



April 20, 2005

Mr. Kenneth M. Pusateri  
Mr. Andrew L. Thibadeau  
Defense Nuclear Facilities Safety Board  
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*Via email to <brendaa@dnfsb.gov>*

Dear Mr. Pusateri and Thibadeau:

**Nuclear Watch of New Mexico** (NWNM) respectfully submits these comments to the Defense Nuclear Facilities Safety Board (DNFSB) on its Recommendation 2005-1, "Nuclear Material Packaging". NWNM is a public interest nonprofit organization with specific interests in virtually all issues pertaining to the Los Alamos National Laboratory and generally for the nuclear weapons complex as well. We are grateful for the opportunity to comment.

We applaud the work of the DNFSB. Stakeholders owe much to the work that the DNFSB has done over the past years to help ensure worker and public safety. We can only hope that the National Nuclear Security Administration will implement Recommendation 2005-1 in the very near term. We also argue that the Department of Energy (DOE) as a whole should implement these common sense recommendations at all of its non-defense nuclear facilities as well.

"Some sites applied Recommendation 94-1 to excess materials only. The Board has continued to evaluate whether other categories of nuclear materials are stored in a safe manner." (p. 1)

We urge the Board to complete that evaluation at the earliest possible date and to explicitly and universally apply the 2005-1 recommendations to all categories of nuclear materials, whether they are excess, programmatic, etc.

...there is no explicit DOE-wide requirement to ensure the safe storage of nuclear materials. Currently, the technical adequacy of packaging - the combination of containers and other components providing a contamination barrier - for nuclear materials, including liquids, is dependent on the safety bases of individual facilities. Typically, facilities have credited engineered features, such as the confinement structure and ventilation system, for protecting offsite individuals and collocated workers. For facility workers, however, the controls are generally administrative, such as continuous air monitors, personal protective equipment, periodic contamination surveys, and other aspects of the radiological control program, in conjunction with proper evacuation training. (p. 1)

The safety bases of many individual facilities are not up to date. For instance, Technical Area 55 at Los Alamos

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National Laboratory has a safety basis that is eight years old. Engineered features, especially ventilation systems and fire protection systems, at many nuclear facilities are woefully inadequate. Many facilities rely solely on passive ventilation confinement systems, instead of having a layered defense that also includes active systems. Further, the leak path factor analyses of many facilities are too conservative in that they can exponentially underestimate possible releases to the exterior environment.

By the time any administrative control takes place, it is too late. The worker is already contaminated. Administrative controls should not be the first line of defense for workers and public safety. Clearly, all nuclear facilities need to immediately update their nuclear materials packaging and safety bases, with all of the protocols and measures that the latter implies (and which are beyond the scope of these comments).

Yet sites continue to rely on container types that have been used historically, but have no technically justified safety or design basis. These container types are generally forms of packaging typically used in non-nuclear applications (e.g., paint cans, food pack cans). Thus they are not designed to protect against the hazards of the nuclear materials they contain for the duration of the storage. (p. 3, parenthetical clause in the original)

We don't have much to comment on here, other than that it is simply stunning and unacceptable that DOE stores its nuclear materials in what is arguably such a cavalier fashion. But we do note that this problem is longstanding, moreover with nuclear materials that in some cases must be decades old. As an example, the GAO report "Problems and Progress in Managing Plutonium" pointed out in 1998 that DOE was unlikely to meet its originally stated goal of safely stabilizing, packaging and storing excess plutonium by 2002. We hope that the DNFSB will bring its clout to bear in the strongest possible fashion to have these systemic problems rectified in the shortest time possible.

...a key product of the IAWG [Inactive Actinide Working Group] effort will be the strategy for material characterization and storage adequacy. Based on discussions with IAWG participants, the delivery of this strategy has been delayed, in large part because of disagreements among member sites on the requirements necessary for justifying adequate storage. (p. 3)

Member sites always seem to drag their feet when it comes to improving safety and should not be allowed to delay needed improvements to worker and public safety. Further, there should universal application of nuclear materials storage standards across the nuclear weapons complex, rather than variances between sites, as the above seems to imply. Finally, all DOE nuclear facilities, and not just the defense facilities, should be quickly improved in their nuclear materials storage practices.

