

[DNFSB LETTERHEAD]

June 5, 1990

Honorable James D. Watkins
Secretary of Energy
Washington, DC 20585

Dear Mr. Secretary:

On June 4, 1990, the Defense Nuclear Facilities Safety Board, in accordance with Section 312(5) of the Atomic Energy Act of 1954, as amended, 42 U.S.C.A. Section 2286a(5), approved a recommendation which is enclosed for your consideration.

42 U.S.C.A. Section 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. Please arrange to have this recommendation placed on file in your regional public reading rooms as soon as possible.

The Board will publish this recommendation in the Federal Register.

You will note that the Board has recommended preparation of a written program to address accumulation of materials in the ventilation ducts and related systems, and prior to resumption of plutonium operations. When this program is completed, the Board wishes to be informed.

Sincerely,

John T. Conway
Chairman

Enclosure

RECOMMENDATION TO THE SECRETARY OF ENERGY
pursuant to Section 312(5) of the
Atomic Energy Act of 1954, as amended.

Dated: June 4, 1990

The Board and its experts have carefully considered criticality safety at the Department of Energy (DOE) Rocky Flats Plant.

The subject of criticality safety at Rocky Flats has been previously examined by Sciencetech, Inc., and reported in "An Assessment of Criticality Safety at the Department of Energy Rocky Flats Plant" and subsequent follow-up activities and reports. Criticality safety has also been examined by the DOE and its Rocky Flats Plant operating contractor.

It is noted that data used in the preparation of the reports by Sciencetech, Inc. and in subsequent plant examinations were developed through the use of non-destructive assay techniques to determine if fissile materials have accumulated in ventilation ducts and associated systems. These efforts resulted in the determination that fissile materials have accumulated in certain portions of these systems. In addition, other more recent physical studies have confirmed fissile and other undefined debris exist in the ducts. Plant personnel are presently continuing efforts to measure the quantity and concentration of plutonium and other debris in the ducts as well as its form and physical consistency. As of this time, full characterization of the situation by DOE and its contractors has not been completed; hence, all specific remediation measures have not yet been determined.

The Board recommends that prior to resumption of plutonium operations at the plant that DOE prepare a written program with commitments to address the accumulation of fissile and other materials in ventilation ducts and related systems. The short-term objective of the program should be to ensure that a criticality accident would not take place and that the presence of fissile and other materials in the ducts would not result in an undue risk to the health and safety of the public, including on site personnel. The remainder of the program should ensure that the accumulated fissile material and other debris in the ventilation and associated systems will be properly removed or substantially reduced in amount and concentration in the longer term, but as soon as reasonably possible. The program should address priorities of specific actions and include an assessment of criticality safety for affected individual lines, systems, or components. The basis for the actions and any time-phased programs should be presented. This program should address and include the following:

- o Description of remediation actions, including the scheduling and basis for same, that are deemed necessary prior to resumption of plutonium operations by DOE.
- o Descriptions and justification of non-destructive assay techniques, calibration, modeling, and assay methodology.
- o Estimation of radiation levels in areas of occupancy, both from gamma rays and fast

neutrons.

- o Determination of the effects of accumulation of fissile and other materials on the functionality of the ventilation ducts and related systems which must act to protect the health and safety of the public, including plant operating personnel.
- o Description and justification of procedures and schedules, both short term and long term, for removal or reduction in amount and concentration of existing fissile and other unidentified debris in the ventilation ducts and related systems, as stated above.
- o Determination of any design and operational changes in the ventilation ducts and related systems necessary to prevent further accumulation of significant amounts of fissile and other materials therein and to ensure continued operability of systems installed to protect the health and safety of the public including plant operating personnel. This includes a thorough study of the glovebox filters and ventilation and alarm systems.
- o Establishment of a monitoring program for the ventilation ducts and related systems to establish that design and operational changes and modifications are effective in preventing significant additional accumulation of fissile and other materials.

John T. Conway, Chairman