UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 15, 1997

Stephan J. Brocoum
Assistant for Licensing
U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P. O. Box 30307
North Las Vegas, NV 89036-0307

Dear Dr. Brocoum:

SUBJECT: RESPONSE TO LETTER FROM STEPHAN J. BROCOUM TO JOHN T. GREEVES DATED NOVEMBER 21, 1997

As you expressed in your letter, our staffs have achieved a common understanding regarding certain aspects of the U.S. Department of Energy's (DOE's) 3D integrated Site Geologic Model (ISM), which resulted from Appendix 7 discussions held in July and September 1997. In addition, you specifically inquired whether the NRC staff considers that (1) "...the ISM models are adequate and sufficient for site characterization and design." and (2) whether the NRC staff "...similarly regards as adequate and sufficient our (DOE's) approach to modeling of geologic and static rock properties..." This letter responds to your comments on our understanding of the results of the Appendix 7 discussion, as well as your questions.

As enumerated in your letter, the objectives of the July Appendix 7 meeting were to:

(1) Understand the basis and uses of ISM 2.0 sufficiently to evaluate adequacy as an integrated data base and basis for other models,

(2) Provide informal feedback to DOE on selected parts of ISM 2.0 framework model, and

(3) Establish a path forward to reach agreement on the use of data, interpretations, and application of 3D geologic framework model and obtain NRC feedback on the sufficiency of the models and modeling approaches for their intended use and purpose.

NRC staff considers that the objectives of the Appendix 7 meeting were met, and we summarized the discussions in a trip report, which I have enclosed for your information.

With respect to your questions, at the Appendix 7 meeting, the NRC staff achieved an understanding of the basis and uses of ISM 2.0 sufficient to enable staff to perform an evaluation of ISM 2.0's adequacy as an integrated data base and basis for other models. The DOE briefing was a necessary step prior to the staff's testing and evaluation of ISM 2.0's adequacy in these respects. We intend to conduct the testing and evaluation of ISM 2.0 in FY98. At the September Appendix 7 discussion, DOE staff provided guidance enabling Center staff to get ISM 2.0 fully operational. However, until the staff completes this evaluation, it would be premature for NRC to say that we "...agree that the ISM models are adequate and sufficient for site characterization and design." or, is an "...adequate and sufficient...approach to modeling of geologic and static rock properties..."

Nevertheless, the staff believes that DOE should proceed with its plans to further develop and upgrade the ISM. This belief is based on the Appendix 7 briefing and demonstrations, as well as the staff's preliminary operation of the code. Further, we do consider that DOE's approach to modeling geologic and static rock properties seems to have produced a comprehensive, sophisticated 3D geologic site model that appears to be a powerful and useful tool for (1) testing and evaluating existing and future aspects of the hydrology and geology; (2) providing a common basis for building process-level flow models; and (3) enhancing the ability of all interested parties to comprehend the gross structure of the natural system at the site scale.

As indicated above, the staff has a generally favorable impression of the details and utility of ISM 2.0. NRC is considering adopting DOE's ISM 2.0 (or upgrade) and adapting it for our own purposes. In FY98 we will test and evaluate various geologic and hydrologic model assumptions, data input, and alternative predictions of geologic and hydrologic site characteristics. We anticipate that in June 1998 the Structural Deformation and Seismicity Issue Resolution Status Report Revision 1 will summarize our position on the adequacy and sufficiency of the ISM approaches for their intended use and purpose.

If you have any questions, please contact me or Philip Justus of my staff (301-415-6745).

Sincerely,

Original Signed By
N. King Stablein, Acting Chief
Engineering and Geosciences Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: As stated

cc: See attached list

DISTRIBUTION: DWM-246

Central File	SWastler	NMSS r/f	CNWRA	MBell
ENGB r/f	PUBLIC	ACNW	OSR	DWM t/f
JGreeves	MFederline			

DOCUMENT NAME: S:\DWM\ENGB\PSJ\BROCMREV.LTR

OFC	ENGB		ENGB		ENGB						
NAME	PJustus:cc[prf rd]		DBrooks		KStablein						
DATE	12/15/97		12/12/97		12/15/97						

OFFICIAL RECORD COPY

Distribution List for Letter to Stephan Brocoum dated: September 15, 1997

cc: R. Milner, OCRWM
R. Loux, State of Nevada
B. Price, Nevada Legislative Committee
J. Meder, Nevada Legislative Counsel Bureau
W. Barnes, YMPO
C. Einberg, DOE/Wash, DC
M. Murphy, Nye County, NV
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
D. Weigel, GAO
P. Niedzielski-Eichner, Nye County, NV
B. Mettam, Inyo County, CA
V. Poe, Mineral County, NV
W. Cameron, White Pine County, NV
T. Manzeni, Lander County, NV
L. Fiorenzi, Eureka County, NV
J. Regan, Churchhill County, NV
L. Bradshaw, Nye County, NV
W. Barnard, NWTRB
R. Holden, NCAI
A. Collins, NIEC
R. Arnold, Pahrump County, NV
N. Stellavato, Nye County, NV
J. Lyznicky, AMA
R. Clark, EPA
A. Gil, YMPO
R. Anderson, NEI
C. Henkel, NEI

ENCLOSURE