



Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 364629
North Las Vegas, NV 89036-8629

QA: N/A

SEP 27 2002

OVERNIGHT MAIL

Janet R. Schlueter, Chief
High-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Two White Flint North
Rockville, MD 20852

**TRANSMITTAL OF REPORT ADDRESSING KEY TECHNICAL ISSUE (KTI) ITEM
CONTAINER LIFE AND SOURCE TERM (CLST) 2.03**

This letter transmits a report entitled *Agreement CLST 2.03* which satisfies the subject KTI agreement. The content of this transmittal was discussed in a teleconference with the U.S. Nuclear Regulatory Commission (NRC) on September 24, 2002. Specifically, the KTI agreement states:

CLST 2.03: "Demonstrate how the Tresca failure criterion bounds a fracture mechanics approach to calculating the mechanical failure of the drip shield. DOE stated that it believes its current approach of using ASME Code is appropriate for the application. Additional justification for this conclusion will be included in the next revision of AMR ANL-XCS-ME-000001, Design Analysis for the Ex-Container Components, to be completed prior to LA."

Agreement item CLST 2.03 concerns mechanical failure criteria for the drip shield. The U.S. Department of Energy (DOE) agreed to provide justification for the use of the Tresca failure criteria as a bounding approach. The justification was originally planned to be documented in future revisions of the relevant Analysis and Model Reports prior to submittal of a License Application. However, as agreed during the NRC/DOE Technical Exchange and Management Meeting on April 15-16, 2002, the information in the enclosure addressing the underlying concerns and basis for closure of this agreement item is being submitted early to facilitate the NRC staff review.

The enclosure analyzes three types of loaded material specimens of Ti-7 and Alloy C-22. The analysis demonstrates that the failure of these materials is dominated by plastic collapse and not by brittle fracture. The ultimate failure conditions for these materials were determined using a failure assessment diagram (FAD). Based on the FADs, it is shown that the strength-of-materials

SEP 27 2002

approach (Tresca failure criteria) is appropriate for both materials. The DOE considers this enclosure to fully address the agreement item CLST 2.03, and pending the NRC review and acceptance, recommends that the agreement be closed.

There are no new regulatory commitments in the body or enclosure to this letter. Please direct any questions concerning this letter and its enclosure to Timothy C. Guenter at (702) 794-1343 or Paige R.Z. Russell at (702) 794-1315.

Joseph D. Ziegler, Acting Assistant Manager
Office of Licensing and Regulatory Compliance

OL&RC:TCG-1777

Enclosure: Agreement CLST 2.03

cc w/encl:

- T. E. Bloomer, NRC, Rockville; MD
- D. D. Chamberlain, NRC, Arlington, TX
- R. M. Latta, NRC, Las Vegas, NV
- D. S. Rom, NRC, Rockville, MD
- H. J. Larson, ACNW, Rockville, MD
- Budhi Sagar, CNWRA, San Antonio, TX
- W. C. Patrick, CNWRA, San Antonio, TX
- J. R. Egan, Egan & Associates, McLean, VA
- J. H. Kessler, EPRI, Palo Alto, CA
- Steve Kraft, NEI, Washington, DC
- W. D. Barnard, NWTRB, Arlington, VA
- R. R. Loux, State of Nevada, Carson City, NV
- Marjorie Paslov Thomas, State of Nevada, Carson City, NV
- Alan Kalt, Churchill County, Fallon, NV
- Irene Navis, Clark County, Las Vegas, NV
- George McCorkell, Esmeralda County, Goldfield, NV
- Leonard Fiorenzi, Eureka County, Eureka, NV
- Andrew Remus, Inyo County, Independence, CA
- Michael King, Inyo County, Edmonds, WA
- Mickey Yarbrow, Lander County, Battle Mountain, NV
- Lola Stark, Lincoln County, Caliente, NV
- Arlo Funk, Mineral County, Hawthorne, NV
- L. W. Bradshaw, Nye County, Pahrump, NV
- David Chavez, Nye County, Tonopah, NV
- Josie Larson, White Pine County, Ely, NV
- R. I. Holden, National Congress of American Indians, Washington, DC

cc w/encl: (continued)

Allen Ambler, Nevada Indian Environmental Coalition, Fallon, NV
CMS Coordinator, BSC, Las Vegas, NV
OL&RC Library
Records Processing Center = "19"

cc w/o encl:

C. W. Reamer, NRC, Rockville, MD
L. L. Campbell, NRC, Rockville, MD
N. K. Stablein, NRC, Rockville, MD
S. L. Wastler, NRC, Rockville, MD
Margaret Chu, DOE/HQ (RW-1), FORS
R. A. Milner, DOE/HQ (RW-2), FORS
A. B. Brownstein, DOE/HQ (RW-52), FORS
N. H. Slater-Thompson, DOE/HQ (RW-52), FORS
R. B. Murthy, DOE/OQA (RW-3), Las Vegas, NV
Richard Goffi, BAH, Washington, DC
Donald Beckman, BSC, Las Vegas, NV
S. J. Cereghino, BSC, Las Vegas, NV
N. H. Williams, BSC, Las Vegas, NV
K. M. Cline, MTS, Las Vegas, NV
R. B. Bradbury, MTS, Las Vegas, NV
R. P. Gamble, MTS, Las Vegas, NV
R. C. Murray, MTS, Las Vegas, NV
R. D. Rogers, MTS, Las Vegas, NV
E. P. Opelski, NQS, Las Vegas, NV
J. R. Dyer, DOE/YMSCO, Las Vegas, NV
D. G. Horton, DOE/YMSCO, Las Vegas, NV
W. J. Boyle, DOE/YMSCO, Las Vegas, NV
T. C. Gunter, DOE/YMSCO, Las Vegas, NV
C. L. Hanlon, DOE/YMSCO, Las Vegas, NV
D. C. Haught, DOE/YMSCO, Las Vegas, NV
G. W. Hellstrom, DOE/YMSCO, Las Vegas, NV
S. P. Mellington, DOE/YMSCO, Las Vegas, NV
C. M. Newbury, DOE/YMSCO, Las Vegas, NV
P. R.Z. Russell, DOE/YMSCO, Las Vegas, NV
G. L. Smith, DOE/YMSCO, Las Vegas, NV
R. E. Spence, DOE/YMSCO, Las Vegas, NV
J. D. Ziegler, DOE/YMSCO, Las Vegas, NV
C. A. Kouts, DOE/YMSCO (RW-2), FORS
R. N. Wells, DOE/YMSCO (RW-60), Las Vegas, NV