

January 10, 2005

Mr. Joseph D. Ziegler, Director
Office of License Application and Strategy
Office of Repository Development
U.S. Department of Energy
1551 Hillshire Drive
North Las Vegas, NV 89134-6321

SUBJECT: STAFF REVIEW OF U.S. DEPARTMENT OF ENERGY RESPONSE TO
IGNEOUS ACTIVITY AGREEMENT ITEM IA.2.18

Dear Mr. Ziegler:

In a letter dated August 12, 2004, the U.S. Department of Energy (DOE) submitted information to address Igneous Activity (IA) key technical issue (KTI) agreement IA.2.18. The agreement between DOE and the U.S. Nuclear Regulatory Commission (NRC) was reached during the IA Technical Exchange and Management Meeting held September 5, 2001. DOE's transmittal letter requested that IA.2.18 be closed based on the information provided in the DOE response.

The NRC staff has reviewed DOE's response to this agreement. Results of our review and specific feedback on DOE's KTI agreement response is provided in the enclosure to this letter.

In general, the staff considers that the response provided in the letter of August 12, 2004, is a relatively detailed analysis of magma/repository interactions. In most cases, the information appears sufficient to enable the staff to begin to review an LA if submitted, or the information gaps are in areas that are not risk significant. DOE, however, has not extended its analysis of the formation of secondary vents past the analysis of the initial first few minutes of an eruption. Independent staff analysis and information from analog volcanoes indicate that secondary vents can develop in scoria cone eruptions. Such secondary vents have been noted in the Yucca Mountain Region, i.e., Lathrop Wells cone, and at analog volcanoes, i.e. Tolbachik and Cerro Negro. While the analysis provided by DOE indicates the formation of secondary vents during the initial part of an igneous event appears unlikely, DOE has not provided sufficient information to evaluate how the presence of engineered repository structures could affect magma flow processes for the duration of an igneous event, especially considering the volatile contents of Yucca Mountain Region basalts. The staff considers that DOE has not provided an acceptable technical basis to evaluate the potential for, and effects of, devolvement of secondary magma-flow pathways for the duration of a potential igneous event.

It is up to DOE to decide how, or whether, to respond to the staff's feedback. Please note that the NRC will make its final determination on any issues relevant to licensing during review of any license application.

J.D. Ziegler

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If you have any questions regarding this matter, please contact Daniel Rom of my staff, at 301-415-6704 or by e-mail at dsr@nrc.gov.

Sincerely,

/RA/

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

Enclosure:

Review by the NRC NMSS of the DOE Agreement Responses Related to the Potential
Geologic Repository at YM, NV: IA KTI Agreement 2.18

cc: See attached list

Letter to J.D. Ziegler from L. E Kokajko, dated: January 10, 2005

cc:

A. Kalt, Churchill County, NV	A. Elzeftawy, Las Vegas Paiute Tribe
R. Massey, Churchill/Lander County, NV	J. Treichel, Nuclear Waste Task Force
I. Navis, Clark County, NV	W. Briggs, Ross, Dixon & Bell
E. von Tiesenhausen, Clark County, NV	M. Chu, DOE/Washington, D.C.
G. McCorkell, Esmeralda County, NV	G. Runkle, DOE/Washington, D.C.
R. Damele, Eureka County, NV	C. Einberg, DOE/Washington, D.C.
L. Marshall, Eureka County, NV	S. Gomberg, DOE/Washington, D.C.
A. Johnson, Eureka County, NV	W. J. Arthur, III , DOE/ORD
A. Remus, Inyo County, CA	R. Dyer, DOE/ORD
M. Yarbrow, Lander County, NV	J. Ziegler, DOE/ORD
S. Hafen, Lincoln County, NV	A. Gil, DOE/ORD
M. Baughman, Lincoln County, NV	W. Boyle, DOE/ORD
L. Mathias, Mineral County, NV	D. Brown, DOE/OCRWM
D. Swanson, Nye County, NV	S.A. Wade,, DOE/ORD
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T. Story, NV Congressional Delegation	M. Mason, BSC
R. Herbert, NV Congressional Delegation	S. Cereghino, BSC
M. Murphy	N. Williams, BSC
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R. Loux, State of NV	D. Beckman, BSC/B&A
S. Frishman, State of NV	M. Voegele, BSC/SAID
S. Lynch, State of NV	B. Helmer, Timbisha Shoshone Tribe
P. Guinan, Legislative Counsel Bureau	R. Boland, Timbisha Shoshone Tribe
R. Clark, EPA	R. Arnold, Pahrump Paiute Tribe
R. Anderson, NEI	J. Birchim, Yomba Shoshone Tribe

cc: (Continued)

R. McCullum, NEI

S. Kraft, NEI

J. Kessler, EPRI

D. Duncan, USGS

R. Craig, USGS

W. Booth, Engineering Svcs, LTD

C. Marden, BNFL Inc.

J. Bacoeh, Big Pine Paiute Tribe of the Owens Valley

P. Thompson, Duckwater Shoshone Tribe

T. Kingham, GAO

D. Feehan, GAO

E. Hiruo, Platts Nuclear Publications

G. Hernandez, Las Vegas Paiute Tribe

K. Finrock, NV Congressional Delegation

P. Johnson, Citizen Alert

A. Capoferri, DOE/Washington, DC

J. Williams, DOE/Washington, DC

A. Robinson, Robinson-Seidler

M. Dayton, City of Las Vegas

D. Wilson, Sen. Reid's Office

L. Lehman, T-REG, Inc.

J. Donnell, DOE/ORD

R. L. Craun, OPM&E

B. Gattoni, Burns & Roe

R. Murray, DOE/ORD

R. Holden, NCAI

C. Meyers, Moapa Paiute Indian Tribe

R. Wilder, Fort Independence Indian Tribe

D. Vega, Bishop Paiute Indian Tribe

J. Egan, Egan, Fitzpatrick, Malsch, PLLC

J. Leeds, Las Vegas Indian Center

J. C. Saulque, Benton Paiute Indian Tribe

C. Bradley, Kaibab Band of Southern Paiutes

R. Joseph, Lone Pine Paiute-Shoshone Tribe

L. Tom, Paiute Indian Tribes of Utah

E. Smith, Chemehuevi Indian Tribe

D. Buckner, Ely Shoshone Tribe

V. Guzman, Walker River Paiute

D. Eddy, Jr., Colorado River Indian Tribes

H. Jackson, Public Citizen

J. Wells, Western Shoshone National Council

D. Crawford, Inter-Tribal Council of NV

I. Zabarte, Western Shoshone National Council

S. Devlin

G. Hudlow

D. Irwin, Hunton & Williams

L. Alfano, Lincoln County

M. Henderson, Cong. J. Gibbon's Office

D. Duquette, NWTRB

J.D. Ziegler

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