



Department of Energy

Nevada Operations Office

P. O. Box 98518

Las Vegas, NV 89193-8518

MAR 24 1988

Youngblood

James Hendrix
Dean of MacKay School of Mines
University of Nevada - Reno
Reno, NV 89557

INVITATION TO PARTICIPATE IN THE U.S. NUCLEAR REGULATORY COMMISSION AND U.S. DEPARTMENT OF ENERGY (DOE) TECHNICAL MEETING ON ALTERNATE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM AT THE YUCCA MOUNTAIN SITE

The DOE is planning to conduct a technical meeting on the subject of alternative conceptual models of the groundwater system at Yucca Mountain, Nevada. This workshop is being planned as part of the consultation process. The purpose of the meeting is to consider different conceptual models of the groundwater system, including geologic, tectonic, hydrologic, geochemical, and climatological influences in the Yucca Mountain region. Open discussion of the similarities, differences, and compatibilities of the various conceptual models is anticipated. The relative merits of the models will not be evaluated during the meeting.

Our records indicate that you commented on, or expressed an interest in, the conceptual model of the Yucca Mountain groundwater system as presented in the Environmental Assessment or in the Site Characterization Plan/Consultation Draft (SCP/CD). The DOE is therefore encouraging you to attend the technical meeting and to present or participate in discussions of alternate conceptual models. If you are unable to attend and have a colleague(s) who has expressed an interest, please extend this invitation to that person(s).

Presenters are encouraged to address the following points to facilitate open discussion about aspects of the various conceptual models:

- o Assumptions underlying the model.
- o Physical processes and disruptive events incorporated in the model.
- o Boundary conditions.
- o Available data supporting the model.
- o Additional data needed to refine the model and field and laboratory testing proposed to gather the additional data.
- o Analyses to be performed to evaluate the data and the conceptual model.
- o Implications for groundwater travel time and radionuclide release.

Identical letter sent to various persons
102.2
WM-11
NH031

MAR 24 1988

James Hendrix

-2-

Please note that information concerning the additional data needed to refine the model and the testing proposed to gather the additional data is considered essential to the objective of the workshop. That objective is to outline steps needed to determine if the testing program proposed in the SCP/CD will provide the data needed to test alternative conceptual models of the groundwater system at Yucca Mountain. A verbatim transcript of the meeting will be prepared in order to maintain as complete a record as possible.

The meeting will be held April 11-14, 1988, in Las Vegas, Nevada. Further information concerning the location of the meeting will be forwarded to you at a later date. A preliminary agenda of the meeting is enclosed. Please contact Edward Regnier, DOE Office of Civilian Radioactive Waste Management, (202) 586-4959 or FTS 586-5355, if you have any questions. We also request that you advise Mr. Regnier as to whether you will participate or not.


for Carl P. Gertz, Project Manager
Waste Management Project Office

WMPO:RAL-1590

Enclosure:
Preliminary Agenda

cc w/encl:

V. J. Cassella, HQ (RW-222) FORS
Ralph Stein, HQ (RW-24) FORS
S. H. Kale, HQ (RW-20) FORS
T. H. Isaacs, HQ (RW-20) FORS
E. P. Regnier, HQ (RW-242) FORS
S. J. Brocoum, HQ (RW-233) FORS
D. L. Siefken, Weston, Washington, DC
B. J. Youngblood, NRC, Washington, DC
M. A. Glora, SAIC, Las Vegas, NV
M. B. Blanchard, WMPO, NV

NRC-DOE TECHNICAL MEETING

ALTERNATIVE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM

YUCCA MOUNTAIN, NEVADA

PRELIMINARY AGENDA

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- o Assumptions supporting
- o Physical processes and events incorporated in the model
- o Boundary conditions
- o Available data used in the model
- o Additional data needed to refine the model and testing proposed to gather the additional data (surface-based/ESF)
- o Analysis performed to evaluate the data and the conceptual model

