
The Honorable James A. Rispoli
Mr. Edwin L. Wilmot
Mr. Mark B. Whitaker, Jr.