Georgia Institute of Technology
A UNIT OF THE UNIVERSITY SYSTEM OF GEORGIA
NUCLEAR ENGINEERING AND HEALTH PHYSICS PROGRAMS
SCHOOL OF MECHANICAL ENGINEERING

August 6, 1987

Please reply to:
NUCLEAR ENGINEERING AND
HEALTH PHYSICS PROGRAMS
CHERRY EMERSON BUILDING
GEORGIA INST. OF TECH.
ATLANTA, GEORGIA 30332 U.S.A.

Dr. Dade Moeller, Chairman
ACRS Subcommittee on Waste Management
Harvard University
Kresge Center for Environmental Health
Environmental Health Sciences
665 Huntington Avenue
Boston, Massachusetts 02115

Dear Dade:

As requested, following our recent visit to the University of Arizona and certain of its research facilities, I want to provide several comments. These are based on the discussions we had with the researchers as well as the pertinent briefings.

The closure techniques they have developed are being tested on a very small scale and with a limited number of variables. I'm concerned about scaling these up to practical size and to possible effects produced over time by radiation levels, elevated temperatures, etc.

In addition, they seem to be producing more or less ideal conditions in the way that plugs are emplaced and tested. This does not appear to simulate a repository environment.

These lead to major concerns in the sealing program and its application to a repository. Can we model large opening closures and sealings on a practical basis and effectively evaluate their performance? Also, can we develop a system which will allow testing of the repository or major portions of it before use?

In Nevada, I'm concerned about the movement of radionuclides in various media and the retardation coefficients. Besides mobility and transport of radionuclides, other factors which

Telephone: 404-894-3720 Telex: 542507 GTRIDCAATL Fax: 404-894-3120 (Verify: 404-894-6851)

must be considered are the inventories, half lives, and relative hazards. These latter factors, in fact, are what reduce tritium to a non-problem in spite of its rapid mobilization and transport.

Hopefully these brief comments and questions will be useful to you.

Sincerely,

Melvin W.Carter
Consultant

MWC/bc
cc: Mr. Owen Merrill