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Day 1

- | | | |
|---------------|---|----------------------|
| 9:00 - 9:30 | DOE Introductory Remarks | |
| | Purpose and Scope | R. Stein, DOE/HQ |
| | Background | C. Gertz, DOE/NV |
| 9:30 - 11:00 | NRC Introductory Remarks and Summary of SCP-CD Comments Relevant to Conceptual Models | |
| 11:00 - 11:30 | DOE Response | |
| 11:30 - 1:00 | Lunch | |
| 1:00 - 4:00 | DOE Conceptual Model | |
| 1:00 - 1:10 | Introduction | M. Blanchard, DOE/NV |
| 1:10 - 2:45 | The Hydrologic Setting | W. Wilson, USGS |
- o Include the 6 items identified above

10:30 - 11:00 Caucus/Break

11:00 - 12:00 View of each presenter as presented by a Spokesperson from each organization

12:00 - 1:00 Lunch

1:00 - 3:00 Open discussion on Sufficiency of Data Collection Plans in SCP-CD (DOE to provide brief summary/overview of related topics from SCP-CD

Chairpersons:
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

Moderators:
D. Siefken, Weston
M. Voegele, SAIC

- o Extent to which the surface-based testing information needs are similar and where they differ
- o Extent to which the ESF testing information needs are similar and where they differ

3:00 - 3:30 Break

3:30 - 5:00 Discussion on Sufficiency of Data (continued)

5:00 - 5:30 Caucus for Day 4 Summary Statements

Day 4

8:00 - 9:00 DOE Statement: Discussion relevant to Szymanski's draft report; Summary Statement on Alternative Conceptual Models

Chairpersons:
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

9:00 - 9:30 NRC Summary Statement on Alternative Conceptual Models

9:30 - 10:00 State Summary Statement on Alternative Conceptual Models

10:00 - 12:00 Preparation of Draft Meeting Summary

12:00 - 1:00 Lunch

1:00 - 5:00 Discussion and Finalization of Meeting Summary



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George Dinwiddie
U.S. Geological Survey
12201 Sunrise Valley Drive
Mail Stop 410
Reston, VA 22092

INVITATION TO PARTICIPATE IN THE U.S. NUCLEAR REGULATORY COMMISSION AND U.S. DEPARTMENT OF ENERGY (DOE) TECHNICAL MEETING ON ALTERNATE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM AT THE YUCCA MOUNTAIN SITE

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- o Analyses to be performed to evaluate the data and the conceptual model.
- o Implications for groundwater travel time and radionuclide release.

George Dinwiddie

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MAR 24 1988

Please note that information concerning the additional data needed to refine the model and the testing proposed to gather the additional data is considered essential to the objective of the workshop. That objective is to outline steps needed to determine if the testing program proposed in the SCP/CD will provide the data needed to test alternative conceptual models of the groundwater system at Yucca Mountain. A verbatim transcript of the meeting will be prepared in order to maintain as complete a record as possible.

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WMPO:RAL-1585


for Carl P. Gertz, Project Manager
Waste Management Project Office

Enclosure:
Preliminary Agenda

cc w/encl:

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Ralph Stein, HQ (RW-24) FORS
S. H. Kale, HQ (RW-20) FORS
T. H. Isaacs, HQ (RW-20) FORS
E. P. Regnier, HQ (RW-242) FORS
S. J. Brocoum, HQ (RW-233) FORS
D. L. Siefken, Weston, Washington, DC
B. J. Youngblood, NRC, Washington, DC
M. A. Glora, SAIC, Las Vegas, NV
M. B. Blanchard, WMPO, NV

NRC-DOE TECHNICAL MEETING

ALTERNATIVE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM

YUCCA MOUNTAIN, NEVADA

PRELIMINARY AGENDA

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- o Analyses to be performed to evaluate the data and the conceptual model

Day 1

9:00 - 9:30	DOE Introductory Remarks	
	Purpose and Scope	R. Stein, DOE/HQ
	Background	C. Gertz, DOE/NV
9:30 - 11:00	NRC Introductory Remarks and Summary of SCP-CD Comments Relevant to Conceptual Models	
11:00 - 11:30	DOE Response	
11:30 - 1:00	Lunch	
1:00 - 4:00	DOE Conceptual Model	
1:00 - 1:10	Introduction	M. Blanchard, DOE/NV
1:10 - 2:45	The Hydrologic Setting	W. Wilson, USGS

