Department of Energy
Office of Civilian Radioactive Waste Management
Office of Repository Development
P.O. Box 364629
North Las Vegas, NV 89036-8629

QA: N/A

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OVERNIGHT MAIL

Janet R. Schlueter, Chief
High-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Two White Flint North
Rockville, MD 20852

RESPONSE TO ADDITIONAL INFORMATION NEEDED ON KEY TECHNICAL ISSUE (KTI) AGREEMENT ITEM UNSATURATED AND SATURATED FLOW UNDER ISOTHERMAL CONDITIONS (USFIC) 5.11

References: 1. Ltr, Schlueter to Ziegler, dtd 2/5/03
2. Ltr, Ziegler to Schlueter, dtd 7/5/02

This letter is in response to Reference 1. Reference 1 provides the U.S. Nuclear Regulatory Commission (NRC) staff comments on the U.S. Department of Energy (DOE) submittal (Reference 2) addressing the following KTI agreement items:

> USFIC 5.11: "In order to test an alternative conceptual flow model for Yucca Mountain, run the Saturated Zone (SZ) flow and transport code assuming a north-south barrier along the Solitario Canyon fault whose effect diminishes with depth or provide justification not to.
> DOE will run the saturated zone flow and transport model assuming the specified barrier and will provide the results in an update to the Calibration of the Site Scale Saturated Zone Flow Model Analysis Model Report (AMR) expected to be available during FY 2002."
>
> GEN 1.01: Comment 103: "The DOE mentions that an alternative study was performed to investigate the appropriateness of the treatment of anisotropy in the parameterization of the Solitario Canyon fault within the site-scale SZ flow models. However, no reference is made to this study. The study is mentioned briefly in the Supplemental Science and Performance Analyses. Details of the study will be documented in a subsequent revision of the SZ calibrated flow AMR consistent with USFIC 5.11."

Reference 1 concludes that Comment 103 of Agreement Item GENERAL 1.01 is complete and Agreement Item USFIC 5.11 is partly received pending receipt of additional information. The additional information needs (AIN) requested by the NRC are:

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1. To examine flow and radionuclide transport in the deeper aquifer system, a vertical cross-sectional figure showing the flow paths is needed. As an example, the left diagram of Figure 8 in the *Calibration of the Site-Scale Saturated Zone Flow* Model Analysis Report (CRWMS M&O, 2000) shows such a cross-sectional view. Two such particle tracking figures showing distance vs. depth are needed: one for the calibrated model and another for the shallow Solitario Canyon fault alternative model.

2. To test the hypothesis that potential contaminant releases on the west side of a shallow Solitario Canyon fault might enter the lower carbonate aquifer, DOE should provide an analysis of flow paths from the west side of a shallow Solitario Canyon fault. Alternatively, DOE could provide an explanation of repository design and site characteristics that would preclude contaminant releases to the west side of the Solitario Canyon fault.

In a teleconference between DOE and NRC on September 18, 2002, DOE agreed to provide additional information addressing NRC staff inquiries about Solitario Canyon fault alternative and base-case conceptualizations. The DOE believes that the AINs, described above, represent the inquiries as clarified during the September 18, 2002, teleconference.

In response to AIN # 1, DOE will provide the figures as requested. These figures will represent particle-tracking simulations in which the particles are released at representative locations east of the Solitario Canyon fault. In response to AIN # 2, DOE will provide an explanation of why repository design and site characteristics would preclude radionuclide transport to the west side of the Solitario Canyon fault. DOE plans to provide these responses in October 2003.

There are no new regulatory commitments in the body of this letter. The planned actions identified above are being tracked under the original agreement for USFIC 5.11. Please direct any questions concerning this letter to Drew H. Coleman at (702) 794-5537 or Timothy C. Gunter at (702) 794-1343.

Joseph D. Ziegler, Acting Director
Office of License Application and Strategy

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cc:
C. W. Reamer, NRC, Rockville, MD
A. C. Campbell, NRC, Rockville, MD
L. L. Campbell, NRC, Rockville, MD
D. D. Chamberlain, NRC, Arlington, TX
R. M. Latta, NRC, Las Vegas, NV
J. D. Parrott, NRC, Las Vegas, NV
D. S. Rom, NRC, Rockville, MD
N. K. Stablein, NRC, Rockville, MD
H. J. Larson, ACNW, Rockville, MD
W. C. Patrick, CNWRA, San Antonio, TX
Budhi Sagar, CNWRA, San Antonio, TX
J. R. Egan, Egan & Associates, McLean, VA
J. H. Kessler, EPRI, Palo Alto, CA
Steve Kraft, NEI, Washington, DC
W. D. Barnard, NWTRB, Arlington, VA
R. R. Loux, State of Nevada, Carson City, NV
Marjorie Paslov Thomas, State of Nevada, Carson City, NV
Alan Kalt, Churchill County, Fallon, NV
Irene Navis, Clark County, Las Vegas, NV
George McCorkell, Esmeralda County, Goldfield, NV
Leonard Fiorenzi, Eureka County, Eureka, NV
Andrew Remus, Inyo County, Independence, CA
Michael King, Inyo County, Edmonds, WA
Mickey Yarbro, Lander County, Battle Mountain, NV
Doug Carriger, Lincoln County, Pioche, NV
Linda Mathias, Mineral County, Hawthorne, NV
L. W. Bradshaw, Nye County, Pahrump, NV
David Chavez, Nye County, Tonopah, NV
Josie Larson, White Pine County, Ely, NV
R. I. Holden, National Congress of American Indians, Washington, DC
Allen Ambler, Nevada Indian Environmental Coalition, Fallon, NV