Department of Energy
Office of Civilian Radioactive Waste Management
Office of Repository Development
1551 Hillshire Drive
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QA: N/A
Project No. WM-00011

FEB 18 2004

OVERNIGHT MAIL

ATTN: Document Control Desk
Chief, High-Level Waste Branch DWM/NMSS
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

TRANSMITTAL OF CROSS REFERENCE OF DISPOSAL CRITICALITY ANALYSIS METHODOLOGY TOPICAL REPORT SAFETY EVALUATION REPORT OPEN ITEMS TO YUCCA MOUNTAIN PROJECT DOCUMENTATION

References: (1) Ltr, Ziegler to Chief, High-Level Waste Branch (NRC), dtd 11/17/03
(2) Ltr, Reamer to Brocoum, dtd 3/2/00

The U.S. Department of Energy (DOE) submitted Revision 2 of the *Disposal Criticality Analysis Methodology Topical Report* (YMP/TR-004Q) for U.S. Nuclear Regulatory Commission staff review on November 17, 2003 (Reference 1). In order to facilitate review of this report against the open items as documented in the Safety Evaluation Report for Disposal Criticality Analysis Methodology Topical Report, Revision 0 (SER) (Reference 2), DOE is providing the enclosed cross-reference sheets. The enclosure provides information on the location of analyses as they pertain to the SER open items.

There are no new regulatory commitments in the body or the enclosure to this letter.

If you have any questions regarding this enclosure or your ongoing review of the *Disposal Criticality Analysis Methodology Topical Report* (YMP/TR-004Q), please contact either David C. Haught at (702) 794-5474 or Paige R.Z. Russell at (702) 794-1315.

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

OLA&S:DCH-0593

Enclosure:
Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation

NMSS 07
WM-11

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Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
1	The staff believes that burnup of spent fuel assemblies must be verified through measurements before their loading into the WP [waste package] for the purpose of burnup credit verification	2.4, p. 15	General discussion is provided in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.2.1.3, pp. 3-31 through 3-33. Acceptance of reactor records as the primary source of burnup values is requested in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 1.2, p. 1-7, item K and Section 4, p. 4-5, item K. The Topical Report was provided to the NRC in a letter from J. D. Ziegler to Document Control Desk, dated 11/17/03, *Transmittal of Disposal Criticality Analysis Methodology Topical Report, Revision 2*. Specific selection of the methodology application and basis will be provided in a separate submittal [under development].	No
2	The consequence criteria for transient and external criticalities are not addressed in the TR [Topical Report]. The DOE must specify if it intends to perform full consequence analyses for transient and external criticality events and include them in TSPA or use some type of criteria for the purpose of criticality control design selection	3.2.3, p. 22	The performance criteria for the methodology are presented in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.2, pp. 3-5 through 3-7. The methodology no longer includes a separate criticality consequence criterion. The interface between the criticality consequence results and the TSPA evaluation is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.8, pp. 3-71 through 3-74.	Yes