"The Board believes that DOE should require a technical basis for nuclear materials packaging and storage safety."  
(p. 4)

We strongly and wholeheartedly concur.

... the Board has learned that DOE-NE intends to assume more direct control of

activities involving plutonium-238, which have to date been performed at NNSA sites . The significant radiological hazards associated with this material necessitate appropriate storage containers for the expected storage period. The Board believes the requirement for a technical basis for nuclear material packaging and storage should encompass all program offices in the defense nuclear complex. DOE may wish to consider implementing this requirement for all program offices, including those outside of the defense nuclear complex. (p. 4)

We strongly and wholeheartedly concur. We also respectfully suggest that the Board should consider having its mission and charter expanded, which we realize can only be approved by Congress. In sum, we think it should be the DOE Nuclear Facilities Safety Board, and not just “Defense.” Finally, rather than merely wishing that DOE may wish to implement that requirement, we think that the DNFSB should strongly advise Congress that should be the case.

In general, these efforts [to improve nuclear material packaging] represent an improvement, but they do not represent a comprehensive DOE-wide effort, and significant differences remain in the quality of the efforts at individual facilities. (p. 5)

Again, improvements should be standardized and universal to all DOE nuclear facilities, both within and without its defense complex.

***Recommendations*** (p. 5)

1. Issue a requirement that nuclear material packaging meet technically justified criteria for safe storage and handling. Packaging should, in general, provide a robust barrier between facility workers and the stored nuclear materials once they are removed from an approved engineered contamination barrier. It may be appropriate to include this requirement in an updated nuclear materials management Order.

We believe that this requirement should be included in an updated DOE Order in the very near term. We also believe that a time limit should be imposed on all facilities to meet the requirements of an updated Order, with close monitoring by DOE HQ and the DNFSB that the Order is universally applied.

2. Identify which nuclear materials should be included in the scope of the above requirement and then determine the technically justified packaging criteria needed to ensure the safe storage and handling of those materials. The scope need not include waste materials, fully encapsulated forms, or de minimus quantities such as analytical laboratory samples. The criteria should account for the nuclear material form and properties, expected future use, and duration of storage. It may be appropriate for this information to be included in a packaging Manual.

We believe that the storage requirements for the most radioactive nuclear materials should be applied to all nuclear materials, which is to suggest that an extremely robust container should be picked for the storage of all sensitive nuclear materials. Setting storage requirements for individual nuclear materials one by one will only delay the

correction of fixes that should have been completed long ago.

“3. Prioritize implementation of the improved nuclear material packaging requirement consistent with the hazards of the different material types and the risk posed by the existing package configurations and conditions.”

Improved interim packaging of all nuclear materials should be an immediate priority.

Concerning all three recommendations above, we repeat that the Board should explicitly and universally apply its recommendations to all categories of nuclear materials, whether they are excess, programmatic, etc., and to all DOE nuclear facilities.

ATTACHMENT (pp. A-1 through A-4)

*Selection of Commonly Used Nuclear Material Packaging*

We recommend that food-pack cans, paint cans, taped slip-lid cans, hogan cans, conflat cans, metal drums, Y-12 prolonged storage containers, plastic bags, and plastic bottles not be continued to be used. All of these containers have their faults that threaten the safety of workers and the public. A more robust container for interim nuclear material storage must be made immediately and universally available.

In closing, it is unconscionable that the NNSA and its predecessors should be so negligent in protecting both its workers and the public through such sloppy nuclear materials container practices. We note that serious contamination incidences with Pu-238 at the Los Alamos National Laboratory (LANL) have occurred within the last five years, with at least the last incident being directly attributable to the use of slip-lid cans. Further, we note that LANL does not seem to truly prioritize its nuclear materials stabilization program, evident by the fact that its program is reportedly a decade behind schedule and 50% higher than originally expected costs (see August 2004 DOE Inspector General Audit Report 0659).

While we recognize that the DNFSB has no direct regulating authority, we nevertheless urge the Board to vigorously pressure the NNSA to adopt safer, universal and more robust nuclear materials storage practices at the earliest possible time. Again, we appreciate the DNFSB's vital work on NNSA safety issues, but hope to see it expanded to all DOE nuclear facilities.

Respectfully submitted,

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Jay Coghlan