

NUCLEAR WASTE CONSULTANTS INC.

8341 So. Sangre de Cristo Rd., Suite 14
Littleton, Colorado 80127
(303) 973-7495

WM DOCKET CONTROL
CENTER

'86 NOV 10 PI2:43

October 31, 1986

009/2.3/TTI.008
RS-NMS-85-009
Communication No. 107

U.S. Nuclear Regulatory Commission
Division of Waste Management
Geotechnical Branch
MS 623-SS
Washington, DC 20555

Attention: Mr. Jeff Pohle, Project Officer
Technical Assistance in Hydrogeology - Project B (RS-NMS-85-009)

Re: Terra Therma Review of BWIP Document "Groundwater Flow Modeling of
Alternative Repository Concepts" (SD-BWI-TA-015)

Dear Mr. Pohle:

Please find attached the review by Terra Therma, Inc. (TTI) of the BWIP document "Groundwater Flow Modeling of Alternative Repository Concepts" (SD-BWI-TA-015). The review, prepared under Subtask 2.3 of Contract No. RS-NMS-85-009, was performed by Mr. A. Brown of Nuclear Waste Consultants (NWC). The document review has received technical review by Dr. C. Kraeger-Rovey of TTI and Mark Logsdon of NWC and management review by Mark Logsdon of Nuclear Waste Consultants.

The BWIP document attempts to evaluate the relative performance of a set of alternative repository design concepts with respect to flow of potentially contaminated water through the shaft system to the accessible environment. The report concludes that the shaft system is not a significant pathway for any of the layouts considered and, therefore, that the selection of shaft location is not significantly influenced by containment considerations.

The TTI/NWC review finds that the BWIP conclusions are determined by the assumptions that BWIP used in formulating the problem (particularly the very small contrast in permeabilities between the shaft backfill and the intact dense interiors and the thermal regime for which the cases were analyzed). Because the reviewer considers that the nominal parametric data and the single temperature profile used in the analysis are not defensible at this time, TTI/NWC consider that the analysis presented by BWIP is not supported by adequate site-specific information and cannot be accepted at this time.

WM-RES
WM Record File
D1021
NWC I

WM Project 10, 11, 16
Docket No. _____
XPDR
LPDR (B, N, S)

Distribution:
J. Pohle _____

(Re: to WM, 623-SS) _____
Sac
3428

8611200296 861031
PDR WMRES EECNWC I
D-1021 PDR

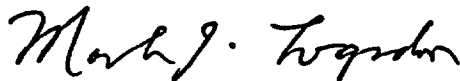
October 31, 1986

TTI/NWC have three principal recommendations based on this review:

1. The evaluation should be broadened to include the effects of partial or total shaft-seal failure, to assess the relative protection that different shaft-pillar configurations may provide.
2. The analyses should be broadened to include times other than 300 years, to fully assess the thermal driving force that may ultimately act on the shaft pillar.
3. The conclusion that the design of the shaft-pillar is not significantly influenced by containment considerations should be withdrawn by BWIP until such time as it can be adequately supported.

If you have any questions about the document review or the TTI/NWC conclusions and recommendations, please do not hesitate to contact me.

Respectfully submitted,
NUCLEAR WASTE CONSULTANTS



Mark J. Logsdon, Project Manager

Att: Document Review - SD-BWI-TA-015

cc: US NRC - Director, NMSS (ATTN PSB)
DWM (ATTN Division Director)
Mary Little, Contract Administrator
WMGT (ATTN Branch Chief)

L. Davis, WWL
J. Minier, DBS

bc: M. Galloway, TTI

Nuclear Waste Consultants



TERRA THERMA, INC.

WATER CONSULTANTS AND ENGINEERS

8341 S. Sangre de Cristo Rd., Suite 14, Littleton, CO 80127

(303) 973-7492

October 30, 1986

Nuclear Waste Consulting Inc
8341 South Sangre de Cristo Road
Littleton, Colorado 80127

Attention: Mark Logsdon

Re: Review of "Groundwater Flow Modeling of Alternative Repository Concepts,"
SD-BWI-TA-015.

Dear Mark:

Please find attached my review of the paper entitled "Groundwater Flow Modeling of Alternative Repository Concepts" (SD-BWI-TA-015, dated 6/14/85).

The review of this document indicates that the overall finding of the study (that the selection of shaft location is not significantly influenced by containment considerations) is not supported. Suggestions are made in the review of activities that would assist in the rectification of the deficiencies of the study on which the report was based.

I trust that the review meets your needs at this time. Should you have any questions, please do not hesitate to call.

Respectfully submitted,
TERRA THERMA INC

Adrian Brown, BWIP Project Director

Att.