- o Include the 6 items identified above

- 2:45 - 3:00 **Break**
- 3:00 - 3:45 **Translation to numerical models
for performance assessment** **S. Sinnock, SNL**
- o Include the 6 items identified above
- 3:45 - 5:00 **Clarifying questions and commentary from
participants**

Day 2

**Presentations of other conceptual models:
(Presenters to be arranged)** **Chairpersons:
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV**

- 1 to 3 hrs
for each
presenter **Description of Alternative Conceptual Model**
- o Include the 6 items identified above
- 15 to 30 min. **Clarifying questions from Participants
on description of Conceptual Model**

Day 3

8:00 - 10:30 **Open discussion of similarities and
differences among the various Conceptual
Models** **Chairpersons:
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV**

**Moderators:
D. Siefken, Weston
M. Voegele, SAIC**

- o Extent to which the alternative conceptual models incorporate the same physical processes and disruptive events and where they differ
- o Extent to which the alternative conceptual models employ the same underlying assumptions and where they differ
- o Extent to which the alternative conceptual models have similar initial fixed and variable boundary conditions and where they differ
- o Extent to which the alternative conceptual models have similar information needs and where they differ
- o Implication of models on groundwater travel time and radionuclide transport

10:30 - 11:00 Caucus/Break

11:00 - 12:00 View of each presenter as presented by a Spokesperson from each organization

12:00 - 1:00 Lunch

1:00 - 3:00 Open discussion on Sufficiency of Data Collection Plans in SCP-CD (DOE to provide brief summary/overview of related topics from SCP-CD)

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S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

Moderators:
D. Siefken, Weston
M. Voegele, SAIC

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3:00 - 3:30 Break

3:30 - 5:00 Discussion on Sufficiency of Data (continued)

5:00 - 5:30 Caucus for Day 4 Summary Statements

Day 4

8:00 - 9:00 DOE Statement: Discussion relevant to Szymanski's draft report; Summary Statement on Alternative Conceptual Models

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M. Blanchard, DOE/NV

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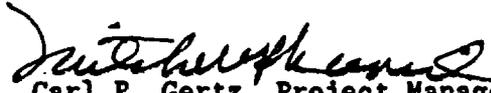
MAR 24 1988

Bruce Blanchard

-2-

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Carl P. Gertz, Project Manager
Waste Management Project Office

WMPO:RAL-1584

Enclosure:
Preliminary Agenda

cc w/encl:

V. J. Cassella, HQ (RW-222) FORS
Ralph Stein, HQ (RW-24) FORS
S. H. Kale, HQ (RW-20) FORS
T. H. Isaacs, HQ (RW-20) FORS
E. P. Regnier, HQ (RW-242) FORS
S. J. Brocoum, HQ (RW-233) FORS
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M. B. Blanchard, WMPO, NV



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Bruce Blanchard
Director
Office of Environmental
Project Review
U.S. Department of Interior
18th & C Street
Mail Stop 4329
Washington, DC 20240

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NRC-DOE TECHNICAL MEETING

ALTERNATIVE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM

YUCCA MOUNTAIN, NEVADA

PRELIMINARY AGENDA

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	Background	C. Gertz, DOE/NV
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Moderators:
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MAR 24 1988

Lawrence Larson

-2-

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Carl P. Gertz, Project Manager
Waste Management Project Office

WMPO:RAL-1583

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Lawrence Larson
Chairman of Geology Department
University of Nevada - Reno
Reno, NV 89557

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Steve Rowland

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for Carl P. Gertz, Project Manager
Waste Management Project Office

WMPO:RAL-1582

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Steve Rowland
Chairman of the Geology Department
University of Nevada - Las Vegas
4505 S. Maryland Parkway
Las Vegas, NV 89154

