

[DNFSB LETTERHEAD]

November 15, 1995

The Honorable Hazel R. O'Leary
Secretary of Energy
Washington, D. C. 20585-1000

Dear Secretary O'Leary:

In a previous letter, I transmitted views of the Defense Nuclear Facilities Safety Board (Board) regarding actions deemed necessary to chemically treat the corroding Mark 16 and Mark 22 fuel elements stored in Basins at the Savannah River Site.

This letter presents the Board's views concerning the future of the F-Canyon and H-Canyon chemical processing facilities that would be used to process the fuel elements in question.

The eighth recommendation in Recommendation 94-1, which the Board sent you on May 26, 1994, was "That those facilities that may be needed for future handling and treatment of the materials in question be maintained in a usable state. Candidate facilities include, among others, the F- and H-Canyons and the FB- and HB-Lines at the Savannah River Site...." This Recommendation was accepted in its entirety on August 31, 1994.

At one time the Department of Energy (DOE) maintained and used facilities for reprocessing of spent nuclear fuel at its Hanford Site, at the Idaho National Engineering Laboratory (INEL), and at the Savannah River Site. The Purex facility at Hanford, the last of the facilities at that site, was shut down several years ago as the last of the Hanford production reactors was closed, and that processing facility is now on the way to full deactivation. The Idaho Chemical Processing Plant (ICPP) was later shut down after closure of the production reactors at Savannah River, because ICPP was no longer needed in its role of supplying enriched uranium for those reactors. Both the Purex Plant and the ICPP had been used at times in the past for chemically processing aluminum-clad fuel of the general class in which Mark 16/22 fuel is found.

The only remaining facilities in the United States which can be used in large scale processing of aluminum-clad spent fuel elements are the F-Canyon and the H-Canyon at the Savannah River Site. The Board is informed that there is a degree of advocacy in some quarters within the Department of Energy for permanently shutting down one or both of these facilities, and that such measures are under discussion in the Department. For the following reasons, the Board strongly believes that it would be most short-sighted to take such actions, from which recovery would not be possible.

Spent aluminum-clad nuclear fuel will continue to be generated in the United States. In defense-related activities, it will be produced in the Advanced Test Reactor. Though the Board recognizes that its oversight is limited to defense areas, it is well known that the Department is also accumulating spent nuclear fuel from domestic and foreign research reactors. This continued accumulation of spent nuclear fuel will continue to augment the sizeable inventory of such highly radioactive material already stored at DOE's sites.

The Department believes that some spent aluminum-clad fuel in reasonably good condition can be stored for a long time in the 666-Basin at INEL and in the Receiving Basin for Offsite Fuel (RBOF) at the Savannah River Site. Storage at these facilities is under very pure water maintained in this state to inhibit onset of corrosion of the fuel cladding. For badly corroded fuel, such as at the 603-Basin at INEL, and the Reactor Basins and the processing canyons at the Savannah River Site, the only alternative to chemical treatment that has been suggested is dry storage, which for fuel of the kind in question is still untried and undeveloped.

In the Board's view, the Department of Energy will always need to have available a capability for chemical processing of spent nuclear fuel, since this is the only proven safe way by which the highly radioactive material can be converted into a form suitable for ultimate geologic disposal. This means that the capability now existing at Savannah River continues to be essential.

Furthermore, the Board believes that it is necessary to retain both the F- and the H-Canyons in operable condition. The Canyons have historically been used for different phases of defense production, but in capability they are essentially equivalent. Unfortunately, they are old and while still operable are not in the best of shape. For the present, they can still be used for separate types of campaigns, and used this way they can contribute to the most rapid alleviation of problems of the type addressed in Recommendation 94-1. However, if necessary each can back up the other in processing capability. Then in event of an unfortunate incident, such as an accident that incapacitated a Canyon (e.g., a fire, a massive contamination, a seismic event), there should still be the other to carry on.

The Board recognizes that continued availability of the Savannah River Canyons must be weighed against other demands in light of reduced budgets, but considers that this is a necessary component of a balanced program of safely remediating defense facilities.

Sincerely,

John T. Conway
Chairman

c: Mark Whitaker