

DISTRIBUTION

APR 26 1984

WM s/f (3100)  
WMGT r/f  
NMSS r/f  
REBROWNING  
MBELL  
JBUNTING  
HJMILLER  
JTGREEVES  
LHIGGINBOTHAM

PJUSTUS  
MKEARNEY  
BCOOKE & r/f  
PDR

MEMORANDUM FOR: Malcolm R. Knapp, Chief  
Geotechnical Branch  
Division of Waste Management

FROM: Barbara A. Cooke  
Geotechnical Branch  
Division of Waste Management

SUBJECT: SALT SITES HYDROGEOLOGY CONCEPTUAL MODEL MEETING,  
MARCH 8-9, 1984, SILVER, SPRING

Meeting Objective

Review and development of conceptual models of Salt sites, including alternative interpretations of existing data and discussion of data needs. Discussions were about the following seven locations which are under consideration by the DOE at this time:

|   |                            |
|---|----------------------------|
| Palo Duro Basin, Texas                                  | (a) Swisher County         |
|   | (b) Deaf Smith County      |
| Paradox Basin, Utah                                     | (a) Davis Canyon           |
|   | (b) Lavender Canyon        |
| Gulf Coast Interior Domes,<br>(Mississippi & Louisiana) | (a) Richton Dome, MI       |
|   | (b) Cypress Creek Dome, MI |
|   | (c) Vacherie Dome, LA      |

Meeting Participants

The following staff and contractors attended the meeting:

NRC Staff  
Barbara Cooke, PO  
Fred Ross  
Mal Knapp  
Phil Justus  
Dan Goode  
Bill Dam  
Walt Kelly  
Pete Ornstein  
Robert Johnson  
John Linehan  
Mark Logsdon

Williams & Assoc.  
Roy Williams  
Gerry Winter  
Jeff Brown  
Jack Sharp  
Charlie Smith

Golder Assoc.  
Jerry Rowe  
Eileen Poeter  
Adrian Brown  
Jonathan Callender  
Heinrich Holland

WM Record File

106

WM Project 16

Docket No. \_\_\_\_\_

PDR ✓

LPDR ✓

Distribution:

(Return to WM, 623-SS)

8406110161 840426  
PDR WASTE  
WM-16

PDR

528

M. J. Wise  
 Leslie Peeters  
 Dan Fehringer  
 Teek Verma  
 Jerry Pearring  
 Atef Elzeftawy  
 (and others)

Meeting Summary - Thursday, March 8th, 1984

The following is a brief summary of topics covered. Interested parties can refer to the contractor reports indicated by asterisks, and the contractor meeting minutes for further information.

Introductory Comments were provided by Barbara Cooke, Project Officer. The general definition of a conceptual model prepared by the Repository Projects Branch was presented followed by an overview of how conceptual models, issues, and issue STP's are part of the technical review and licensing process.

Alternative Conceptual Models of the Palo Duro Basin\* for the regional scale were presented by the two contractor teams. A general consensus was reached by meeting attendees on the nature of the hydrogeologic behavior of the basin, however, it was also agreed that a number of items related to basin hydrogeology are unknown and will have to be assessed to further levels of detail. These include the lateral hydrogeologic boundaries of the basin, the flow direction and complexity in the deep aquifer, and quantitative values for hydrologic parameters of the hydrostratigraphic units. Information within the evaporite sequence is particularly scarce.

Golder and Associates staff next presented descriptions\* of the Sensitivity Studies which they are performing to assess data needs, to explore ranges of parameter values, and provide technical justification for issue development. Many of the cases the Golder team proposed stem from the fact that salt is not a medium commonly studied from a hydrologic perspective.

Teek Verma of the NRC Salt Repository Projects Office in Columbus, Ohio (ONWI, Battelle) provided general technical input throughout the meeting, and also apprised the group of specific technical issues now under consideration by ONWI at this time. These include developing appropriate hydrogeologic testing techniques for the evaporate sequences.

\* Copies of all asterisked documents can be obtained from Barbara Cooke, PO.

|        |           |   |          |   |   |   |   |   |
|--------|-----------|---|----------|---|---|---|---|---|
| OFC :  | WMGT      | : | WMGT     | : | : | : | : | : |
| NAME : | BCooke:dm | : | MKearney | : | : | : | : | : |
| DATE : | 4/ /84    | : | 4/ /84   | : | : | : | : | : |

APR 26 1984

Phil Justus spoke briefly on the subject of coordination of efforts between the geologists and hydrogeologists on the Salt Team, and urged the contractors to advise NRC regarding areas where overlap would be required.

Friday March 9th, 1984

A group discussion of the Hydrogeologic Behavior of the Paradox Basin was held, with lead-in presentations on current data status, a geologic review of the Gibson Dome region, and problems with the DG-1 borehole data by the Williams team. Each contractor team has subsequently submitted conceptual models and issues lists for the Paradox Basin.

A Lunchtime Slide Presentation on Geologic, Hydrologic, and Mining Considerations of Domed Salts by Charles Smith of the Williams team was attended by a large number of NRC staff. This thorough review brought the group to a higher common level of general understanding about domes and prompted discussion on how the idiosyncrasies of dome structure may affect the characterization process. Golder staff provided additional lead-in presentations on dome structure and hydrology. Ensuing discussion covered such points as characterization of dome caprock and sheath, the clear demarcation between domal local and regional scale hydrogeology, and the possibility that domal vertical structure might provide vertical communication between adjacent aquifers. Each contractor team has subsequently submitted conceptual models and issues lists for the Gulf Coast Interior Salt Domes.

**"ORIGINAL SIGNED BY"**

Barbara A. Cooke  
Geotechnical Branch  
Division of Waste Management

|        |            |          |   |   |   |   |
|--------|------------|----------|---|---|---|---|
| OFC :  | WMGT       | WMGT     | : | : | : | : |
| NAME : | BCooke: dm | MKearney | : | : | : | : |
| DATE : | 4/24/84    | 4/24/84  | : | : | : | : |

528