

November 7, 2006

Mr. Mark H. Williams, Director
Regulatory Authority Office
Office of Civilian Radioactive Waste Management
U.S. Department of Energy
1551 Hillshire Drive
North Las Vegas, NV 89134-6321

SUBJECT: REVIEW OF ADDITIONAL INFORMATION, PROVIDED BY THE
U.S. DEPARTMENT OF ENERGY, ASSOCIATED WITH KEY TECHNICAL
ISSUE AGREEMENTS - IGNEOUS ACTIVITY AGREEMENTS 2.19 AND 2.20

Dear Mr. Williams:

In a letter dated July 26, 2005, the U. S. Department of Energy (DOE) provided additional information addressing Igneous Activity (IA) Agreements 2.19 and 2.20. The U.S. Nuclear Regulatory Commission (NRC) has reviewed this information, and the results of this review are presented in the enclosure to this letter.

The remaining NRC staff concerns about IA 2.19 regarded the potential effects of migration of magmatic gas between drifts potentially intersected with magma, and those not intersected, and the effects of this gas on the waste canisters. After review of the material DOE presented, the staff concludes that the dual-permeability approach DOE used to model the advective-diffusive transport of magmatic gas, in conjunction with the values of matrix and fracture permeabilities and porosities used in the model, should constitute a reasonable approach for simulating the movement of magmatic gases between intersected and non intersected drifts. DOE has therefore provided sufficient clarification to allow the staff to close IA Agreement 2.19.

The additional information requested for IA 2.20 is related to assuring that the potential effect of transgranular fracturing during an intrusive event was being evaluated. After review of the material provided, although it is clear that DOE is not taking credit for the waste package nor cladding, it is not clear if DOE is assuming that waste dissolution occurs at the nominal rate, or if DOE is assuming complete degradation of the waste. Under the nominal rates, the effects of transgranular fracturing could increase the rate of dissolution, whereas if complete degradation is assumed, this would be bounding and would account for the potential effect of transgranular fracturing. DOE therefore needs to provide additional information, to clarify its assumptions regarding the condition of the nuclear waste after a potential intrusive event.

M. Williams

-2-

If have any questions about this matter, please contact James Rubenstone, of my staff, at (301) 415-5019, or by e-mail, at jxr5@nrc.gov.

Sincerely,

/RA/

Lawrence E. Kokajko, Director
Division of High-Level Waste Repository Safety
Office of Nuclear Material Safety
and Safeguards

Enclosure: NRC, NMSS, Review
of the DOE Agreement
Responses Related to the
Potential Geologic Repository
at Yucca Mountain, Nevada:
IA KTI Agreements 2.19
AIN-1 and 2.20 AIN-1

cc: See attached list.

Letter to Mark Williams from Lawrence E. Kokajko dated: November 7, 2006

cc:

A. Kalt, Churchill County, NV	A. Elzeftawy, Las Vegas Paiute Tribe
R. Massey, Churchill/Lander County, NV	J. Treichel, Nuclear Waste Task Force
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E. von Tiesenhausen, Clark County, NV	R. Murray, DOE/OCRWM
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P. Thompson, Duckwater Shoshone Tribe

T. Kingham, GAO

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E. Hiruo, Platts Nuclear Publications

G. Hernandez, Las Vegas Paiute Tribe

K. Finfrock, NV Congressional Delegation

P. Johnson, Citizen Alert

M. Williams, DOE/OCRWM

J. Williams, DOE/Washington, DC

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M. Plaster, City of Las Vegas

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Lisa Mascaro, Washington Correspondent
Las Vegas Sun, Washington, DC

M. Williams

-2-

If have any questions about this matter, please contact James Rubenstone, of my staff, at (301) 415-5019, or by e-mail, at jxr5@nrc.gov.

Sincerely,

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Lawrence E. Kokajko, Director
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