

December 16, 2004

Dr. Michael T. Ryan, Chairman
Advisory Committee on Nuclear Waste
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: WORKING GROUP ON THE EVALUATION OF IGNEOUS ACTIVITY AND ITS
CONSEQUENCES FOR A GEOLOGIC REPOSITORY AT YUCCA MOUNTAIN,
NEVADA

Dear Dr. Ryan:

I am responding to your letter of November 3, 2004, regarding the "Working Group on the Evaluation of Igneous Activity and Its Consequences for a Geologic Repository at Yucca Mountain, Nevada," held in September 2004, as part of the Advisory Committee on Nuclear Waste's (ACNW) 153rd meeting.

You indicated in your letter that, based on information presented during the Working Group meeting, the risk informed nature of the staff's work on igneous activity, and incorporation of realism in aspects of such work, were not transparent. Staff recognizes the value of presenting this complex information in a transparent way. We believe that we have used a risk-informed approach in this work, and we are striving to make this approach as transparent as possible. We would be willing to facilitate a more detailed understanding of our efforts in this area with you.

The staff feels that its conceptual model for igneous activity best represents the data and our understanding of the site. Although we have developed parameter values and distributions for the igneous activity model abstraction used in the NRC Total-system Performance Assessment (TPA) code, we have used single values in some cases where it is more efficient and does not significantly influence the results. We believe the TPA model is realistic and risk informed, and is sufficiently flexible to incorporate greater realism, such as the inclusion of a more complete representation of the local wind field now being implemented.

Staff research and analysis has sharpened our focus on those aspects of igneous activity identified as having the most significant impact on repository performance. As outlined in the *Risk Insights Baseline Report*, which has been previously presented to the ACNW, these include the following High- and Medium-ranked aspects:

- Probability of Igneous Activity
- Number of Waste Packages Affected by an Eruption
- Number of Waste Packages Damaged by an Intrusion
- Volume of Ash Produced by an Eruption

- Remobilization of Ash Deposits
- Inhalation of Resuspended Volcanic Ash
- Wind Vectors During an Eruption

We feel that the significant aspects of risk have been appropriately identified and that we have the models and information necessary to perform realistic evaluations. This work contributes to our confidence that we are prepared to review a license application for the proposed repository at Yucca Mountain.

Sincerely,

/RA Martin J. Virgilio Acting for/

Luis A. Reyes
Executive Director
for Operations

cc: Chairman Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

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*See Previous Concurrence

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DATE	12/01/04		12/01/04		12/03/04		12/01/04		12/03/04	
OFC	OGC		NMSS		DEDMRS		EDO			
NAME	MYoung*		JStrosnider		MVirgilio		LAReyes			
DATE	12/03/04		12/13/04		12/16/04		12/16/04			

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