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Honorable Nunzio J. Palladino
Chairman
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

SUBJECT: ADDITIONAL ACRS COMMENTS ON EPA STANDARDS FOR A HIGH-LEVEL RADIOACTIVE WASTE REPOSITORY

During its 307th meeting, November 7-9, 1985, the Advisory Committee on Reactor Safeguards met with members of the NRC Staff and the Environmental Protection Agency (EPA) for additional discussions on the nature and implementation of the EPA Standards for a High-Level Radioactive Waste (HLW) Repository. This was also the subject of a meeting of the NRC Commissioners with the ACRS on October 10, 1985; of a meeting of the NRC Commissioners with representatives of the NRC Staff, the Department of Energy (DOE), EPA, and the ACRS on October 21, 1985; and of a combined meeting of our subcommittees on Waste Management and Metal Components held on October 24-25, 1985. In addition, we reported to you on this subject in our letters of July 17, 1985 and October 16, 1985.

As a result of these meetings and associated discussions, we offer the following additional comments.

1. It is generally recognized that there is essentially no prospect that compliance with the EPA Standards can ever be demonstrated by actual observation. Determination of compliance will have to be based on the results of calculations using some agreed upon set of release scenarios, environmental transport models, and their underlying assumptions. As stated in our letter of October 16, 1985, we believe that this has the potential of introducing obstacles in the licensing process, and it was for this reason that we recommended in our letter of July 17, 1985, that the Commission assure itself that the Staff's endorsement of this approach was correct.

2. We continue to believe that the EPA Standards contain deficiencies and inconsistencies, e.g., that the dose limits for single organs are not risk-based, and that different dose limits are being applied to NRC-licensed HLW facilities than to similar DOE facilities. Although we understand that time constraints did not permit the EPA Staff to correct these deficiencies, they nonetheless exist. In addition, there are errors in the recommended methods for the analysis and interpretation of data collected in the evaluation of the performance of a repository.

The NRC Staff is proposing an approach that may prove successful. However, we have no confidence that it will succeed. Our basic concern continues to be whether a formal determination can be made that a licensee is complying with the EPA Standards. To help resolve this problem, we encourage the NRC Staff to accelerate their efforts to develop analytical methods based on both deterministic and probabilistic approaches, and we recommend that a consensus be sought on these methods as they are developed. We also encourage the NRC Staff to use rule-

making as a mechanism for implementing these methods, and we support the approaches being developed by the NRC Staff to utilize outside experts to help identify relevant issues and information needs.

Additional comments by ACRS Members Harold W. Lewis and Dade W. Moeller are presented below.

Sincerely,

David A. Ward
Chairman

Additional Comments by ACRS Member Harold W. Lewis

It is worth repeating and extending the statement in the ACRS letters of July l7, l985 and October l6, l985, that the EPA Standards are too stringent. All these problems of compliance determination derive from the fact that the EPA risk limits are far below any reasonable likelihood of detection. It is that that drives the dependence on models and calculations.

I know of no rational basis (though recognize the political constraints) for a standard involving one-tenth of a fatality per year for ten thousand years, beginning in a few hundred years. If one uses cost/benefit analysis with any reasonable estimate of the benefit of the repository; if one uses reasonable discounting of future costs against current benefits, a procedure understood by all surviving businesses and nations; if one compares with the risk or even the radioactive effluents from coal burning, the only viable alternative to nuclear power; if one compares with cosmic rays or other natural radiation; however one makes the comparison, these are unreasonably stringent standards.

I recognize that they are the product of EPA, and the result of a necessary political process, but think that the NRC should develop regulatory procedures in such a way as to make the best of a bad set of standards by moving the assessment of the risk in the direction of realism. To add the usual regulatory conservatism to the implementation of standards which are already too stringent would not be in the national interest.

I know of no risk issue (perhaps excepting UFOs) in which the discrepancy between perceived risk and actual risk is so high. That seems to be what has put us in this position, but it is still the responsibility of scientific advisors to remain rational and to deal with real risk. That is extraordinarily small here.

Additional Remarks by ACRS Member Dade W. Moeller

I recognize that many of the issues associated with the EPA Standards are controversial and subject to a range of interpretations. A primary

example is the estimation of the average annual societal risk to an individual as a consequence of the operation of an HLW repository constructed and operated in accord with the EPA Standards. Depending on the number of people assumed to be exposed, one can "demonstrate" that the Standards are either comparable to the risks associated with some other existing radiation standards, or that the risks are several orders of magnitude lower. Since, at the present time, there appear to be no acceptable guides for use by Federal agencies in making risk estimates for radionuclide sources that have the potential for exposing large numbers of people at extremely low dose rates over long periods of time, I would encourage the NRC to request that the Committee on Interagency Radiation Research and Policy Coordination (CIRRPC) undertake to develop such guides. I understand that the CIRRPC would be receptive to such a request.

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