



Department of Energy
Washington, DC 20585

June 16, 1994

Mr. Joseph J. Holonich, Chief
High-Level Waste and Uranium
Recovery Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

References: (1) Ltr, Shelor to Linehan, dtd 12/14/90
(2) Ltr, Bernero to Bartlett, dtd 7/31/91
(3) Ltr, Roberts to Holonich, dtd 12/24/92

Dear Mr. Holonich:

On December 14, 1990, the U.S. Department of Energy (DOE) transmitted its responses to objections, comments, and questions presented in the U.S. Nuclear Regulatory Commission's (NRC) Site Characterization Analysis (SCA) (Reference 1). The NRC staff evaluated these responses, closing some of the items and creating open items of the remainder (Reference 2). Three of the items left open in Reference 2 have been addressed through actions and progress in the program.

The transmittal letter for Study Plan 8.3.1.4.2.2 (Characterization of Structural Features in the Site Area) (Reference 3) explained how SCA Comment 36 and SCA Question 5 were addressed in Revision 2 of the study plan. Enclosures 1 and 2 summarize the administrative records with respect to SCA Comment 36 and Question 5. Additionally, enclosure 3 summarizes the administrative record for SCA Question 20.

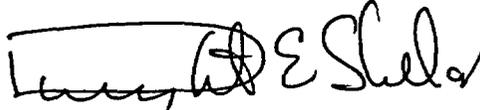
DOE believes that the responses provided are sufficient to close SCA Comment 36, Questions 5 and 20, and awaits NRC confirmation.

280000
9407010050 940616
PDR WASTE PDR
WM-11

NH03 1/1
WM-11
102-8

If you have any questions, please contact Chris Einberg of my staff at (202) 586-8869.

Sincerely,



Dwight E. Shelor
Associate Director for
Systems and Compliance
Office of Civilian Radioactive
Waste Management

Enclosures:

1. Administrative Record for
SCA Comment 36
2. Administrative Record for
SCA Question 5
3. Administrative Record for
SCA Question 20

cc: w/enclosures:

R. Nelson, YMPO
R. Loux, State of Nevada
W. Offutt, Nye County, NV
T. J. Hickey, Nevada Legislative Committee
D. Bechtel, Las Vegas, NV
Eureka County, NV
Lander County, Battle Mountain, NV
P. Niedzielski-Eichner, Nye County, NV
L. Bradshaw, Nye County, NV
C. Schank, Churchill County, NV
F. Mariani, White Pine County, NV
V. Poe, Mineral County, NV
J. Pitts, Lincoln County, NV
J. Hayes, Esmeralda County, NV
B. Mettam, Inyo County, CA

Enclosure 1

SCA Comment 36 and Original DOE Response

NRC Evaluation of Original DOE Response

DOE Supplemental Response to NRC Comment 36

**(Taken from enclosure 2 of reference 3, letter, Roberts to Holonich, dated
12/24/92)**

DOE Supplemental Response to Comment 36

The ESF design no longer includes a perimeter drift as part of the current revision. Both the north and south ramps are located such that they will penetrate the projected trace of the imbricate normal fault zone near the north and south ends of the proposed repository block. Detailed mapping of the rock exposed in the ramps (Study Plan 8.3.1.4.2.2.4) will provide extensive information about the lateral extent of and relative offsets along this zone. This study will measure fracture (including fault) characteristics as outlined in Table 2.4-1 on p. T-17 of the revised study plan (8.3.1.4.2.2, Revision 2). From these primary data, derived data will be developed from observations made in the ramps and drifts. The derived data will be made available to those doing the performance assessment.

Enclosure 2

SCA Question 5 and Original DOE Response

NRC Evaluation of Original DOE Response

DOE Supplemental Response to NRC Question 5

**(Taken from enclosure 2 of reference 3, letter, Roberts to Holonich, dated
12/24/92)**

DOE Supplemental Response to Question 5

The ESF is composed of primarily low-angle, relatively large-diameter (5m to 8m) openings that should afford an excellent opportunity to observe vertical and near-vertical fractures.

Underground openings will provide access to a larger sampling of fractures and allow observation of more of the fracture extent than is possible in individual boreholes. Limited borehole examination of faults will be available in angled holes drilled along the ramp alignments. Mapping underground has the further advantage of allowing detailed observation of abutting relationships between fractures.

The ESF drifts and ramps are oriented, in large part, to encounter major features at nearly right angles, allowing an accurate measurement of the thickness of fault zones. Additional smaller drifts will be excavated into selected fault zones. Additional smaller drifts will be excavated into selected fault zones (during excavation) to allow detailed studies to occur at those zones without the constraints of working in the main ramp excavations.

The primary fracture data to be collected underground are shown on Table 2.4-1 on p. T-17 of Study Plan 8.3.1.4.2.2, Revision 2. Data includes fracture orientation, aperture, roughness, infilling type and thickness, trace length, and abutting relationships and terminations. The data categories will be nearly identical to those gathered at the surface by Surface-Fracture Network Studies (8.3.1.4.2.2.2) and in boreholes by Borehole Evaluation of Faults and Fractures (8.3.1.4.2.2.3). A common database is planned to handle the data from all three activities, so the data can be manipulated in similar fashion for all three sources.

While the data produced from the ramps and drifts should provide an excellent representation of the structural regimes along the excavations, they may not be typical of fractures at areas of the proposed repository block where no excavations penetrate. In these areas (such as Solitario Canyon, at the southwest edge of the proposed repository block), information from surface-fracture and borehole studies will be necessary to supplement the data collected underground.

Enclosure 3

SCA Question 20 and Original DOE Response

NRC Evaluation of Original DOE Response

DOE Supplemental Response to NRC Question 20

DOE Supplemental Response to Question 20

The Advanced Conceptual Design (ACD) is currently in the formative stage; however, it will be significantly different from the conceptual design which is described in the Site Characterization Plan (SCP-CD). Question 20 is related to the SCP repository design which addresses both vertical and horizontal waste package emplacement. With changes to the waste package concept (i.e., much larger Multipurpose Canister and the preferred mining method of a Tunnel Boring Machine), neither vertical nor horizontal long borehole waste emplacement is likely to be the design choice for the ACD. The selection of a final ACD waste emplacement mode will provide the necessary site information with respect to repository design. Therefore, the concern NRC SCA Question 20 raises has been overtaken by events, and DOE considers the question resolved.

The scheduled completion of the ACD report is June 1996. Revisions to the baseline waste emplacement mode that currently exist in, for example, Chapters 6 and 7 of the Site Characterization Plan, will be made following DOE acceptance of the ACD report.