ENVIRONMENTAL EVALUATION GROUP

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December 29, 1997

The Honorable Gary Johnson
Governor
State of New Mexico
Executive Legislative Building
Santa Fe, NM 87503

Dear Governor Johnson:

A copy is enclosed of the EEG's latest report, "Probability of Failure of the Waste Hoist Brake System at the Waste Isolation Pilot Plant (WIPP)", EEG-65, by Professor Moses A. Greenfield and Professor Thomas J. Sargent, January 1998.

Deep geologic disposal of 176,000 cubic meters of transuranic waste at a depth of 650 meters in the WIPP requires hoist operations for 35 years. The safety of the waste hoist at WIPP relies on a braking system consisting of a number of components including two crucial valves. The report recommends that the failure rate of the system be recalculated periodically to accommodate new information on component failure, changes in maintenance and inspection schedules, occasional incidents such as a hoist traveling out-of-control, and changes in the design of the brake system. This analysis examines the Department of Energy's (DOE) last two reports on the redesigned waste hoist system. In its calculations, the DOE has accepted one recommendation made by the EEG previously and is using more current information about the component failure rates.

The DOE calculations, however, fail to include uncertainties in the data used for analyses. As previously noted by EEG, the U.S. Nuclear Regulatory Commission has recommended that a system evaluation should include mean estimates of component failure rates and take into account the potential uncertainties that exist, so that an estimate can be made on the confidence level to be ascribed to the quantitative results. EEG has made this suggestion previously and the DOE has responded with reasons for not accepting the NRC approach. This report illustrates the importance of including data uncertainty using a simple statistical example to try to persuade the DOE to accept our recommendation for making an estimate of the confidence level to be ascribed to the quantitative results.

Sincerely,

Robert H. Neill
Director

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oviding an independent technical analysis of the Waste Isolation Pilot Plant (WIPP), a federal transuranic nuclear waste repository.