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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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March 23, 2001

The Honorable Spencer Abraham
Secretary of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1000

Dear Secretary Abraham:

The Defense Nuclear Facilities Safety Board (Board) has reviewed the Department of Energy's (DOE) revised Implementation Plan, dated January 19, 2001, for the Board's Recommendation 2000-1, *Prioritization for Stabilizing Nuclear Materials*. This plan is also intended to satisfy Recommendation 94-1, *Improved Schedule for Remediation*. The Implementation Plan is now complete, in that it contains commitments to stabilize all remaining materials covered by the two recommendations, including the surplus plutonium materials in storage at Los Alamos National Laboratory (LANL).

As you know, the Board considers the accelerated stabilization of the materials covered in this plan to be one of the top safety priorities in the DOE complex. After careful review of the details supporting the revised Implementation Plan, the Board concludes that key stabilization activities at the Savannah River Site (SRS) and LANL require further acceleration. The Board had addressed both of these activities in a letter to Secretary Richardson on July 14, 2000, but the necessary improvements have not been incorporated in this revision to the Implementation Plan. Furthermore, additional management attention and support will be required to ensure that other essential material stabilization operations are carried out as committed.

Savannah River Site. The plan for stabilizing and packaging plutonium at SRS lags behind those of most of the other sites by 4 to 6 years. This significant delay is one result of the cancellation of the planned SRS Actinide Packaging and Storage Facility (APSF). DOE has been reluctant to commit to an aggressive recovery plan to compensate for the loss of capabilities that would have been provided by APSF, and is pursuing a costly and protracted plan to modify Building 235-F at SRS to provide the required materials stabilization and packaging capability. The 235-F project is still in the design phase, and the construction schedule remains uncertain. According to current projections, the 235-F project will delay stabilization and packaging of plutonium metal and oxide at SRS until approximately 2006 to 2008, compared to DOE's original commitment to complete this work in 2002.

The Board's letter of July 14, 2000, identified that the stabilization and packaging of plutonium at SRS could be greatly accelerated by modest additions to the existing capability in the FB-Line facility at SRS. The required additions would include furnace upgrades and the installation of a packaging system identical to that already designed and fabricated for use at the Hanford Plutonium Finishing Plant. The SRS contractor has evaluated these upgrades and concluded that they could be implemented much sooner and for a small fraction of the cost of the proposed 235-F project, but DOE's Implementation Plan makes no mention of this option. The Board continues to believe that this alternative approach ought to be pursued as a means of achieving cost-effective acceleration of risk reduction at SRS.

Los Alamos National Laboratory. The Implementation Plan proposes extending the stabilization program for legacy residues at LANL through 2010. This schedule represents a 5-year delay relative to previous DOE commitments to the Board and is not responsive to several letters issued to DOE by the Board regarding this program. The Board initially called attention to the problems in LANL's materials stabilization program in a letter dated December 14, 1999, identifying that LANL had essentially halted processing of legacy residues and was at risk of failing to meet commitments made in the DOE Implementation Plan for Recommendation 94-1. The Board's letter suggested several actions to improve the situation, such as pursuing direct disposal of low-assay residues and prioritizing the stabilization of legacy residues over newly-generated residues. In a subsequent letter of July 14, 2000, the Board noted that LANL needed to comprehensively address nuclear materials at the site, not just deal with excess material, to retain key commitments from previous revisions of the Implementation Plan (e.g., to eliminate the backlog of residues more than 3 years old and maintain that condition), and address the observations in the Board's December 14, 1999, letter. Finally, in a letter dated October 23, 2000, the Board expressed its expectation that the revised Implementation Plan would document and explain a rational, risk-based prioritization and pace of stabilization activities at LANL.

The proposed Implementation Plan does not adequately address the issues previously communicated by the Board. Neither the plan nor its supporting documents justify the need for such an extended schedule, nor do they address the risk associated with leaving the nuclear materials at LANL in an unstable form for this extended time. Although LANL has upgraded the package design for newly-generated residue materials, the typical package for legacy residues consists of a taped slip-lid can, sealed in a plastic bag and placed in another taped slip-lid can. The proposed stabilization schedule for LANL will rely on this package far longer than the Board considers prudent. The proposed plan also does not explain why residue categories which at other DOE sites are candidates for direct disposal, are scheduled at LANL to be stored for a protracted period awaiting processing to recover plutonium. Lastly, the proposed plan does not provide a technical basis for delaying until 2006 the start of stabilization activities for miscellaneous actinide materials (e.g., neptunium, plutonium-238), some of which pose greater radiological hazards than weapons-grade plutonium.

Activities Requiring Management Attention. Several activities described in the revised Implementation Plan are at risk of significant near-term disruption, most notably the americium-curium vitrification project at SRS, currently being rebaselined, and the Hanford Spent Nuclear Fuel Project, the subject of another major Baseline Change Request. In addition, the assumptions supporting DOE's strategy for storage of stabilized plutonium using the K-Area Material Storage and Building 235-F may be invalidated by the likely delay and possible cancellation of the Plutonium Immobilization Project. DOE must now reconsider the construction of a new plutonium storage facility at SRS.

Many of the problems and delays encountered in DOE's nuclear materials stabilization program have resulted from efforts to defer short-term costs. Not only have these efforts created problems and delays in the stabilization of nuclear material, they have also led to increased long-term program costs. The cancellation of APSF, driven largely by a short-term budget issue, has led to major delays in the materials stabilization program at SRS as well as to a heavy reliance upon the success of the fissile materials disposition program to compensate for the lost storage capabilities. Likewise, many of the present problems in the design effort for the americium-curium vitrification system can be traced back to DOE's decision to defer near-term costs by extending the project's schedule and contracting this work out to a third-party vendor. The protracted residue processing schedule at LANL is not an indication of the laboratory's true capabilities, but is instead a reflection of the inadequate resources applied to the task. These problems can be overcome now and avoided in the future if DOE provides—at all levels—increased management attention to its materials stabilization program and a consistent commitment to ensure that the goals of this multi-year program are not compromised by an undue emphasis on short-term cost considerations.

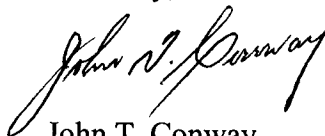
In light of the aforementioned deficiencies with the revised Implementation Plan, the Board has concluded that the plan requires modification. Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests that DOE provide a report within 60 days of receipt of this letter identifying:

- The actions to be taken to accelerate the stabilization and packaging of plutonium at SRS.
- The actions to be taken to provide long-term plutonium storage, stabilization, and surveillance capabilities for the complex considering the delay and possible cancellation of the Plutonium Immobilization Project.
- The actions to be taken to accelerate the stabilization and packaging of plutonium and other actinide residues stored at LANL. The report should address the plans for direct disposal of residues at LANL. If more timely processing of unsheltered containers at LANL cannot be achieved, strong consideration should be given to providing a filtered shelter for the containers in the interim.

Once the above reporting requirement has been satisfied, the Board requests a briefing by the responsible managers to discuss DOE's response. If the revised program is acceptable to the Board, the Implementation Plan should then be updated to reflect the changes as soon as practicable.

Lastly, DOE has requested that the Board consider closure of Recommendation 94-1. The Board will consider closure once sufficient progress has been demonstrated for each of the stabilization activities described in the Implementation Plan. As discussed above, the necessary progress has not been demonstrated for several major activities, some of which are at risk of incurring delays beyond those described in the current plan.

Sincerely,



John T. Conway
Chairman

c: The Honorable Carolyn L. Huntoon
Mr. Mark B. Whitaker, Jr.