DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004
(202) 208-6400

September 26, 1994

The Honorable Hazel R. O'Leary
Secretary of Energy
Washington, DC 20585

Dear Secretary O'Leary:

On September 26, 1994, the Defense Nuclear Facilities Safety Board, in accordance with 42 U.S.C. § 2286a(5), unanimously approved Recommendation 94-3 which is enclosed for your consideration. Recommendation 94-3 deals with Rocky Flats Seismic and Systems Safety.

42 U.S.C. § 2286d(a) requires the Board, after receipt by you, to promptly make this recommendation available to the public in the Department of Energy's regional public reading rooms. The Board believes the recommendation contains no information which is classified or otherwise restricted. To the extent this recommendation does not include information restricted by DOE under the Atomic Energy Act of 1954, 42 U.S.C. §§ 2161-68, as amended, please arrange to have this recommendation promptly placed on file in your regional public reading rooms.

The Board will publish this recommendation in the Federal Register.

Sincerely,

John T. Conway
Chairman

Enclosure

Copy to: Mark B. Whitaker, EH-6

RECOMMENDATION 94-3 TO THE SECRETARY OF ENERGY
pursuant to 42 U.S.C. § 2286a(5)
Atomic Energy Act of 1954, as amended.

Dated: September 26, 1994

In its Recommendation 90-5, the Defense Nuclear Facilities Safety Board (Board) recommended that a site-wide Systematic Evaluation Program be conducted at the Rocky Flats Plant (now the Rocky Flats Environmental Technology Site), to determine if safety upgrades should be instituted to enable the defense nuclear buildings and facilities to meet current safety requirements. The mission of the Rocky Flats Environmental Technology Site has changed since the issuance of Recommendation 90-5, and the Implementation Plan for the Recommendation has been revised to more directly address the current mission of the Site.

The Board has been informed in briefings by the Department of Energy (DOE) that Building 371 is considered to be structurally the best on-site facility for the storage of plutonium, and that steps are therefore scheduled that in time will move the major part of the Site's plutonium inventory into storage in this building. As a result, Building 371 will assume a unique role as the storehouse which contains the largest single accumulation of plutonium in the DOE complex. It follows that potential health and safety issues associated with this proposed use of the building also assume very high importance.

Accordingly, the Board has been reviewing potential public health and safety issues at Building 371, and in particular, the building's capacity to provide reasonable assurance of protection of public health and safety should it be subjected to external forces from natural phenomena (earthquakes, extreme winds, and floods). The Board has observed that DOE's ongoing studies in the Systematic Evaluation Program to better identify the potential hazards from natural phenomena at Building 371 and to establish means of protecting against them are not well integrated. An effective Systematic Evaluation Program requires a more thorough application of the systems engineering process. The Board has concluded that activities currently underway in this respect, to prepare Building 371 for its extended role in storage of plutonium, are not logically structured and are not sufficiently encompassing in either detail or scope to assure that the health and safety of the public will be adequately protected.

Therefore, the Board recommends:

1. That an Integrated Program Plan be formulated to address the civil-structural-seismic safety issues and evaluations related to the planned use of Building 371 for storage of plutonium and related functions. This plan needs to be founded on the principles of systems engineering and realistic schedules. Several studies, pertinent to such a plan, are geologic fault investigations, groundmotion studies, dynamic building analyses, and soil-structure interaction analyses. These studies and other elements

need to be combined with the building mission and any other functional criteria using systems engineering principles to develop the Integrated Program Plan.

2. That the above plan address and explain any requirements for changes to the current Safety Analysis Report and how such changes will be accomplished. This includes effects from earthquakes, extreme winds, and floods.

3. That a comprehensive document be completed describing in detail the structural analysis methodology and standards for the building analysis. This includes explaining analytical methods used and their applicability to the configuration of Building 371.

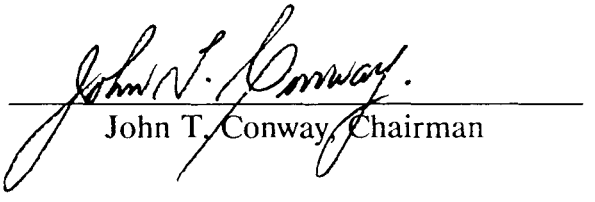
4. That the integrated program plan use both deterministic and probabilistic methods to establish the vibratory groundmotion criteria that will be used in the structural evaluation of Building 371. This includes a rationale for reconciling differences between the two methods. Moreover, these criteria should incorporate the results of a carefully planned and executed site geological faulting investigations.

5. That a hazard classification be selected for Building 371 which is supported by rational analysis. This requires consideration of the mission, period of intended use, and importance of the building.

6. That the Integrated Program Plan, consistent with the hazard classification, include the plan for classification of safety systems on a rational basis consistent with the mission, life, and importance of Building 371. Issues associated with hazard classification and classification of safety systems are discussed in the Board's April 29, 1994, letter to Under Secretary Curtis.

7. That any standards used in evaluating hazards from natural and man-made phenomena be comparable to those used in commercial nuclear practice.

8. That the Program Plan and the results of its activities be used to specify building upgrade and improvements consistent with the mission of Building 371.



John T. Conway, Chairman