

September 27, 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 KEY TECHNICAL ISSUE
AGREEMENT 1.17

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 a number of issues within the Container Life and Source Term (CLST) Key Technical Issue (KTI). Subsequently, during a Technical Exchange and Management Meeting held on April 15-16, 2002, DOE indicated that the information requested in CLST 1.17 would be provided in the License Application Products and Guidance Database. This database would replace the technical guidance document, which was specified in CLST 1.17, and would address procurement and fabrication quality controls. By letter dated July 9, 2002, DOE submitted information related to CLST 1.17. The NRC staff has reviewed this information, with respect to the agreement, and the results of the staff's review are enclosed.

The NRC has completed review of the letter report and other available information, and in summary, the staff understands the implementation of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME), Section III, Division 1, for quality requirements pertaining to the structural integrity aspects of preclosure conditions. In addition to the Quality Assurance (QA) requirements specified in the ASME, Section III, Code, applicable QA requirements contained in DOE QA Program (DOE/RW-0333P) shall apply. Further, the staff understands that DOE quality assurance program will implement controls and processes for the procurement of materials and fabrication of waste packages such that the material compositions and characteristics of the waste packages are within the ranges used in the Total System Performance Assessment analysis. Therefore, the NRC staff considers DOE's proposed method of documentation acceptable, and considers CLST Agreement 1.17 "complete". If there are any questions regarding this letter, please contact Tamara Bloomer at 301-415-6626 or by e-mail at teb@nrc.gov.

Sincerely,
/RA/

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

Attachment: As stated
cc: See attached distribution list

Letter to J. Ziegler from J. Schlueter dated September 27, 2002

cc:

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L. Jackson, Timbisha Shoshone Tribe
C. Meyers, Moapa Paiute Indian Tribe
V. Miller, Fort Independence Indian Tribe

A. Bacock, Big Pine Paiute Tribe of
the Owens Valley

R. Quintero, Inter-Tribal Council of Nevada
(Chairman, Walker River Paiute Tribe)

M. Bengochia, Bishop Paiute Indian Tribe

J. Egan, Egan & Associates, PLLC

J. Leeds, Las Vegas Indian Center

K. Tilges, Citizen Alert

J. Triechel, Nuclear Waste Task Force

L. Tom, Paiute Indian Tribes of Utah

E. Smith, Chemehuevi Indian Tribe

J. Charles, Ely Shoshone Tribe

D. Crawford, Inter-Tribal Council of Nevada

H. Blackeye, Jr., Duckwater Shoshone Tribe

D. Eddy, Jr. Colorado River Indian Tribes

G. Runkle, DOE, Washington, DC

W. Briggs, Ross, Dixon & Bell

H. Jackson, Public Citizen

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Attachment: As stated

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NRC Review of DOE Documents Pertaining to Key Technical Issue Agreements Related to Container Life and Source Term

The U.S. Nuclear Regulatory Commission (NRC) goal of issue resolution during this interim precicensing period is to ensure 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 precicensing does not preclude anyone from raising any issue for NRC consideration during the licensing proceedings. Just as important, resolution by the NRC staff during precicensing does not prejudge what the NRC staff evaluation of that issue will be after its licensing review. Issues are considered to be resolved by the NRC staff during precicensing 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 one NRC/DOE agreement. Container Life and Source Term (CLST) Agreement 1.17 was made during the Container Life and Source Term Technical Exchange and Management Meeting held on September, 12–13, 2000 (see NRC letter dated October 4, 2000, which summarized the meeting). By letter dated July 9, 2002, DOE submitted information related to CLST 1.17. The document submitted and associated Key Technical Issue (KTI) agreement are discussed below.

Container Life and Source Term Agreement 1.17

Wording of the CLST Agreement 1.17: Provide additional detail on quality assurance acceptance testing. DOE stated that it would provide guidance and criteria in the next revision of the technical guidance document for License Application. The development of the License Application sections and associated programs and process controls for the procurement and fabrication of waste package materials and components will be included. This will include consideration of the controls for compositional variations in Alloy 22. The technical guidance document revision will be issued by June 2001, contingent upon NRC publication of the final 10 CFR Part 63 and the Yucca Mountain Review Plan.

NRC Review: The intent of this agreement is to ensure that procurement of materials and fabrication specifications will have adequate quality controls to prevent alteration of the waste package materials characteristics that could affect the corrosion resistance. The composition specifications for waste package base alloys and weld filler metal include ranges for alloying element additions and maximum values for trace contaminants. Variations in the compositions of the base alloys and filler metals within the relatively wide ranges allowed in their respective specifications in combination with fabrication processes such as cold working, welding, and residual stress mitigation methods, may lead to microstructural variations that affect both the mechanical properties and the corrosion resistance of the waste packages.

In the NRC/DOE Technical Exchange and Management Meeting on Key Technical Issue Agreements conducted on April 15–16, 2002, the DOE indicated that the information requested in CLST 1.17 would be provided in the License Application Products and Guidance Database that replaced the technical guidance document. The DOE letter for the transmittal of information addressing CLST 1.17, indicates that for structural integrity aspects associated with preclosure conditions the quality requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section III, Division 1 will be implemented. Further, the DOE quality assurance program will implement controls and

ATTACHMENT

processes for the procurement of materials and fabrication of waste packages such that the material compositions and characteristics of the waste packages are within the ranges used in the Total System Performance Assessment analysis.

Consistent with the intent of CLST 1.17, the DOE quality assurance program must also consider the effects of material compositions and fabrication processes on the corrosion resistance of the waste packages. Controls for fabrication processes and procurement of materials should consider the effects of these processes and allowed variations such that the uniform corrosion rate and localized corrosion susceptibility, covered under CLST 1.09 and 1.10, are within the ranges used in the Total System Performance Assessment analysis.

Additional Information Needed: None.

Status of the Agreement: Taking into consideration that DOE has changed the method of documentation, NRC considers this agreement complete.