MEMO FOR BERNERO

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MEMORANDUM FOR: Robert M. Bernero, Director
Office of Nuclear Material Safety
and Safeguards

FROM: Robert E. Browning, Director
Division of High-Level Waste Management

SUBJECT: CORRELATION BETWEEN EPA HLW STANDARDS AND INDIVIDUAL RISK

A recently published report by the Institute for Energy and Environmental Research entitled "Reducing the Risks: Policies for the Management of Highly Radioactive Nuclear Waste" cited a 1983 National Academy of Sciences report as follows:

> The 1983 National Academy study found that the proposed EPA standard was compatible with doses so miniscule that they could hardly be measured (tiny fractions of a rem per year) and so large that they would be lethal (10,000 rem per year). Yet, the EPA went ahead and finalized the standard in 1985. It was rejected by the courts in 1987 as being out of compliance with other health and environmental laws.

Chapter 8 of the National Academy of Sciences report, which critiques the EPA standards and the NRC's repository regulations, is enclosed.

The NRC staff was well aware that the cumulative release limits of the draft EPA HLW standards placed no restrictions on the rate of release of activity from a repository nor on the concentrations of radioactive material to which individuals might be exposed in the future. When EPA proposed its HLW standards, EPA solicited public comment regarding its choice of limits on total radioactive material released to the environment versus standards that would limit maximum exposures to individuals. The NRC commented as follows:

> The NRC strongly supports the current form of the containment requirements (section 191.13) which limit the total amount of radioactivity projected to be released to the environment over 10,000 years. This approach would appropriately protect the environment while limiting the consideration of speculative and unnecessary dosimetry-related issues in a repository licensing review. A standard which specified maximum dose limits to individuals would have two major adverse effects:
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> ° It would encourage dilution rather than containment of wastes (e.g., by siting repositories near prolific aquifers or large rivers), which the NRC considers to be an inappropriate approach to waste disposal, and

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- It would needlessly inject into a licensing review questions of individual and societal lifestyles far into the future. These are difficult predictions to make even a few years into the future, and predictions over 10,000 years would be highly speculative. The approach adopted by EPA in developing these standards (limiting total activity released to the environment) would avoid this difficulty while still ensuring that a waste disposal system would achieve its intended function, i.e., long-term isolation of wastes from the environment.

An NRC staff review of the National Academy report (enclosed) also noted that EPA was attempting to limit individual risks by requiring that a repository site have limited resource potential, limited groundwater usage, and low probability of natural intrusive events.

Despite all this, public comment on EPA's proposed standards convinced EPA to add to its standards a limited restriction on projected doses to individuals. The way in which EPA added the requirement (inadequate opportunity for public comment) and the time period to which it applied (1,000 years) were cited in the Appeals Court decision remanding the standards for further consideration by EPA. Thus, this subject will be a major issue as EPA attempts to reissue its HLW standards.

Robert E. Browning, Director
Division of High-Level Waste Management

Enclosures:
As stated

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*See previous concurrence.

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