INVITATION TO PARTICIPATE IN THE U.S. NUCLEAR REGULATORY COMMISSION AND U.S. DEPARTMENT OF ENERGY (DOE) TECHNICAL MEETING ON ALTERNATE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM AT THE YUCCA MOUNTAIN SITE

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Our records indicate that you commented on, or expressed an interest in, the conceptual model of the Yucca Mountain groundwater system as presented in the Environmental Assessment or in the Site Characterization Plan/Consultation Draft (SCP/CD). The DOE is therefore encouraging you to attend the technical meeting and to present or participate in discussions of alternate conceptual models. If you are unable to attend and have a colleague(s) who has expressed an interest, please extend this invitation to that person(s).

Presenters are encouraged to address the following points to facilitate open discussion about aspects of the various conceptual models:

- o Assumptions underlying the model.
- o Physical processes and disruptive events incorporated in the model.
- o Boundary conditions.
- o Available data supporting the model.
- o Additional data needed to refine the model and field and laboratory testing proposed to gather the additional data.
- o Analyses to be performed to evaluate the data and the conceptual model.
- o Implications for groundwater travel time and radionuclide release.



NRC-DOE TECHNICAL MEETING

ALTERNATIVE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM

YUCCA MOUNTAIN, NEVADA

PRELIMINARY AGENDA

Meeting purpose is to consider different conceptual models of the groundwater system, including the geologic, tectonic, hydrologic, geochemical, and climatologic influences in the Yucca Mountain region. This is to promote open discussion about similarities, differences, and compatibilities of the various conceptual models. Using such information, DOE will be able to ensure that the SCP contains plans for data collection sufficient to evaluate alternative models. Each presentation should include the following six items:

- o Assumptions supporting the model
- o Physical processes and disruptive events incorporated in the model
- o Boundary conditions
- o Available data supporting the model
- o Additional data needed to refine the model and testing proposed to gather the additional data (surface-based/ESF)
- o Analyses to be performed to evaluate the data and the conceptual model

Day 1

- | | | |
|---------------|---|----------------------|
| 9:00 - 9:30 | DOE Introductory Remarks | |
| | Purpose and Scope | R. Stein, DOE/HQ |
| | Background | C. Gertz, DOE/NV |
| 9:30 - 11:00 | NRC Introductory Remarks and Summary of SCP-CD Comments Relevant to Conceptual Models | |
| 11:00 - 11:30 | DOE Response | |
| 11:30 - 1:00 | Lunch | |
| 1:00 - 4:00 | DOE Conceptual Model | |
| 1:00 - 1:10 | Introduction | M. Blanchard, DOE/NV |
| 1:10 - 2:45 | The Hydrologic Setting | W. Wilson, USGS |
- o Include the 6 items identified above

- 2:45 - 3:00 Break
- 3:00 - 3:45 Translation to numerical models S. Sinnock, SNL
for performance assessment
- o Include the 6 items identified above
- 3:45 - 5:00 Clarifying questions and commentary from
participants

Day 2

Presentations of other conceptual models: Chairpersons:
(Presenters to be arranged) S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

1 to 3 hrs Description of Alternative Conceptual Model
for each
presenter

- o Include the 6 items identified above

15 to 30 min. Clarifying questions from Participants
on description of Conceptual Model

Day 3

8:00 - 10:30 Open discussion of similarities and Chairpersons:
differences among the various Conceptual S. Brocoum, DOE/HQ
Models M. Blanchard, DOE/NV

Moderators:
D. Siefken, Weston
M. Voegele, SAIC

- o Extent to which the alternative conceptual models incorporate the same physical processes and disruptive events and where they differ
- o Extent to which the alternative conceptual models employ the same underlying assumptions and where they differ
- o Extent to which the alternative conceptual models have similar initial fixed and variable boundary conditions and where they differ
- o Extent to which the alternative conceptual models have similar information needs and where they differ
- o Implication of models on groundwater travel time and radionuclide transport

10:30 - 11:00 Caucus/Break

11:00 - 12:00 View of each presenter as presented by a Spokesperson from each organization

