



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

June 22, 1998

Mr. Samuel Rousso, Director
for Program Management and Integration
Office of Civilian Radioactive Waste Management
U.S. Department of Energy, RW 30
1000 Independence Avenue, S.W.
Washington, DC 20585

SUBJECT: MINUTES OF THE MAY 28 - 29, 1998, TECHNICAL EXCHANGE ON THE U.S.
DEPARTMENT OF ENERGY'S GEOLOGIC FRAMEWORK MODEL

Dear Mr. Rousso:

Enclosed are the minutes of the May 28 - 29, 1998, technical exchange between the staff of the U.S. Department of Energy (DOE) and the U.S. Nuclear Regulatory Commission (NRC). The purpose of the technical exchange was for DOE to provide the NRC staff and its contractors with a hands-on, one-on-one workshop on DOE's Geologic Framework Model, Version 3.0 (designated GFM3.0). The staff are currently reviewing GFM3.0, at the request of DOE.

The meeting resulted in a good exchange of information regarding the use of GFM3.0. No response to this letter is required. If you have any questions regarding the enclosed meeting minutes, please contact Dr. Philip S. Justus of my staff. He can be reached at (301) 415-6745.

Sincerely,

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
T. Hawe, OCRWM/DOE

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U.S. Department of Energy, RW 30
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Orig 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
T. Howe, OCRWM/DOE

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OFC	PAHL*		ENGB*		ENGB				
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DATE	06/10/98		06/11/98		06/22/98				

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Mr. Ronald A. Milner, Director
 for Program Management and Integration
 Office of Civilian Radioactive Waste Management
 U.S. Department of Energy, RW 30
 1000 Independence Avenue, S.W.
 Washington, DC 20585

SUBJECT: MINUTES OF THE MAY 28 – 29, 1998, TECHNICAL EXCHANGE ON THE U.S. DEPARTMENT OF ENERGY GEOLOGIC FRAMEWORK MODEL

Dear Mr. Milner:

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Sincerely,

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

Enclosures: As stated

cc: See attached list

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NAME	SWastler <i>MPL</i>	PJustus <i>rf</i>	KStablein						
DATE	06/10/98	06/11/98	06/ /98						

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 ACNW: YES NO
 IG : YES NO Delete file after distribution: Yes No
 PDR : YES NO

Letter to S. Rousso from N. Stablein dated: June 22, 1998

cc: R. Loux, State of Nevada
B. Price, Nevada Legislative Committee
J. Meder, Nevada Legislative Counsel Bureau
R. Dyer, YMPO
C. Einberg, DOE/Wash, DC
N. Slater, DOE/Wash, DC
A. Brownstein, DOE/Wash, DC
S. Hanauer, DOE/Wash, DC
M. Murphy, Nye County, NV
M. Baughman, Lincoln County, NV
D. Bechtel, Clark County, NV
D. Weigel, GAO
B. Mettam, Inyo County, CA
V. Poe, Mineral County, NV
W. Cameron, White Pine County, NV
T. Manzini, Lander County, NV
L. Fiorenzi, Eureka County, NV
J. Regan, Churchill County, NV
L. Bradshaw, Nye County, NV
W. Barnard, NWTRB
R. Holden, NCAI
A. Collins, NIEC
S. Brocoum, YMPO
D. Horton, YMPO
R. Arnold, Pahrump County, NV
N. Stellavato, Nye County, NV
J. Lyznicky, AMA
R. Clark, EPA
F. Marcinowski
A. Gil, YMPO
R. Anderson, NEI
C. Henkel, NEI
S. Frishman, Agency for Nuclear Projects

**MINUTES OF THE MAY 28-29, 1998
U.S. DEPARTMENT OF ENERGY/NUCLEAR REGULATORY COMMISSION
TECHNICAL EXCHANGE ON DOE'S GEOLOGIC FRAMEWORK MODEL**

On May 28 and May 29, 1998, the U.S. Department of Energy (DOE) and the U.S. Nuclear Regulatory Commission (NRC) conducted a Technical Exchange to discuss DOE's Geologic Framework Model (designated GFM3.0). At the request of DOE, the NRC staff is currently reviewing GFM3.0 as a step in achieving a common understanding of the results of DOE's integrated site geologic model.¹ In order to conduct the requested review, NRC and its technical assistance contractor, the Center for Nuclear Waste Regulatory Analyses (CNWRA) staff determined that they needed to consult with the GFM3.0 model developer, DOE's M&O contractor in order to understand how efficiently to get this particular computer code up and running on the NRC/CNWRA computers², where the requested reviews and analyses would be conducted. DOE and NRC staff recognized that understanding the inner workings of the GFM3.0 computer code (including the model assumptions and peculiarities of data files) would be difficult and time-consuming to learn in the absence of specific explanations by the model developer. DOE suggested that this interaction occur to expeditiously instruct the NRC and CNWRA staffs on how the model was constructed and how various computer files should be organized for the model to run efficiently on the NRC/CNWRA computers. As part of this instruction, DOE intended to brief the two staffs on various DOE interpretations of Yucca Mountain (Nevada) site data which were used to construct GFM3.0. The detailed agenda for this meeting can be found in Attachment 1.

The Technical Exchange was held at NRC Headquarters, in Rockville, Maryland. Representatives from the State of Nevada and affected units of local government were invited to attend, but declined. Attachment 2 contains the list of attendees.

The following main items were discussed on May 28th: (1) content of files to ensure that all required were present; (2) 3-dimensional modeling techniques; and (3) uncertainties associated with input data and the model's representation of the data. During the instruction, DOE also raised questions about the quality assurance (QA) pedigree of GFM3.0 which related to the broader question concerning the qualification of this and other models containing data of varying grades of qualification, and which data in this specific model needed to be qualified. These QA items were considered sufficiently generic to warrant a separate discussion. Because evaluating the QA pedigree of this model was beyond the scope of the Technical Exchange, it was agreed to consider scheduling a separate meeting on this subject in the near-future.

