



Department of Energy

Washington, DC 20585

NOV 8 1991

Mr. John J. Linehan, Acting 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, DC 20555

Dear Mr. Linehan:

A statement in your letter to D. Shelor, dated September 30, 1991, infers a misunderstanding on the part of the NRC staff regarding the DOE's position that the Waste Acceptance Preliminary Specifications (WAPS) document is consistent with the tentative performance allocations in the Site Characterization Plan (SCP). In that letter, the trip report from the NRC visit to the Savannah River Defense Waste Processing Facility (DWPf), contains the following quote from the paragraph at the top of page 2: "The NRC staff does have concerns, as a result of the interaction with the DOE staff [during the DWPf visit], that DOE is changing its position on the allocation of performance to the waste form."

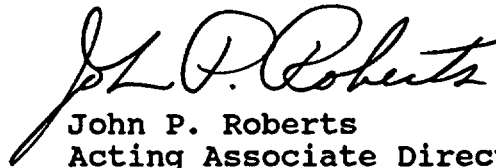
To exemplify DOE's consistent position to the NRC, a letter from Shelor to Linehan, dated August 21, 1991, contained the following quote on page 1, item 1 (line 14): "WAPS are not intended to be a measure of the glass waste form performance in the repository. For example, on page 8.3.5.10-35, the SCP states that '... the leach rates referenced in Specification 1.3 [of the WAPS] are not intended to be a measure of the glass waste form performance in the repository or to act as a source term for the performance of the engineered barrier system. This specification is intended to discriminate between well-made glasses and non-vitreous products that may result from variation in process feed composition . . .'. With the information provided through the WAPS, a design, testing, model-development, and performance assessment program can be defined and implemented that will provide assurance that this waste can be disposed of with full regulatory compliance."

Note that the quote from the 1988 SCP was available to the NRC in the Draft SCP in early 1987, which was reviewed in detail by the NRC staff. The position espoused in the August 21, 1991, letter is entirely consistent with the position documented by the DOE in the SCP (circa 1986, effectively) and, contrary to the September 30, 1991, letter, represents no change in the DOE position on this matter over at least the past five years.

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If you have any questions, please contact Linda Desell of my staff, at 202-586-1462.



John P. Roberts
Acting Associate Director
Office of Systems and Compliance
Office of Civilian Radioactive
Waste Management

Enclosures:

9/30/91 letter, Linehan to Shelor
8/21/91 letter, Shelor to Linehan

cc:

R. Loux, State of Nevada
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
S. Bradhurst, Nye County, NV
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B. Raper, Nye County, NV



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20535

SEP 30 1991

Mr. Dwight E. Shelor, Associate Director
for Systems and Compliance
Office of Civilian Radioactive Waste Management
U. S. Department of Energy, RW 30
Washington, D.C. 20585

Dear Mr. Shelor:

SUBJECT: TRIP REPORT FROM THE AUGUST 7-8, 1991 U.S. NUCLEAR REGULATORY
COMMISSION VISIT TO THE SAVANNAH RIVER DEFENSE WASTE PROCESSING
FACILITY

Enclosed for your information is a trip report from the August 7-8, 1991 U.S. Nuclear Regulatory Commission (NRC) staff visit to the Defense Waste Processing Facility (DWPF) at the Savannah River Site operated by the U.S. Department of Energy (DOE).

During this visit, briefings were given by DOE and Westinghouse Savannah River Corporation personnel. Much of the discussion at the meeting focused on the Waste Acceptance Process (WAP) which DOE developed in 1985 to describe the documentation and activities necessary to ensure that the produced high-level waste (HLW) forms (i.e., borosilicate glasses) would be acceptable at any potential geologic repository.

DOE representatives indicated that the latest revision to the DWPF WAPS will change the "radionuclide release specification" to a "product consistency test"; thereby removing the relationship of the vitrified waste form component of the waste package from any considerations that relate to either long-term glass performance in the repository environment or performance allocation. Further, DOE representatives indicated that they are treating glass as a "given," analogous to their approach with regard to spent fuel. This approach to glass waste package development appears to run counter to the overall purpose of the WAP to ensure glass waste acceptance in the repository licensing process.

The NRC staff expressed concerns in three areas: (1) the need for an integrated schedule which identifies all current WAP-related milestones and activities relative to the repository program; (2) the apparent lack of a linkage or relationship between DOE's glass waste acceptance specifications and the performance allocated to the waste form in the Yucca Mountain Site Characterization Plan; and (3) as part of the WAP, the need to conduct a preliminary assessment of the performance of the glass waste form in the context of both the Yucca Mountain near-field environment and the other waste package components.

