



Department of Energy

Washington, DC 20585

APR 02 1991

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

Dear Mr. Linehan:

By letter of August 21, 1990, the U.S. Nuclear Regulatory Commission (NRC) requested samples of simulated borosilicate glass waste form of the kind expected to be produced by the Defense Waste Processing Facility and the West Valley Demonstration Project and samples of Approved Reference Material ARM-1 prepared by the Materials Characterization Center, Pacific Northwest Laboratory. The U.S. Department of Energy (DOE) will be pleased to cooperate to fulfill this request, as was mentioned in the September 19, 1990, letter (Stein to Linehan). In addition to forwarding the samples, we believe it appropriate that technical staff from the NRC and its contractor visit cognizant DOE facilities so as to become familiar with how the samples were made and are tested, to understand the testing procedures and analytical techniques, to review the results obtained to date, and to establish points of contact between the technical organizations. In order to formalize this cooperation, we propose a meeting in late April or early May.

The specific tests being used by DOE have evolved over time as the projected waste form composition has become more clearly defined, as more experience has been gained in testing, and as the tests themselves have been scrutinized for robustness and repeatability. We welcome replicative testing by NRC of the tests proposed for use during radioactive operation of DOE's vitrification facilities.

Testing of borosilicate glass waste is subtle. Nuclides of interest are present in small concentrations leading to great opportunity for bias and excess variability in test results from a number of sources (e.g., reagents, containers, and analysts). Even skilled analysts need to gain experience in performing tests on the glass waste form in order to achieve consistent results. DOE believes it would be appropriate for DOE and NRC to reach a formal agreement (perhaps a Memorandum of Agreement) giving DOE the courtesy of review of results from testing of the waste glass

9104080176 910402
PDR WASTE
WM-1 PDR

109
Wm-1
NH01

prior to their release to the public. One of our conditions under this agreement would be that testing be done under a quality control program that meets the requirements of RW-0214. DOE also feels strongly that training and practice are important components of a reliable and repeatable testing program. So that NRC and its contractor can avoid pitfalls already encountered by DOE, we would like to provide instruction and training in conducting waste form tests as a condition of our formal agreement.

With respect to the Approved Reference Material ARM-1 standard, only a few kilograms were made. An appropriate amount, with documentation, will be made available to NRC.

The Defense Waste Processing Facility (DWPF) and the West Valley Demonstration Project each can provide samples of simulated waste glass made to the projected production compositions. Also, DWPF can provide samples of glass with the composition used as the basis for the Department's Environmental Assessment (EA) "Waste Form Selection for SRP High-Level Waste" [DOE/EA-0179; 1982]. Any planned tests would include the EA benchmark glass because it is expected to be used as a standard by DWPF during production to ensure a consistent glass product.

If you have any questions regarding this letter, please contact Cori Macaluso of my staff at FTS 896-2837.

Sincerely,



Dwight Shelor
Acting Associate Director for
Systems and Compliance
Office of Civilian Radioactive
Waste Management

cc:

- R. Loux, State of Nevada
- C. Gertz, DOE/YMPO/NV
- M. Baughman, Lincoln County, NV
- D. Bechtel, Clark County, NV
- S. Bradhurst, Nye County, NV