DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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Carole

September 21, 1994

Mr. Mark Whitaker, EH-6
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

Dear Mr. Whitaker:

Enclosed for your information and distribution are fifteen (15) Defense Nuclear Facilities Safety Board (DNFSB) staff reports. The reports have been placed in the DNFSB Public Reading Room.

Sincerely,

George W. Cunningham
Technical Director

Enclosures (15)

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 30, 1994

MEMORANDUM FOR: G.W. Cunningham, Technical Director

COPIES: Board Members

FROM: Roger Zavadoski

SUBJECT: Hanford--PFP Ventilation Systems Trip Report (May 24-26, 1994)

1. **Purpose:** This trip report documents the Defense Nuclear Facilities Safety Board's (DNFSB) technical staff (Roger Zavadoski), May 24-26, 1994, review of the ventilation/filtration system and associated safety envelope requirements at the Plutonium Finishing Plant (PFP).

2. **Summary:** The DNFSB staff notes the following key observations:

   a. The installation and use of the ventilation/filtration system at PFP corresponds to the authorization basis.
   b. The site contractor maintains its own calibrated equipment and trains its staff.
   c. The future role and use of the filtration equipment during decontamination and decommissioning activities has not, to date, been thoroughly reviewed.

3. **Background:** The PFP is an old facility that was built in 1949. The original design was performed in accordance with the applicable contemporaneous criteria; however, today, it does not meet current criteria. Ventilation wise, the original design called for a building turnover once every three minutes. Today, the air turn over in the building occurs once every twelve minutes, a respectable rate by today's standards. The reliability of the motive force provisions for the redundant fans in the ventilation system that derived their power from a redundant normal supply was originally enhanced by adding redundant steam driven fans. The steam supply and the emergency electrical supply (which does not run the ventilation fans) are not designed to withstand seismic events. In the event of a seismic occurrence, the supply fans are shut down in order to prevent building pressurization. The electrically driven exhaust fans are then replaced with the steam turbine driven exhaust fans.

4. **Discussion/Observations:**

   a. The status and configuration of the ventilation/filtration system for the PFP were reviewed based on documentation presented in (1) the Plutonium Finishing Plant Safety Analysis Report (DNFSB Log # 94-3129), (2) the Authorization Basis for PFP (DNFSB

Log # 94-3130), (3) selected drawings of the ventilation systems (DNFSB Log # 94-3125), (4) Safety Envelope Features, Appendix C (DNFSB Log # 94-3132), and (5) Operational Safety Requirements (OSR) (DNFSB Log # 94-3131).

The documentation clearly establishes that the role of the ventilation/filtration system is to operate continuously even during and after accidental conditions by supplying a redundant and diverse source of motive supply to the exhaust fans. Facility tours verified the field status of the ventilation/filtration equipment.

b. The contractor, Westinghouse-Hanford, WHC, has studied and analyzed the amount of plutonium in the duct work of the system. This information is summarized in a slide presentation submittal (DNFSB Log # 94-3144). Discussions with the contractor about the role of the ventilation system and the impact of plutonium in the duct work on future decontamination and decommissioning activities revealed that present considerations are only at the formative stages of development.

c. The contractor maintains a filter test group that preforms all of the OSR surveillance requirements for the filtration systems. The test group strictly follows the requirements of the nationally recognized standard for filter testing, ASME N510-1989. In addition to the requirements of the standard for test instrumentation calibration, the contractor maintains their own certifiable instrument calibration and repair program. Also, the individuals who perform the filter tests must be trained under a comprehensive program (Course Number 060048, entitled Ventilation System Testing and Adjusting, 94-3128).

5. **Future Staff Actions:** The staff will perform follow-up reviews, as necessary, on the role of the ventilation system in future decontamination and decomissioning activities.