12:00 - 1:00 Lunch

1:00 - 3:00 Open discussion on Sufficiency of Data Collection Plans in SCP-CD (DOE to provide brief summary/overview of related topics from SCP-CD

Chairpersons:
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

Moderators:
D. Siefken, Weston
M. Voegele, SAIC

- o Extent to which the surface-based testing information needs are similar and where they differ
- o Extent to which the ESF testing information needs are similar and where they differ

3:00 - 3:30 Break

3:30 - 5:00 Discussion on Sufficiency of Data (continued)

5:00 - 5:30 Caucus for Day 4 Summary Statements

Day 4

8:00 - 9:00 DOE Statement: Discussion relevant to Szymanski's draft report; Summary Statement on Alternative Conceptual Models

Chairpersons:
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9:00 - 9:30 NRC Summary Statement on Alternative Conceptual Models

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10:00 - 12:00 Preparation of Draft Meeting Summary

12:00 - 1:00 Lunch

1:00 - 5:00 Discussion and Finalization of Meeting Summary

MAR 24 1988

Larry Garside

-2-

Please note that information concerning the additional data needed to refine the model and the testing proposed to gather the additional data is considered essential to the objective of the workshop. That objective is to outline steps needed to determine if the testing program proposed in the SCP/CD will provide the data needed to test alternative conceptual models of the groundwater system at Yucca Mountain. A verbatim transcript of the meeting will be prepared in order to maintain as complete a record as possible.

The meeting will be held April 11-14, 1988, in Las Vegas, Nevada. Further information concerning the location of the meeting will be forwarded to you at a later date. A preliminary agenda of the meeting is enclosed. Please contact Edward Regnier, DOE Office of Civilian Radioactive Waste Management, (202) 586-4959 or FTS 586-5355, if you have any questions. We also request that you advise Mr. Regnier as to whether you will participate or not.


for Carl P. Gertz, Project Manager
Waste Management Project Office

WMPO:RAL-1581

Enclosure:
Preliminary Agenda

cc w/encl:

V. J. Cassella, HQ (RW-222) FORS
Ralph Stein, HQ (RW-24) FORS
S. H. Kale, HQ (RW-20) FORS
T. H. Isaacs, HQ (RW-20) FORS
E. P. Regnier, HQ (RW-242) FORS
S. J. Brocoum, HQ (RW-233) FORS
D. L. Siefken, Weston, Washington, DC
B. J. Youngblood, NRC, Washington, DC
M. A. Glora, SAIC, Las Vegas, NV
M. B. Blanchard, WMPO, NV



Department of Energy

Post Office Box 98518
Las Vegas, NV 89193-8518

MAR 24 1988

Larry Garside
Acting Associate Director
Bureau of Mines and Geology
University of Nevada, Reno
Reno, NV 89557-0088

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NRC-DOE TECHNICAL MEETING

ALTERNATIVE CONCEPTUAL MODELS OF THE GROUNDWATER SYSTEM

YUCCA MOUNTAIN, NEVADA

PRELIMINARY AGENDA

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MAR 24 1988

Lew Dodgron

-2-

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WMPO:RAL-1579

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Department of Energy

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MAR 24 1988

Lew Dodgron
Administrator
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Protection
Department of Conservation and
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201 S. Fall St., Room 221
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Carson City, NV 89710

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- 3:00 - 3:45 **Translation to numerical models for performance assessment** **S. Sinnock, SNL**
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- 3:45 - 5:00 **Clarifying questions and commentary from participants**

Day 2

Presentations of other conceptual models: (Presenters to be arranged) **Chairpersons:**
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

1 to 3 hrs for each presenter **Description of Alternative Conceptual Model**

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15 to 30 min. **Clarifying questions from Participants on description of Conceptual Model**

Day 3

8:00 - 10:30 **Open discussion of similarities and differences among the various Conceptual Models** **Chairpersons:**
S. Brocoum, DOE/HQ
M. Blanchard, DOE/NV

Moderators:
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