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November 13, 2000
Contract No. NRC-02-97-009
Account No. 20.01402.571

U.S. Nuclear Regulatory Commission
ATTN: Mrs. Deborah A. DeMarco
Two White Flint North
11545 Rockville Pike
Mail Stop T8 A23
Washington, DC 20555

Subject: Programmatic review of an abstract

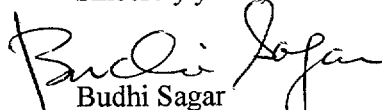
Dear Mrs. DeMarco:

The enclosed abstract is being submitted for programmatic review. The abstract will be submitted for presentation at the Annual Meeting of the American Ceramic Society on April 22–25, 2001 in Indianapolis, Indiana. The title of the abstract is

“Dissolution Kinetics of High-Level Waste Glasses and Application to Performance Assessment Studies”
by Y.M. Pan, V. Jain, and O. Pensado.

This paper is a result of the activities conducted in FY2000 and FY2001 under task 01402.571 to resolve the issued related to the contribution of glass waste form to the total system dose.

Sincerely yours,


Budhi Sagar
Technical Director

BS:YP:jg

Enclosure

cc:	J. Linehan	T. Bloomer	J. Holonich	CNWRA EMs	T. Nagy (contracts)
	T. Ahn	T. Ahn	B. Leslie	CNWRA Dirs.	
	B. Meehan	K. Stablein	C. Greene	Y. Pan	
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DISSOLUTION KINETICS OF HIGH-LEVEL WASTE GLASSES AND APPLICATION TO PERFORMANCE ASSESSMENT STUDIES

Y.M. Pan*, V. Jain, and O. Pensado, Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute, San Antonio, TX.

The chemical composition of the waste package internal environment may have a significant influence on waste form degradation. The dissolution kinetics of two simulated high-level waste (HLW) glass target compositions (WVDP Reference 6 and DWPF Blend 1), produced at the West Valley Demonstration Project and the Defense Waste Processing Facility, respectively, were measured in aqueous solutions of FeCl_2 and FeCl_3 at temperatures of 40, 70, and 90 °C using a modified product consistency test (PCT) method. These species simulate the presence of steel corrosion products. The results of these tests are discussed. An empirical expression accounting for the intrinsic dissolution rate, pH dependence coefficient, and activation energy is presented. This expression is used to evaluate the effect of glass waste form on radionuclide release within the context of a performance assessment for the proposed HLW geologic repository at Yucca Mountain, Nevada.

Disclaimer: This paper was performed for the Nuclear Regulatory Commission under Contract No. NRC-02-97-009. This work is an independent product of the Center for Nuclear Waste Regulatory Analyses and does not necessarily reflect the views or regulatory position of the Nuclear Regulatory Commission.