

LLWM/SF

MAR 08 1988

MEMORANDUM FOR: Chad Glenn
 Regulatory Branch
 Division of Low-Level Waste Management
 and Decommissioning, NMSS

FROM: Everett Wick
 Technical Branch
 Division of Low-Level Waste Management
 and Decommissioning, NMSS

SUBJECT: COMMENTS ON HIGH-LEVEL WASTE PACKAGE ASPECTS
 OF DOE/E15-0113, "DISPOSAL OF HANFORD DEFENSE
 HIGH-LEVEL, TRANSURANIC AND TANK WASTES"

PAGE C.9 APPENDIX C, SECTION C.4. HWVP WASTE FORM

The second paragraph in this section discusses the expected properties of HWVP borosilicate glass and states that:

"Although not yet explicitly defined, the expected properties of the HWVP borosilicate glass can be compared with the DWPF borosilicate glass. Favorable results from a comparison between the HWVP glass and the DWPF glass would then indicate that HWVP glass would be an acceptable waste form. Utilization of borosilicate glass at HWVP will minimize differences in waste forms and thereby simplify demonstration of compliance to geologic disposal criteria. Furthermore, HWVP will be able to rely upon the technology and information developed from the DWPF and West Valley experience."

NRC Comment

The argument presented here relies on the case made for durability of DWPF glass waste forms in DOE-EA-0179 (Environmental Assessment-Waste Form Selection for SRP High-Level Waste, Washington, DC) NRC, in commenting on that document, stated its two principal concerns for the selection of borosilicate glass waste form (Ref. 1). The first was that the vast majority of the tests supporting glass as a waste form have not been conducted using the water, temperature and radiation environment likely to be encountered in a repository which would include both Savannah River Plant waste and commercial waste. The second was that although glass will form only part of the engineered barrier system in the repository, the EA does not discuss the engineered system or a reference system (e.g., container, packing materials and backfill, etc.). This omission results in uncertainty regarding how the glass will interact with the other repository components.

NRC staff in 1987 further documented its perspective on vitrified HLW (Ref. 2) and stated that "NRC staff does not know whether the waste form will be compatible with the repository. We also do not know that the waste form will not be compatible with the repository but compatibility has not been demonstrated".

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MAR 08 1988

This is our only comment concerning HLW Packages.

References:

1. Letter from John Martin, NRC to Thomas Hindman, Jr., DOE, November 4, 1982.
2. "NRC Staff Perspective on Performance of Vitrified HLW and How It Relates to Other Components", E. A. Wick, T. C. Johnson, et. al., Proceedings of the Symposium on Waste Management at Tucson, Arizona March 1-5, 1987, Vol. 2 Post-Wacks, p 323-326.

Original Signed By

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