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6220 Culebra Road • San Antonio, Texas, U.S.A. 78228-5166
(210) 522-5160 • Fax (210) 522-5155

March 17, 2004
Contract No. NRC-02-02-012
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U.S. Nuclear Regulatory Commission
ATTN: Dr. John S. Trapp
Office of Nuclear Material Safety and Safeguards
Two White Flint North, Mail Stop 7 D13
Washington, DC 20555-0001

Subject: Completion of Intermediate Milestone—First-Order Conceptual Model for Fluvial Remobilization of Tephra Along Fortymile Wash, Yucca Mountain, Nevada (IM 06002.01.051.465)

Dear Dr. Trapp:

Enclosed is Intermediate Milestone 06002.01.051.465 entitled "First-Order Conceptual Model for Fluvial Remobilization of Tephra Along Fortymile Wash, Yucca Mountain, Nevada." The objective of this report is to present the progress of a first-order conceptual model that focuses on a simplified mass-balance approach to analyze the remobilization or redistribution of tephra in the Fortymile Wash drainage system at Yucca Mountain, Nevada. The methodology is first tested by applying it to the tephra deposit from the 1943–1952 eruption of Parícutin volcano (Mexico), the primary analog for this study. Erosional processes are mostly simplified in this first-order approach, but model refinements are being incorporated. Preliminary results in the Fortymile Wash watershed using one possible set of parameters show that <0.25 percent of the tephra was removed by erosion after the first 30 years. However, this result is strongly dependent upon the erosion rate as well as the area, thickness, and volume of dispersed tephra within the watershed.

If you have any further questions about this deliverable, please contact Dr. Donald Hooper at (210) 522-6649 or me at (210) 522-5183.

Sincerely,


H. Lawrence McKague
Element Manager

/rm
Enclosures

cc:	B. Meehan	K. Stablein	E. Whitt	W. Patrick
	W. Reamer	L. Campbell	B. Leslie	CNWRA Dirs/EMs (letter only)
	J. Schlueter	L. Kokajko	P. Justus	D. Hooper
	J. Greeves	M. Leach	J. Rubenstone	L. Gutierrez
	A. Campbell	D. DeMarco		Record Copy B, IQS



Washington Office • Twinbrook Metro Plaza #210
12300 Twinbrook Parkway • Rockville, Maryland 20852-1606