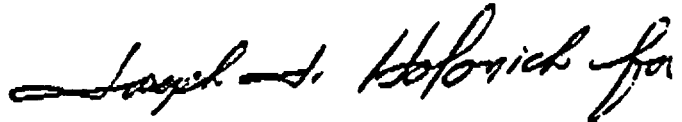
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ENCLOSURE 14

In summary, the NRC staff found the visit to be helpful in understanding the glass production program at the DWPF. The NRC staff does have concerns, as a result of the interaction with DOE staff, that DOE is changing its position on the allocation of performance to the waste form.

If you have any questions regarding this letter or the enclosed trip report, please contact Kenneth R. Hooks on (301)/FTS 492-0447.

Sincerely,



John J. Linehan, Acting Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As Stated

cc: R. Loux, State of Nevada
C. Gertz, DOE/NV
S. Bradhurst, Nye County, NV
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
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Department of Energy
Washington, DC 20585
AUG 21 1991

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Mr. John Linehan, Acting 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:

On March 1, 1991, the U.S. Department of Energy (DOE) and the U.S. Nuclear Regulatory Commission (NRC) participated in a teleconference to discuss issues related to borosilicate glass as a waste form. During that teleconference, NRC expressed concern regarding the potential linkage between the Waste Acceptance Preliminary Specifications (WAPS) and the performance allocated to the glass waste form in the 1988 Site Characterization Plan (SCP). Pursuant to that teleconference, DOE conducted an evaluation to determine if there is such a linkage. The evaluation leads to a conclusion that the SCP does not establish a direct linkage between the WAPS and the tentative performance allocation to the glass waste form contained in the SCP. This conclusion is supported by the following observations:

1. As indicated in DOE's letter dated June 27, 1989, the vitrified high-level waste will, of necessity, be produced long before sufficient materials testing, site characterization and performance assessment can be accomplished to proceed with a license application, should the site currently under consideration be found suitable. DOE is responsible for accepting the glass waste form into the Waste Management System. The basis for acceptance is governed by the WAPS. Compliance with the WAPS assures that the Office of Civilian Radioactive Waste Management (OCRWM) has a clear definition of the characteristics and consistency of the glass product. WAPS allow the selection of input data for developing glass waste form degradation models, and are necessary to limit the classes of models that need to be developed. WAPS are not intended to be a measure of the glass waste form performance in the repository. For example, on page 8.3.5.10-35, the SCP states that "... the leach rates referenced in Specification 1.3 are not intended to be a measure of the glass waste form performance in the repository or to act as a source term for the performance of the engineered barrier system. This specification is intended to discriminate between well-made glasses and non-vitreous products that may result from variation in process feed composition...." With the information provided

ENCLOSURE 2

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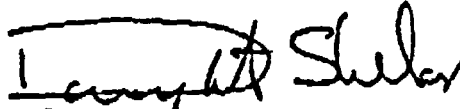
through the WAPS, a design, testing, model-development and performance assessment (PA) program can be defined and implemented that will provide assurance that this waste can be disposed of with full regulatory compliance.

2. Performance allocations contained in the 1988 SCP were, and are, only tentative allocations, intended to be a "starting place" for definition of design, testing, site-characterization and the PA program. These allocations will change as more is learned about the potential site, the waste forms and other materials, and their demonstrable performance in the waste package, and engineered barrier system (EBS) and total-system designs that will be developed in the future. The 1988 SCP documented available information and the OCRWM approach at that time. The OCRWM approach is expected to evolve as additional information is obtained and interpreted. Changes to the approach and the program will be reflected in the SCP Baseline document and will be reported to the public in the semiannual progress report.

3. The Mined Geologic Disposal System is responsible for the disposal of the glass waste form. The disposal function includes two subfunctions: to "process waste" and "isolate waste". Processing the waste includes the packaging and emplacement of waste to comply with the postclosure performance objectives specified in 10 CFR 60.112 and 60.113. These requirements are placed on the total system and the EBS, respectively, and not on the waste form. DOE has consistently taken the approach to produce high quality glass and not place primary reliance on the waste form from the standpoint of performance allocation. In the context of the multiple barrier system, the total repository performance may be relatively insensitive to waste form behavior. Therefore, a waste package and EBS design must be developed that incorporate the properties of the HLW glass and the resultant allocation of performance along with the other components of the EBS. At that time, a determination would be made as to whether some credit can be taken for the containment and isolation capabilities of the waste form. Meanwhile, compliance with the WAPS will ensure the quality of the glass waste form.

DOE is presently developing a revised WAPS for all vitrified high-level waste that will replace the present two producer-specific documents (DOE/RW-0260 and 0261). These two existing documents contain statements that strongly suggest a linkage to SCP performance allocation. The revised WAPS document will not have language in it that suggests that any of the prescribed WAPS testing addresses repository post-closure regulatory requirements or performance allocations. DOE plans to submit the revised WAPS to the Program Change Control Board to supersede the existing documents within the next few months.

Sincerely,



Dwight E. Shelor
Associate Director
Office of Systems and Compliance
Office of Civilian Radioactive
Waste Management

cc:

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R. Loux, State of Nevada
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