ENCLOSURE

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
3	The DOE needs to provide a modeling approach for igneous-activity-induced criticality	3.3.2, p. 28	The modeling approach is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.3.4, p. 3-19, which addresses the open item. When the nature of expected igneous activity is defined, based on the results of *Igneous Intrusion Impacts on Waste Packages and Waste Forms*, MDL-EBS-GS-000002 [under development], the details of the approach will be defined in future reports for configuration generator model for external criticality (expected transmittal dates are listed in the letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*	Yes
4	The DOE must include the effects of radionuclide migration from an intact fuel assembly through pinholes and cracks in cladding.	3.5.1.1, p. 42	Acknowledgement that the effects will need to be accounted for is in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.2.1.5, p. 3-35, which addresses the open item. Details of the modeling are to be provided in future revisions to Geochemistry Model Validation Report: Material Degradation and Release and Configuration Generator Model for In-Package Criticality (expected transmittal dates are listed in the letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*).	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
5	The DOE must include criticality margin when comparing k_{eff} values from regression analyses to CL [critical limit] values.	3.5.1.2, p. 44	The factors included with critical limit values are discussed in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.2.5, pp. 3-44 and 3-45. However, regression analyses are no longer part of the configuration generator methodology. Thus, this open item is no longer applicable.	Yes
6	The DOE must present an approach for developing the criticality margin.	3.5.1.2, p. 44	The inclusion of criticality margins for postclosure is discussed in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 2.3.2, p. 2-9; general criticality margin discussions are in Section 3.5.3.2.5, pp. 3-44 and 3-45; Section 3.5.2.1.4, p. 3-34; and Figure 3-4.	Yes
7	The DOE must demonstrate the adequacy of using one-dimensional calculations to capture three-dimensional neutron spectrum effect in their point-depletion calculations or use two/three dimensional calculations for determining the neutron spectra during the depletion cycles to be used in the depletion analyses.	3.5.2.1, p. 47	The need to confirm the adequacy of using one-dimensional calculations is acknowledged in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.1.1, p. 3-38, which addresses the open item. Some comparisons between one-dimensional and two-dimensional calculations are shown in the *Isotopic Model Report for Commercial SNF Burnup Credit*, MDL-DSU-NU-000001Rev 00 ICN01, Section 6.3, pp. 32 through 34 (transmitted to the NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Reports*).	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	Description	SER Section	Technical Discussion Reference	Request Closure
8	The DOE needs to use the cross section data corresponding to the temperature for the WP [waste package] or critical benchmarks.	3.5.2.2, p. 49	The need to select appropriate nuclear cross section data as part of the validation process is acknowledged in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.2.2, pp. 3-35 and 3-36, which addresses the open item. A specific consideration of temperature effects on cross sections is in *Criticality Model Report*, MDL-EBS-NU-000003 REV 01 ICN 01, Section 4.4.1, pp. 15 and 16 and additional discussion is in Section 6.3, pp. 30 through 31 , and Section 7.1, p. 38 (transmitted to the NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report.*	Yes
9	The DOE must include the cross-dependency of configuration parameters for k_{eff} regression equations.	3.5.2.3, p. 51	The evaluation of configuration parameters is discussed in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.2.2, pp. 3-41 and 3-42, and Figure 3-4, p. 3-27. However, regression analyses are no longer part of the configuration generator methodology. Thus, this open item is no longer applicable.	Yes
10	The DOE must provide the technical basis for the correction factors developed for boron remaining in the solution.	3.5.2.3, p. 51	The need to account for the degradation of particular waste package components, including amounts of neutron absorber remaining, is discussed in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.4.1.2, p. 3-22. However, correction factors for amount of boron remaining in a degraded waste package are no longer part of the configuration generator methodology. The configuration generator methodology utilizes a boron loss sub-model developed and validated for the waste package material degradation loss model. Thus, this open item is no longer applicable.	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
11	The DOE is required to develop an acceptable methodology for establishing bias and uncertainties for the isotopic depletion model.	3.5.3.1, p. 54	The isotopic model validation approach for establishing bias and uncertainties in the isotopic depletion model is discussed in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.1.1, pp. 3-36 through 3-38, which addresses the open item. Additional details are provided in *Isotopic Model Report for Commercial SNF Burnup Credit*, MDL-DSU-NU-000001Rev 00 ICN01, Section 6.1.2, pp. 23 through 25; Figure 5, p. 28; and Section 6.2.2, pp. 31 and 32 (transmitted to NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report*).	Yes
12	The DOE needs to establish the bias and associated uncertainty regarding the analysis or model, keeping track of the isotopic inventory loss, through cracks or pin-holes, within intact spent fuel assemblies.	3.5.3.1, p. 54	The need to account for isotopic loss from pin holes and cracks is acknowledged in Section 3.5.2.1.5, p. 3-35, of *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02 and the determination of bias and uncertainty in Section 3.5.3.1.1, pp. 3-36 through 3-38. The definition of intact fuel used in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Glossary pp. B-8 and B-9, does not allow for loss of isotopic inventory for intact fuel. The bias and associated uncertainty values are not part of the overall methodology for which acceptance is sought. (Item F.2 of Section 1.2, p. 1-6 and Section 4, p. 4-4). This discussion addresses the open item. The model reports may contain bias and uncertainty values for some parameter ranges, but the actual values used will be presented as part of the analysis results.	No

