Department of Energy
Washington, DC 20585

JUL 13 1990

Mr. John J. Linehan, Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level
Waste Management
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Linehan:

In your letter dated March 30, 1990, you requested information from the Department of Energy (Department) regarding the activities we will undertake to address the requirements of the Resource Conservation and Recovery Act (RCRA) and its applicability to the repository program.

As you are aware, under RCRA Sec. 1004(27) "hazardous waste" is a subset of the statutory definition of "solid waste" which expressly excludes "source, special nuclear or byproduct material as defined by the Atomic Energy Act of 1954."

The Department, on May 1, 1987, issued an interpretative rule, for the purpose of clarifying the definition of the term "byproduct material" in the Atomic Energy Act as it applies to Department owned or produced radioactive waste substances that are also "hazardous waste" within the meaning of RCRA (52 FR 15937). The Department interpreted the term "byproduct material" to refer only to the radioactive component of a nuclear waste. The nonradioactive chemically hazardous component of the waste is subject to regulation under RCRA.

During site characterization at the Yucca Mountain site, some RCRA-defined hazardous waste may be generated. The Department will comply with all applicable RCRA requirements for such waste, if generated. It is not anticipated that a storage permit will be required because the amount of hazardous waste generated, if any, is expected to be small and because of the short period the waste is planned to be in storage on site. Moreover, because the waste would be shipped off-site to a RCRA-permitted hazardous waste management facility for treatment and disposal, a treatment or disposal permit will not be necessary.

With respect to the operational phase of the repository program, the Department would be emplacing both spent nuclear fuel (SNF) and vitrified high-level waste (HLW) in the facility. Based on available information and preliminary analyses, the Department believes that, when vitirified, this waste will no longer exhibit a hazardous characteristic. We note that EPA recently concluded,

in the preamble to the final rule for "Land Disposal Restrictions for Third Third Scheduled Wastes," 55 FR 22628 (June 1, 1990), that vitrification will provide effective immobilization of the inorganic constituents in high-level mixed waste. However, it is also possible that the material contains some RCRA-listed wastes. In addition, some SNF may exhibit a hazardous characteristic. A definitive determination cannot be made until further study is completed.

As you are aware, the EPA has only recently finalized its Toxicity Characteristic Leach Procedure (TCLP) for use in determining land ban treatment compliance and EP toxicity characteristics. The Department plans to test its waste forms within the next several years, following the development of a mixed waste test plan. The plan would consider appropriate regulations and procedures for testing glass and SNF, identify the test sampling matrix, establish quality assurance needs, provide costs and schedules, and address specific areas related to mixed waste testing, handling, and disposal. The Department hopes to resolve several issues regarding the testing of radioactive waste with the EPA, prior to conducting any tests.

As part of the mixed waste test plan, the Department will perform the TCLP on extracts of SNF and HLW that will be emplaced in the facility. The Department will measure the concentrations of the RCRA-defined hazardous waste constituent in the SNF and HLW. Moreover, the Department will analyze the HLW slurry to determine if it contains listed hazardous waste. In the event that the analysis indicates the presence of a listed waste, the Department would need to assess the feasibility of petitioning to delist the material when it is vitrified.

If analysis of testing shows that either SNF or vitrified HLW is a hazardous waste under RCRA, the Department does not believe that the RCRA requirements would significantly affect the design of the repository. This is not to say that differences in intent and implementation between EPA treatment, storage, and disposal facility regulations and NRC regulations for HLW disposal in geologic repositories do not exist. However, an EPA report (Mixed Energy Waste Study, March 1987) concluded that "the planned disposal of HLW ... in deep underground repositories appears to be superior to near-surface disposal in landfills allowable under RCRA" and that "DOE practices for [management of HLW] seem to exceed RCRA requirements."

The Department will be working with EPA to ensure compliance with any applicable RCRA requirement. The Department will keep the Nuclear Regulatory Commission apprised of developments in future technical exchanges.

If you have any questions regarding this correspondence, please contact Steven Rossi of my staff at 586-9433.

Sincerely,

Linda J. Desell

Linda J. Desell
Licensing Branch
Office of Civilian Radioactive
Waste Management

cc: B.J. Youngblood, NRC
R. Browning, NRC
R. Loux, State of Nevada
M. Baughman, Lincoln County, NV
S. Bradhurst, Nye County, NV
D. Bechtel, Clark County, NV