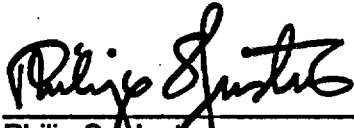
The main items discussed on May 29th included the sequence of specific steps used to build GFM3.0 and details of the model construction techniques.

At the close of the Technical Exchange, summary statements were made by representatives from DOE, NRC and the CNWRA. The DOE concluded it had accomplished its mission based upon the NRC and CNWRA representatives stating that the objective of the Technical Exchange was successfully met. (As noted earlier, the objective of the Technical Exchange was for NRC/CNWRA staffs to understand GFM3.0 construction, model limitations, and bases for the

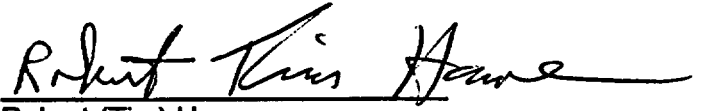
¹ Reference letter from S. Brocoum to J. Greeves, dated Nov 21, 1997.

² Silicon Graphics Incorporated's computer systems.

model inputs to the extent necessary for the staff to conduct a detailed review of GFM3.0.) The likelihood of future interactions on the subject of GFM3.0 was discussed briefly. Additional communication with DOE by the staff reviewing the GFM, for the purpose of clarification, may be necessary as the review proceeds. NRC will prepare a written review of GFM3.0 to be submitted to DOE by end of September 1998, which will document any additional communication by the staff. Finally, as noted earlier, a subsequent Appendix 7-type of interaction may be warranted on the subjects of alternative interpretations of GFM3.0 input data, and limitations and uses of the GFM3.0 computer file.



Philip S. Justus
Division of Waste Management
Office of Nuclear Material
Safety and Safeguards
U.S. Nuclear Regulatory Commission



Robert (Tim) Howe
Regulatory Coordination Division
Office of Civilian Radioactive
Waste Management
U.S. Department of Energy

**BACKGROUND FOR
DOE-NRC TECHNICAL EXCHANGE ON
DOE'S GEOLOGIC FRAMEWORK MODEL**

May 28, 1998 10:00am to 5:00pm (EST)

May 29, 1998 9:00am to 4:00pm

U.S. Nuclear Regulatory Commission
Two White Flint North, 11555 Rockville Pike
Room T-7-C-2
Rockville, Maryland 20852

- PURPOSES:**
- (1) DOE to brief the NRC and Center for Nuclear Waste Regulatory Analyses (CNWRA) staff on the details of its three-dimensional (3-D) geologic framework model (designated GFM3.0), instruct the staff on how the model was constructed, how it runs, and how the respective GFM3.0 computer files must be organized for the model to be efficiently operational on NRC's ONYX2[®] computer system.
 - (2) DOE to brief NRC/CNWRA staffs on DOE's conceptual models and how they were implemented in building GFM3.0, in order for NRC/CNWRA staff to perform uncertainty analyses and evaluate alternative interpretations.
- OBJECTIVE:** The NRC staff is currently reviewing GFM3.0, at the request of DOE. NRC/CNWRA staffs to understand GFM3.0 inner-workings, limitations, and bases for the model inputs and outputs to the extent necessary to evaluate the data base.
- CONSTRAINTS:**
- (1) Space is expected to be limited and confined to an area around a single computer monitor. Accordingly, only those interested persons who have a need to know about the GFM3.0 model details are encouraged to attend.
 - (2) No introduction or general briefing to GFM3.0 is planned; prior working knowledge of GFM3.0 is expected. This Technical Exchange has been designed as a hands-on, one-on-one, workshop for NRC/CNWRA users and the DOE developers. [This format follows from the experience of NRC/CNWRA earlier review of DOE's *Integrated Site Geologic Model*, the forerunner of GFM3.0.] Although this meeting is essentially a tutorial for the NRC/CNWRA staff, every attempt will be made to satisfy the needs of observers.
 - (3) Although a meeting summary will be jointly prepared, there will be no written summary of specific files or interpretive materials which will be displayed on the screen (future interactions are likely to be venues for discussion of the interpretation and significance of aspects of the GFM3.0 model).

Attendance List
DOE/NRC TECHNICAL EXCHANGE
GEOLOGIC FRAMEWORK MODEL 3.0
 May 28 - 29, 1998

<i>Name</i>	<i>Affiliation</i>	<i>Address</i>	<i>E-Mail Address</i>	<i>Telephone Number</i>
Philip Justus	NRC	Rockville, MD	PSJ@nrc.gov	301/415-6745
Time Hawe	DOE	Las Vegas, NV		702/94-1441
John Trapp (5/28 only)	NRC	Rockville, MD	JST@nrc.gov	301/415-8063
David Brooks	NRC	Rockville, MD	DJB@nrc.gov	301/415-7284
Bakr Ibrahim	NRC	Rockville, MD	AKI@nrc.gov	301/415-6651
Gerry L. Stirewalt	NRC/MANDEX	Washington, DC	GLS3@nrc.gov	301/15-5265
Robert Clayton	M&O/WCFS	Las Vegas, NV	Robert_Clayton@ym p.gov	702/295-5754
Joe Bangs	CNWRA	San Antonio, TX	jbangs@swri.org	210/522-5224
Banad Jagannath (5/28 only)	NRC	Rockville, MD	BNJ@nrc.gov	301/415-6653
Latif Hamdan	NRC	Rockville, MD	LSH@nrc.gov	301/415-6639