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OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
13	The DOE should address the types of criticality uncertainties and biases, which is based on ANSI/ANS-8.17 [ANSI/ANS-8.17-1984], presented by the staff in this SER [Safety Evaluation Report].	3.5.3.2, p. 59	The bias and uncertainty terms based on ANSI/ANS-8.17 are used in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02 (Section 3.5.3.2.5, p. 3-44), which addresses the open item. These terms are also discussed *in Criticality Model Report*, MDL-EBS-NU-000003 REV 01 ICN 01, Section 6.2, pp. 24 through 30 (transmitted to NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report*).	Yes
14	The DOE must include a multi-parameter approach in its bias-trending analysis.	3.5.3.2, p. 59	The consideration of a multi-parameter bias-trending approach is acknowledged in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02 (Section 3.5.3.2.6, p. 3-47 and Section 3.5.3.2.7 pp. 3-49 and 3-50) and references are given to sources for the multi-parameter trending approach (Lieberman and Miller, 1963, p. 165). These discussions address the open item. Trending multiple parameters is also discussed in *Criticality Model Report*, MDL-EBS-NU-000003 REV 01 ICN 01, Section 6.2.1.3, p. 28 (transmitted to NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report*).	Yes

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OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
15	The DOE is required to include the isotopic bias and uncertainties as part of delta-k_c, if not included as isotopic correction factors.	3.5.3.2, p. 59	The methodology requires a determination of the isotopic bias and uncertainty in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.1.1, pp. 3-36 through 3-38, and a Δk_{ISO} term is included in the equation for the CL in Section 3.5.3.2.5, p. 3-44. Individual isotopic correction factors are not included. The discussion addresses the open item. The isotopic bias and uncertainty are also discussed in *Isotopic Model Report for Commercial SNF Burnup Credit*, MDL-DSU-NU-000001Rev 00 ICN01, Section 6.1.2, pp. 23 through 25; Figure 5, p. 28; and Section 6.2.2, pp. 31 and 32 (transmitted to NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report*). The terms in the equation for CL are in *Criticality Model Report*, MDL-EBS-NU-000003 REV 01 ICN 01, Section 6.2.1, pp. 24 and 25 (transmitted to NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report*).	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	Description	SER Section	Technical Discussion Reference	Request Closure
16	The DOE must present a validation methodology or work scope for external criticality models.	3.5.3.2, p. 61	The validation methodology for the criticality model is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.2, p. 3-40, which addresses the open item. Specific benchmark experiment analyses for external configurations are to be documented in the external criticality model report (expected transmittal dates listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*). Evaluation of external criticality events will be documented in the Screening Analysis of Criticality Features, Events and Processes for License Application (LA), which will be used as input to appropriate LA sections.	Yes
17	The DOE should subject the method used for extending the trend to the procedures defined in ANSI/ANS-8.1-1998, C4 (a) and C4 (b).	3.5.3.2, p. 61	Extension of the range of applicability is discussed in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.2.3, pp. 3-42 and 3-43. The method for extending the range of applicability described in ANSI/ANS-8.1, by applying an additional margin or penalty, is implemented in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.5.3.2.5, p. 3-44 (Δk_{EROA}), which addresses the open item. The method is also described in *Criticality Model Report*, MDL-EBS-NU-000003 REV 01 ICN 01, Section 6.2.1.2, p. 26 (transmitted to NRC in letter from J. D. Ziegler to Document Control Desk, dated 9/12/03, *Transmittal of Isotopic, Criticality, and Configuration Generator Model Report*).	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
18	The DOE must verify and validate the regression equation or look-up table for all ranges of configuration and WF [waste form] parameters affecting k_{eff}.	3.5.3.3, p. 62	Accounting for the range of configuration parameters affecting k_{eff} is part of the methodology and is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.4 and 3.5, particularly Figure 3-4, p. 3-27. However, regression analyses are no longer part of the configuration generator methodology. Thus, this open item is no longer applicable.	Yes
19	The DOE is required to include all uncertainties and variabilities introduced by the regression equation or look-up table.	3.5.3.3, p. 62	Uncertainty is required to be addressed in a number of areas in the methodology in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, (e.g.; Sections 3.4.2.1, p. 3-24; Section 3.5.1.2, p. 3-28; Section 3.5.2.1.4, pp. 3-33 and 3-34; etc.). However, regression analyses are no longer part of the configuration generator methodology. Thus, this open item is no longer applicable.	Yes
20	In developing the methodology for steady-state criticality consequences, DOE must consider other types of moderators, especially with respect to external criticality.	3.7.1.1, p. 68	The consideration of other neutron moderators is part of the methodology in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.6.1.3, p. 3-57, item 6, including modeling of criticality consequence (Section 3.7.1.1, p. 3-60 and Section 3.7.2, p. 3-62). This discussion addresses the open item. The consequence model reports (expected transmittal dates listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*) will include the details of how alternative moderators are to be evaluated.	Yes

