

July 2, 2002

Joseph D. Ziegler, Acting Assistant Manager
Office of Licensing and Regulatory Compliance
U.S. Department of Energy
Yucca Mountain Site Characterization Office
P.O. Box 364629
North Las Vegas, NV 89036-8629

SUBJECT: CONTAINER LIFE AND SOURCE TERM AGREEMENTS

Dear Mr. Ziegler:

During a Technical Exchange and Management Meeting held on September 12-13, 2000, the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) reached agreement on issues pertaining to the Container Life and Source Term (CLST) Key Technical Issue (KTI). By letter dated June 21, 2002, DOE provided information pertaining to CLST Agreements 4.02, 4.03, 4.04, and 4.05. The NRC staff has reviewed this information as it relates to the agreements and the results of the staff's review are enclosed.

In summary, the staff agrees that CLST Agreements 4.02, 4.03, 4.04, and 4.05 can be subsumed within CLST Agreements 3.02, 3.03, 3.04, and 3.05. Therefore, CLST Agreements 4.02, 4.03, 4.04, and 4.05 are listed as "complete." With these agreements complete, CLST Subissue 4, "Rate at which Radionuclides in High-Level Waste Glass are Leached and Released for the Engineered Barrier System," is now closed. If you have any questions regarding this letter, please contact Mr. James Andersen of my staff. He can be reached at (301) 415-5717.

Sincerely,
/RA/

Janet R. Schlueter, Chief
High-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: See attached distribution list

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Letter to J. Ziegler from J. Schlueter dated July 2, 2002

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NRC Review of DOE Documents Pertaining to Key Technical Issue Agreements

The U.S. Nuclear Regulatory Commission (NRC) goal of issue resolution during this interim pre-licensing period is to assure that the U.S. Department of Energy (DOE) has assembled enough information on a given issue for NRC to accept a license application for review. Resolution by the NRC staff during pre-licensing does not prevent anyone from raising any issue for NRC consideration during the licensing proceedings. Also, and just as importantly, resolution by the NRC staff during pre-licensing does not prejudge what the NRC staff evaluation of that issue will be after it's licensing review. Issues are resolved by the NRC staff during pre-licensing when the staff has no further questions or comments about how DOE is addressing an issue. Pertinent new information could raise new questions or comments on a previously resolved issue.

This enclosure addresses four NRC/DOE agreements made during the Container Life and Source Term (CLST) Technical Exchange and Management Meeting on September 12-13, 2000, (see NRC letter dated October 4, 2000, which summarized the meeting). By letter dated June 21, 2002, DOE submitted a letter which addressed CLST Agreements 4.02, 4.03, 4.04, and 4.05. The information submitted for these agreements is discussed below.

Container Life and Source Term Agreements 4.02, 4.03, 4.04, and 4.05

Wording of the Agreements:

CLST Agreement 4.02: In the revision to the "Summary of In-Package Chemistry for Waste Forms," AMR [Analysis and Model Report], address specific NRC questions regarding radiolysis, incoming water, localized corrosion, corrosion products, transient effects, and a sensitivity study on differing dissolution rates of components. DOE stated that these specific questions are currently being addressed in the revision of the Summary of In-Package Chemistry for Waste Forms AMR, ANL-EBS-MD-000050 and related AMRs and calculations. To be available in January 2001.

CLST Agreement 4.03: Provide a more detailed calculation on the in-package chemistry effects of radiolysis. DOE stated that the calculations recently performed as discussed at the 9/12/00 Technical Exchange and preceding teleconferences are being documented. These calculations will be referenced and justified in the revision of the Summary of In-Package Chemistry for Waste Forms AMR, ANL-EBS-MD-000050 and will be available in January 2001.

CLST Agreement 4.04: Need consistency between abstractions for incoming water and sensitivity studies conducted for in-package calculations, in particular, taking into account the interaction of engineered materials on the chemistry of water used for input to in-package abstractions. DOE stated that the revision of the Summary of In-Package Chemistry for Waste Forms AMR, ANL-EBS-MD-000050 will discuss the applicability of abstractions for incoming water, taking into account the revised Environment on the Surfaces of the Drip Shield and Waste Package Outer Barrier AMR. The revision will be available in January 2001.

Enclosure

CLST Agreement 4.05: Provide the plan for experiments demonstrating in-package chemistry, and take into account subsequent NRC comments, if any. DOE stated that the current planning provides for the analysis of additional in-package chemistry model support. This analysis will determine which parts of the model are amenable to additional support by testing, and which parts are more amenable to sensitivity analysis, or use of analogues. Based on these results, longer range testing will be considered. If testing is determined to be appropriate, test plans will be written in FY01 and made available to the NRC.

NRC Review: By letter dated March 30, 2001, DOE provided the "Summary of In-Package Chemistry for Waste Forms," AMR in response to CLST Agreements 3.02, 3.03, 3.04, 3.06, 4.02, 4.03, 4.04, and 4.06, and Evolution of the Near-Field Environment Agreement 3.01. The NRC staff reviewed the AMR as it pertained to the CLST agreements and documented that review in an NRC letter dated December 21, 2001. In the letter, the NRC staff stated, in part, that CLST Agreements 3.02, 3.03, 3.04, 4.02, 4.03, and 4.04 needed additional information from DOE to satisfy the intent of the agreements. The staff notes that DOE has not provided, to date, information pertaining to CLST 3.05 and 4.05 and that both these agreements are also reference in General Agreement 1.01 (Item 126).

In a letter dated June 21, 2002, DOE stated that the information required by CLST Agreements 3.02 through 3.05 is the same as for CLST Agreements 4.02 through 4.05. Therefore, DOE requested that CLST Agreements 4.02 through 4.05 be subsumed into CLST Agreements 3.02 through 3.05 and that CLST Agreements 4.02 through 4.05 be closed. DOE noted that General Agreement 1.01 (Item 126) is linked to both CLST Agreements 3.05 and 4.05 and that it would address Item 126 when it responded to CLST Agreement 3.05.

The NRC staff notes that the difference between CLST Subissue 3, "Rate at which Radionuclides in Spent Nuclear Fuel are Released from the Engineered Barrier System through the Oxidation and Dissolution of Spent Fuel" and Subissue 4, "Rate at which Radionuclides in High-Level Waste Glass are Leached and Released for the Engineered Barrier System" is Subissue 3 addresses spent nuclear fuel and Subissue 4 addresses DOE high-level waste glass. Since DOE intends to address both spent nuclear fuel and high-level waste glass when it responds to the staff's December 21, 2001, letter, the staff finds DOE's proposal acceptable. Therefore, CLST Agreements 4.02, 4.03, 4.04, and 4.05 are complete. With these agreements complete, CLST Subissue 4 is now closed.

Additional Information Needed: None

Status of Agreements: CLST Agreements 4.02, 4.03, 4.04, and 4.05 are listed as "complete."