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# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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January 18, 2008

The Honorable Thomas P. D'Agostino  
Administrator  
National Nuclear Security Administration  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Mr. D'Agostino:

The Device Assembly Facility (DAF) at the Nevada Test Site continues to implement planned activities that expand its mission, including receipt, storage, and operations involving special nuclear material; nuclear explosive operations; and the installation of equipment to perform potential criticality experiments. The Defense Nuclear Facilities Safety Board (Board) has identified major issues with the safety related fire suppression system. These issues call into question the ability of the system to perform reliably in case of need. The Board has previously expressed concerns with respect to the reliability of the DAF fire suppression system in letters to the National Nuclear Security Administration (NNSA) dated November 3, 2004, and November 28, 2005. The fire suppression system deficiencies raised in those letters remain largely unaddressed.

The Board's staff recently conducted a review of fire protection at DAF and identified several significant issues concerning the availability and reliability of safety-class and safety-significant fire protection features. The fire suppression system does not meet the typical design features for a safety-class system, e.g., redundancy to preclude a single active failure or a safety-significant system. In addition, the potential for impairment of the existing fire suppression system is not clearly defined in the DAF safety basis. These issues are documented in the enclosed report.

In the past year, the Nevada Site Office conducted vital safety system reviews, safety management program assessments, and a review of the draft update to the DAF safety basis. These efforts have also identified a list of deficiencies in the fire protection system at DAF.

The Board is especially concerned about the continuing degradation of the underground piping that supplies water to the DAF fire protection system. This degradation results in unacceptable amounts of debris in the water supply, which can adversely impact the fire protection system. The Board does not believe that periodic flushing and cleaning of strainers is an adequate strategy ensuring that the fire protection system will perform as anticipated in the

DAF Documented Safety Analysis. The Board believes this long-standing problem with the water supply piping needs to be resolved before more hazardous nuclear operations, e.g., nuclear explosive operations or criticality experiments, begin at DAF. Corrective actions and appropriate compensatory measures need to be developed and implemented promptly to address this and other issues discussed in the enclosed report, as well as deficiencies identified by Nevada Site Office.

Therefore, pursuant to 42 U.S.C. § 2286b(d), the Board requests that NNSA provide a briefing to the Board within 45 days of receipt of this letter to address the following questions:

- 1) What actions will be taken to correct deficiencies in DAF's fire protection water supply?
- 2) What is the schedule to improve the reliability of DAF's fire suppression systems?

Sincerely,



A. J. Eggenberger  
Chairman

c: Mr. Gerald L. Talbot, Jr.  
Mr. Mark B. Whitaker, Jr.

Enclosure