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OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
21	The DOE must also consider the loss of soluble neutron-absorbing isotopes through pinholes and cracks in the spent fuel cladding, and its effect on steady-state criticality consequence.	3.7.1.1, p. 69	The consideration of the loss of soluble neutron-absorbing isotopes through pinholes and cracks in the spent fuel cladding is included in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.7.3.1, p. 3-69, which addresses the open item. The actual effect of the loss of soluble neutron-absorbing isotopes through pinholes and cracks in the spent fuel cladding on criticality consequences will be determined in a model report (expected transmittal dates listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*) or the application analysis.	Yes
22	The DOE must also include other types of steady-state criticality consequences, especially with respect to internal criticality, in its consequence analysis approach.	3.7.1.1, p. 69	The methodology for steady-state criticality consequence includes consideration of various types of consequences (radionuclide generation, radiolysis effects causing enhanced corrosion on near-by waste packages, increased temperatures causing enhanced corrosion on near-by waste packages, etc.), as described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.7.2.1, pp. 3-63 and 3-64.	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	Description	SER Section	Technical Discussion Reference	Request Closure
23	The DOE needs to develop and present for acceptance, the modeling approach for an external steady-state criticality consequence.	3.7.1.1, p. 69	The modeling approach for external steady-state criticality consequence is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.7.2.3, pp. 3-66 and 3-67, which addresses the open item. Additional details of the modeling approach will be presented in the steady state criticality consequence model report (expected transmittal date is listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*).	Yes
24	The DOE must develop and present a request for approval of a methodology for transient criticality consequence.	3.7.2.1, p. 73	The methodology for transient criticality consequence modeling is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.7.2.2, pp. 3-64 through 3-66 and Section 3.7.2.4, pp. 3-67 and 3-68. The request for approval of the consequence methodology is in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 1.2, p. 1-6, item E and Section 4, p. 4-3, item E. The description and request address the open item. Additional details of the models used for the methodology will be presented in the transient criticality consequence model reports (expected transmittal dates listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*).	Yes

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OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
25	The DOE needs to develop and present, for NRC acceptance, the modeling approach for transient criticality consequence.	3.7.2.2, p. 73	The general modeling approach for transient criticality consequences is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Section 3.7.2, pp. 3-61 through 3-63; Section 3.7.2.2, pp. 3-64 through 3-66; and Section 3.7.2.4, pp. 3-67 and 3-68. The modeling approach described addresses the open item. Additional details will be presented in the transient criticality consequence model reports (expected transmittal dates listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03*).	Yes
26	The DOE needs to develop a validation approach for the power model for steady-state criticality consequence.	3.7.3.1, p. 75	The validation approach for the criticality consequence model, including the power level, is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.7.3.1, p. 3-69, which addresses the open item. Additional details of the validation will be presented in the steady-state criticality consequence model report (expected transmittal date is listed in letter from J. D. Ziegler to Document Control Desk, dated 7/14/03, *Transmittal of Information Addressing Key Technical Issue (KTI) Agreement Items, Container Life and Source Term (CLST) 5.04, Evolution of the Near-Field Environment (ENFE) 5.03, and Radionuclide Transport (RT) 4.03.*	Yes

Cross Reference of Disposal Criticality Analysis Methodology Topical Report Safety Evaluation Report Open Items to Yucca Mountain Project Documentation				
OI	**Description**	**SER Section**	**Technical Discussion Reference**	**Request Closure**
27	The DOE must develop a validation approach for a transient criticality consequence model.	3.7.3.2, p. 75	The validation process for the transient criticality consequence model is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.7.3.2, pp. 3-69 through 3-71.	Yes
28	The DOE should describe the interface between Figure 1-1 of the RAI responses and the TSPA criticality risk analysis.	3.8, p. 76	Figure 3-1 from the *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02 replaces the previous overview figures. The description of the interface between Figure 3-1 and the TSPA process is described in *Disposal Criticality Analysis Methodology Topical Report*, YMP/TR-004Q REV 02, Sections 3.8.2, pp. 3-73 and 3-74.	Yes