

October 20, 2004

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

SUBJECT: STAFF REVIEW OF INFORMATION ADDRESSING IN-DRIFT CHEMICAL ENVIRONMENT-RELATED AGREEMENTS FOR KEY TECHNICAL ISSUES "CONTAINER LIFE AND SOURCE TERM" (CLST 1.01), "EVOLUTION OF THE NEAR-FIELD ENVIRONMENT" (ENFE 2.04, 2.14), AND "GENERAL" (GEN 1.01, COMMENTS 122, 124): STATUS COMPLETE

Dear Mr. Ziegler:

In a letter dated November 25, 2003, the U.S. Department of Energy (DOE) submitted a report titled "Technical Basis Document No. 5: In-Drift Chemical Environment," (Bechtel SAIC Company, LLC, 2003a) to satisfy the informational needs of numerous Key Technical Issue (KTI) agreement items pertaining to the in-drift chemical environment and to respond to issues raised by the U.S. Nuclear Regulatory Commission (NRC) about the chemical environment on the surfaces of the waste package and drip shield at the potential repository at Yucca Mountain, Nevada. The information was requested by NRC during previous technical exchanges in September 2000, January 2001, August 2001, and September 2001. The specific agreements, which are addressed in the technical basis document, are categorized according to five different KTIs:

- (i) Evolution of the Near-Field Environment (ENFE) agreements 1.05, 2.04, 2.05, 2.06, 2.09, 2.10, 2.11, 2.13, 2.14, 2.15, and 2.17
- (ii) Container Life and Source Term (CLST) agreement 1.01
- (iii) Total System Performance Assessment and Integration (TSPAI) agreements 3.09, 3.12, and 3.13
- (iv) Thermal Effects on Flow (TEF) agreement 2.04
- (v) General (GEN) agreement 1.01, Comments 47, 50, 81, 93, 98, 104, 109, 110, 113, 118, 122, and 124

For all 17 agreements and 12 comments, DOE stated in the technical basis document that it has satisfied the NRC information needs regarding the agreements and that all agreements should be considered complete. In a letter dated June 25, 2004 (Reamer to Ziegler), NRC indicated that the responses provided by DOE in Bechtel SAIC Company, LLC (2003a) satisfy

J. Ziegler

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the agreements ENFE 2.09, 2.11, 2.15, and TSPAI 3.13, and the GEN 1.01 Comments 50, 93, 98, 110, 113, and 118. Section 4.0 of the enclosure provides the NRC evaluation of the extent to which the DOE submittal satisfies three additional agreements (CLST 1.01, ENFE 2.04, 2.14) and two additional GEN 1.01 Comments (122 and 124). NRC evaluation of the extent to which the DOE submittal satisfies the requirements of agreement TSPAI 3.12 will be provided in a separate letter documenting NRC evaluation of DOE information provided in the report titled, "Technical Basis Document No. 6: Waste Package and Drip Shield Corrosion" (Bechtel SAIC Company, LLC, 2003b). NRC evaluation of the extent to which the DOE submittal satisfies the other agreements will be provided in a separate document.

Based upon the enclosed review, NRC staff agrees with DOE, that the information provided satisfies the intent of the agreements. Therefore, NRC staff considers agreements CLST 1.01, ENFE 2.04, 2.14, and GEN 1.01 Comments 122 and 124 complete. If you have any questions regarding this matter, please contact Dan Rom of my staff at 301-415-6704 or by e-mail to [dsr@nrc.gov](mailto:dsr@nrc.gov).

Sincerely,

/RA/

C. William Reamer, Director  
Division of High-Level Waste Repository Safety  
Office of Nuclear Material Safety  
and Safeguards

Enclosure:

NMSS Review of DOE Responses Related to the Potential Geologic Repository at Yucca Mountain, Nevada: In-Drift Chemical Environment-Related Agreements for KTIs CLST 1.01, ENFE 2.04, 2.14, and GEN 1.01, Comments 122, 124

cc: See attached list

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Sincerely,

/RA/

C. William Reamer, Director  
 Division of High-Level Waste Repository Safety  
 Office of Nuclear Material Safety  
 and Safeguards

Enclosure:

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cc: See attached list

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Letter to J. Ziegler from C.W. Reamer, dated: October 20, 2004

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