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RESOURCES, COMMUNITY,
AND ECONOMIC DEVELOPMENT
DIVISION

B- 211412

APRIL 15, 1983

The Honorable Donald Hodel
The Secretary of Energy



Dear Mr. Secretary:

Subject: Decommissioning retired nuclear reactors at
Hanford Reservation (GAO/RCED-83-104)

This report is to alert you to concerns we have about the Department of Energy's (DOE's) ongoing effort to develop a strategy for decommissioning¹ eight retired plutonium production reactors at its Hanford Reservation in Washington State.

DOE's Richland Operations Office has directed one of its contractors to identify decommissioning options for these reactors and to recommend to the operations office the most appropriate, least costly option by September 1983. The operations office then intends to select a decommissioning strategy and, sometime after fiscal year 1984, to decommission one of the retired reactors--the 100-F reactor--as a demonstration step in preparation for eventually decommissioning the remaining seven reactors. According to Richland Operations Office officials, the 100-F reactor building has deteriorated to the point where DOE must take some protective action to prevent the radioactivity contained in the reactor from posing a threat to public health and safety.

We are concerned that DOE, in its current decommissioning planning, is not considering two issues which are important to selecting the most appropriate, least costly decommissioning strategy. First, DOE needs to decide the long-term future of the Hanford Reservation. Second, DOE needs to decide whether Hanford is a suitable location for permanently disposing of

¹Decommissioning is the process of cleaning up a retired facility contaminated with radioactivity. Decommissioning methods range from sealing access to and maintaining surveillance of the facility to total facility dismantlement.

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some of the radioactive wastes which will result if one or more of the reactors are dismantled.

We initially raised these concerns in a January 17, 1979, report (EMD-79-20) to the Secretary of Energy. At that time, DOE planned to dismantle the 100-F reactor. In our report, we recommended that DOE postpone dismantling the 100-F reactor until it completed studies and made decisions on the future of Hanford Reservation either as (1) a site that will be forever dedicated to nuclear activities or (2) a permanent disposal site for radioactive wastes from dismantling the 100-F reactor. In part, our recommendation was based on the cost of dismantling the reactor--then roughly estimated by DOE at \$22 million. Our position was that if DOE intended that Hanford remain dedicated to nuclear activities, a less costly decommissioning method might be appropriate. Our recommendation was also based on the fact that DOE had not completed work on the environmental assessment and standards it would need to proceed with dismantlement. In April 1979, DOE said dismantling the 100-F reactor was justified as a demonstration to aid in planning the future decommissioning of the other retired reactors at Hanford. DOE added, however, that it had deferred its plans to dismantle the reactor because of revised priorities.

We recognize that the 100-F reactor, and some of the other retired reactors at Hanford, may now have deteriorated to the point where DOE needs to select and implement a decommissioning strategy. We also believe any such strategy should take into consideration both the long-term future of Hanford as well as short-term requirements for protecting public health and safety.

If DOE intends to eventually permit access to the Hanford Reservation or to release it to general public use, then it probably is appropriate for DOE to dismantle the retired reactors and clean up the reactor sites. On the other hand, if DOE intends that Hanford will remain in long-term Federal control and/or be used for nuclear activities, a decommissioning strategy which is less costly yet adequately protects public health and safety may be more appropriate. Selecting the least costly decommissioning strategy consistent with both protection of public safety and the long-term future of Hanford is important, we believe, in view of the potential costs of dismantling all eight retired reactors. Based on DOE's 1978 estimate of the cost to dismantle the 100-F reactor, this total cost could be more than \$175 million.

DOE also needs to decide whether Hanford Reservation is an acceptable permanent disposal site for the radioactively contaminated materials in the retired reactors. If Hanford is not an acceptable site, DOE might incur unnecessary costs of

temporarily storing these wastes at Hanford and then relocating them elsewhere. Most of the radioactive wastes from decommissioning activities not involving complete dismantlement could be buried at DOE's low-level radioactive waste burial ground at Hanford. However, if DOE decides to dismantle some or all of the reactors, it is uncertain at this time whether some of the waste material resulting from dismantlement--specifically the graphite material used in these reactors--could be permanently disposed of at Hanford. This material, contaminated with Carbon-14 which has a radioactive half-life² of 5,700 years, may require special disposal in another location.

In 1979, when DOE planned to dismantle the 100-F reactor, it intended to put this material in retrievable storage pending preparation of an environmental statement necessary before a decision could be made on the suitability of Hanford as a permanent repository for the material. At that time, DOE Richland Operations Office officials told us it could take years to complete this decisionmaking process. As yet, DOE has not begun preparing the necessary environmental impact statement. In general, the delay in assessing Hanford's suitability as a permanent disposal site increases the likelihood of a retrievable storage approach with the additional costs that such an approach may entail.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our objective was to follow up on our previous report and to determine whether DOE is making progress and appropriate decisions relating to decommissioning the retired plutonium production reactors on the Hanford Reservation. Our audit approach included (1) interviewing officials of DOE and its Hanford operating contractor; (2) reviewing policies, procedures, and guidance for decommissioning radioactively contaminated facilities; and (3) reviewing records, files, and documents pertaining to decommissioning the 100-F reactor. We worked at DOE's Richland Operations Office because it is responsible for planning for and eventually decommissioning the Hanford Reservation retired reactors. Our review was performed in accordance with generally accepted government audit standards.

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We hope that you carefully consider these matters as a part of your efforts to plan a decommissioning strategy for the

²A half-life is the period of time it takes for one-half of the radioactivity in a radioactive material to decay.

Hanford Reservation 100 Area, and we would appreciate receiving your views on our suggestions.

We are sending copies of this report to the Director, Office of Management and Budget; the House Committees on Appropriations, Armed Services, and Government Operations; and the Senate Committees on Appropriations, Armed Services, and Governmental Affairs. Copies of the report will be made available to others on request.

Sincerely yours,



for J. Dexter Peach
Director