



Department of Energy

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QA: N/A
Project No. WM-00011

SEP 24 2003

OVERNIGHT MAIL

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TRANSMITTAL OF REPORT *TECHNICAL BASIS DOCUMENT NO. 12: BIOSPHERE TRANSPORT* ADDRESSING SEVEN KEY TECHNICAL ISSUE (KTI) AGREEMENTS RELATED TO BIOSPHERE TRANSPORT

This letter transmits *Technical Basis Document No. 12: Biosphere Transport* (enclosure 1) and a CD format of this report (enclosure 2). This technical basis document contains a summary of the current conceptual understanding of biosphere transport and provides the context within which individual KTI agreements related to biosphere transport are addressed. Appendices A through G each provide a direct response to the following Igneous Activity (IA) and Total System Performance Assessment and Integration (TSPAI) KTI agreements:

- Appendix A - Surface-Disturbing Activities (Response to IA 2.11)
- Appendix B - Mass Loading and Ash Depth (Response to IA 2.14)
- Appendix C - External Exposure (Response to IA 2.15)
- Appendix D - Soil-Sorption (Response to TSPAI 3.33)
- Appendix E - Radionuclide-Specific Biosphere Parameters (Response to TSPAI 3.34)
- Appendix F - Crop Interception Fraction (Response to TSPAI 3.35)
- Appendix G - Leaching Coefficients (Response to TSPAI 3.36)

The subject report is one in a series of technical basis documents that are being prepared to describe the Yucca Mountain, Nevada, repository system components and processes that are important for predicting the likely postclosure performance of the repository. The information presented in these documents, along with the associated references, responds to open KTI Agreements made between the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE). Placing the DOE responses to individual KTI agreements in the context of the applicable repository system components and processes allows for a more direct discussion of the relevance of the agreements to the postclosure safety analyses. The goal of this approach is to provide a more direct and transparent discussion of the relevant KTI agreements.

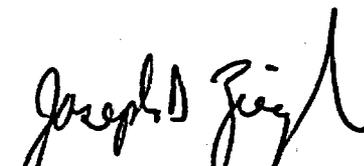
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The enclosed technical basis document discusses the methods used to model the conceptual understanding of transport of radionuclides that may be released from the repository through the biosphere. It includes a description of the reference biosphere, characteristics of the receptor, and the methods used to model environmental transport exposure pathways. This document places the responses to individual KTI agreements related to biosphere transport within the context of the overall biosphere transport and exposure model, explains their relationship to the postclosure safety analyses, and provides a discussion of the relevance of the agreements in the context of biosphere transport.

The DOE considers the KTI agreements covered in *Technical Basis Report 12: Biosphere Transport* and its appendices to be fully addressed, and pending review by the NRC, they should be closed.

There are no new regulatory commitments in the body or the enclosures of this letter. Please direct any questions concerning this letter and its enclosures to Eric T. Smistad at (702) 794-5073 or April V. Gil at (702) 794-5578.



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

OLA&S:TCG-1848

Enclosures:

1. *Technical Basis Document No. 12: Biosphere Transport*, Revision 1 (hard copy)
2. CD of Enclosure 1

cc w/encls 1 & 2

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cc w/encl 2: (continued)

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