

June 3, 2008

Dr. William J. Boyle  
Regulatory Authority Office  
Office of Civilian Radioactive Waste Management  
U.S. Department of Energy  
1551 Hillshire Drive  
North Las Vegas, NV 89134-6321

SUBJECT: PRE-LICENSING EVALUATION OF KEY TECHNICAL ISSUE AGREEMENTS:  
RADIONUCLIDE TRANSPORT 3.01, and 3.04; THERMAL EFFECTS ON FLOW  
2.10, 2.11, 2.12, AND 2.13; AND TOTAL SYSTEM PERFORMANCE  
ASSESSMENT AND INTEGRATION 3.28 AND 3.29

Dear Dr. Boyle:

In 2004, the U.S. Department of Energy (DOE) submitted documents to the Nuclear Regulatory Commission (NRC) that provided information on a number of Key Technical Issue (KTI) Agreements concerning flow of water in Yucca Mountain, Nevada, related to a potential high-level radioactive waste repository (two letters from J.D. Ziegler, both dated May 28, 2004). The documents considered, among with other topics, information related to the following eight Agreements: Radionuclide Transport (RT) 3.01 and 3.04; Thermal Effects on Flow (TEF) 2.10, 2.11, 2.12, and 2.13; and Total System Performance Assessment and Integration (TSPA) 3.28 and 3.29.

In March 2005, while NRC staff responses to DOE were being finalized, DOE announced the existence of e-mails in its Licensing Support Network collection, that questioned the reliability of studies DOE used to support its consideration of net infiltration at Yucca Mountain. Although it appeared that the eight Agreements concerned downstream processes that were only indirectly affected by net infiltration, NRC elected to hold its responses to these DOE Agreements until after DOE addressed questions regarding the reliability of infiltration studies.

Since that time, DOE has completed a number of activities, including: (1) an extent-of-condition analysis on possible Quality Assurance issues; (2) an evaluation of data used in support of infiltration analyses; (3) an evaluation and re-analysis of the model previously developed for net infiltration; and (4) development of a new, independent model for net infiltration. DOE has presented the results of these activities at several public meetings, including an NRC/DOE Quarterly Management Meeting in March, 2007, a workshop meeting of the Nuclear Waste Technical Review Board in March, 2007, and an NRC/DOE Technical Exchange in April, 2008. In addition, NRC observed DOE quality assurance audits of data relevant to infiltration.

The NRC staff evaluation of the eight Agreements, are provided in the enclosure to this letter. Based on review of the information from DOE in its 2004 responses, NRC staff has no further questions on KTI Agreements RT.3.01, RT.3.04, TEF.2.10, TEF.2.11, TEF.2.12, TEF.2.13, TSPA.3.28, and TSPA.3.29, and considers that they are closed. Evaluation of DOE work in these areas developed after 2004 will occur during the license application review, if an LA is submitted and docketed. Although these agreements are considered closed, please note that NRC will make its final determination on any issues relevant to licensing during review of any potential license application.

In accordance with 10 CFR 2.390 of NRC's "Rules of General Applicability", a copy of this letter will be available electronically in the NRC Public Document Room or in the Publicly Available Records System Library, a component of NRC's Agencywide Documents Access and Management System (ADAMS). The ADAMS accession number is ML081500311. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions about this matter, please contact John Sulima, of my staff, at (301) 492-3180, or by e-mail, at [John.Sulima@nrc.gov](mailto:John.Sulima@nrc.gov).

Sincerely,

**/RA/**

Jack R. Davis, Deputy Director  
Technical Review Directorate  
Division of High-Level Waste Repository Safety  
Office of Nuclear Safety  
and Safeguards

Enclosure:

The U.S. Nuclear Regulatory Commission  
Office of Nuclear Material Safety and  
Safeguards Review of the U.S.  
Department of Energy's Key Technical  
Issues Agreement Responses Related to  
The Potential Geologic Repository at Yucca  
Mountain, Nevada: Radionuclide Transport  
(Rt) 3.01 And 3.04; Total System Performance  
Assessment and Integration (Tspai) 3.28 And  
3.29; And Thermal Effects on Flow (Tef)  
2.10, 2.11, 2.12, And 2.13

cc: See attached list

Letter to W. Boyle from J. Davis dated: June 3, 2008

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	R. Murray, DOE/OCRWM
J. Birchim, Yomba Shoshone Tribe	G. Runkle, DOE/Washington, D.C.
R. Damele, Eureka County, NV	S. Bokhari, DOE/RW
L. Marshall, Eureka County, NV	S. Gomberg, DOE/Washington, D.C.
A. Johnson, Eureka County, NV	D. Curran, Harmon, Curran, Spielberg & Eisenberg, L.L.P.
S. Schubert, Sen. Reid's Office	R. Dyer, DOE/OCRWM
M. Yarbro, Lander County, NV	J. Espinoza, GAO
J. Donnell, DOE/OCRWM	A. Gil, DOE/OCRWM
M. Baughman, Lincoln County, NV	W. Boyle, DOE/OCRWM
L. Mathias, Mineral County, NV	R. Murthy, DOE/OCRWM
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V. Prothro, Cong. Heller's Office	
C. Simkins, Lincoln County	T. Gunter, DOE/OCRWM
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T. Story, NV Congressional Delegation	S. Cereghino, BSC
R. Herbert, NV Sen. Reid's Office	B. Gattoni, Burns & Roe
M. Murphy, Nye County, NV	E. Mueller, Esmeralda County, NV
R. Lambe, NV Congressional Delegation	J. Gervers, Clark County, NV
K. Kirkeby, NV Congressional Delegation	D. Beckman, BSC/B&A
R. Loux, State of NV	J. Raleigh, SNL
S. Frishman, State of NV	J. Kennedy, Timbisha Shoshone Tribe
S. Lynch, State of NV	B. Durham, Timbisha Shoshone Tribe
S. Scholley, Legislative Counsel Bureau	E. Lent, Timbisha Shoshone Tribe
R. Clark, EPA	R. Arnold, Pahrump Paiute Tribe
R. Anderson, NEI	D. Lacy, Nye County, NV

cc: (Continued)

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S. Kraft, NEI

J. Kessler, EPRI

D. Duncan, USGS

K. Skipper, USGS

M. Plinksi, BSC/BSC

C. Marden, BNFL Inc.

J. Bacoeh, Big Pine Paiute Tribe of Owens Valley

P. Thompson, Duckwater Shoshone Tribe

D. Silverman, Morgan, Lewis & Bockius LLP

D. Feehan, GAO

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

A. Robinson, Robinson-Seidler

L. Lee, City of Las Vegas

S. Rayborn, Sen. Reid's Office

L. Lehman, T-REG, Inc.

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D. Vega, Bishop Paiute Indian Tribe

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

M. Boyd, Public Citizen

J. Wells, Western Shoshone National Council

D. Crawford, Inter-Tribal Council of NV

I. Zabarte, Western Shoshone National Council

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D. Allman, DOE

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Sincerely,

Jack R. Davis, Deputy Director */RA/*  
 Technical Review Directorate  
 Division of High-Level Waste Repository Safety  
 Office of Nuclear Safety  
 and Safeguards

Enclosure:

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 3.29; And Thermal Effects on Flow (Tef)  
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cc: See attached list

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