FEB 16 1994

Dr. Daniel Lillian, Deputy Director
U.S. Department of Energy
Office of Special Programs
Office of Technology Development
EM-56
Washington, DC 20585

Dear Dr. Lillian:

I am writing in response to your letter dated November 2, 1993, in which you requested our review of a proposed transportation risk assessment methodology. The methodology was described in Basis for the Proposed EM PEIS Transportation Risk Assessment, Revised Draft, Argonne National Laboratory, December 8, 1992, and Off-Site Transportation Radiological Risk Assessment for High-Level Waste, Chapter 4, Technical Approach, and Chapter 5, Input Parameters and Assumptions, Draft, Argonne National Laboratory, July 1993. Copies of these and three supporting computer code documents were enclosed in your letter. A final version of a fourth computer code document, RADTRAN V4.0 Volume II Technical Manual Report was provided by Larry Blalock of your staff on December 30, 1993.

Please note that we have not conducted an in-depth technical review of the methodology, nor have we reviewed nor verified the supporting computer codes or calculations. With this caveat, we have not identified any fundamental problem with the proposed methodology; more detailed comments are provided in the enclosure. I trust you will find them helpful.

I would also offer this general comment. To the extent this effort is driven by non-technical considerations, its success may depend not so much on its accuracy, but on its acceptance by the public in general, and by the states in particular.

If you have technical questions, please contact John Cook on 504-2458.

Sincerely,

Charles J. Haughney, Chief
Storage and Transport Systems Branch
Division of Industial and
Medical Nuclear Safety, NMSS

Enclosure: 930134
As stated

cc: G. Sjoblom
Department of Energy

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DETAILED COMMENTS ON DEPARTMENT OF ENERGY's (DOE)
PROPOSED TRANSPORTATION RISK ASSESSMENT METHODOLOGY FOR DOE's PROGRAMMATIC
ENVIRONMENTAL IMPACT STATEMENT (PEIS)

1. Basis for the Proposed EM PEIS Transportation Risk Assessment, Revised Draft, Argonne National Laboratory, December 8, 1992.

The document is sketchy. We assume it is an internal document and is not intended to explain the PEIS to the public.

It is not clear that this document establishes any new basis for conducting risk assessments. It does provide a synopsis of recent transportation impact assessments, including similarities in assumptions and calculational approaches among the assessments. It then presents the proposed PEIS assessment methodology. But there is no explanation of how the proposed methodology was derived from the earlier efforts, other than the impression that it is based on these efforts. We conclude that the "basis" is a refinement of previous efforts.

Page 10. We are not familiar with the ANL data base (Saricks, 1991) referenced for traffic accident frequency data ($P_{i,j}$). We are aware that there is considerable variability in accident frequency data among states, and that states are sensitive as to the representativeness of accident data that are used to determine transportation impacts.

Moreover, we find no treatment of vessel shipments. Will the PEIS be used with respect to shipments by vessel (sea) or barge (river)? Would the same analytical approach be used for vessel and barge shipments? The potential accident impacts in ports and to waterways may be of particular interest.

Page 12. We note that the PEIS will address non-radioactive hazardous material transportation impacts. Does this mean the PEIS will address mixed-waste transportation impacts also?

2. Off-Site Transportation Radiological Risk Assessment for High-Level Waste, Chapter 4, Technical Approach, and Chapter 5, Input Parameters and Assumptions, Draft, Argonne National Laboratory, July 1993.

The documentation provided does not include a statement of the purpose or scope of the PEIS (we assume these topics are addressed in earlier chapters).

ENCLOSURE

The technical approach is to use RADTRAN IV and RISKIND. The original RADTRAN code was used in support of NRC's Final Environmental Statement on the Transportation of Radioactive Materials (NUREG-0170). We believe that RADTRAN IV is an appropriate code for the PEIS, and are unaware of any reasonable alternative. We are less familiar with the RISKIND code, but did not identify any problem in the approach taken.

Page 5-7. We note that the cask release fractions used in RADTRAN IV are based on those reported in NUREG-0170, while those in RISKIND are based on the Modal Study. Even though the two codes are being used for different components of the assessment (i.e., collective population risks and individual specific risks, respectively) it is not clear why the codes use different approaches to package release fractions for spent fuel shipments.

You may wish to consider the use of the Modal Study (NUREG/CR-4829) data on release fractions for spent fuel containers involved in severe highway or railway accidents. If you stay with the NUREG-0170 scheme, the Modal Study might be used to indicate the risk assessment is conservative (i.e., overstates risk) for these types of accidents.