

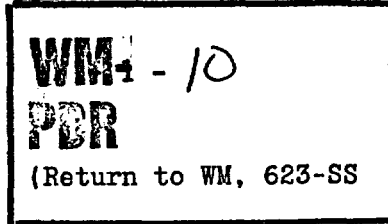
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MEMORANDUM FOR: Distribution

FROM: Hubert J. Miller, Chief
High-Level Waste Technical
Development Branch
Division of Waste Management

SUBJECT: AGENDA FOR BWIP HYDROGEOLOGY MEETING

TIME AND PLACE: Willste Bldg., Silver Spring, MD; 8:30 am January 7,
1982

The attached agenda and questions are intended to focus discussion for the upcoming January 7, 1982 meeting of NRC staff and contractors in preparation for a January 12, 1982 meeting with DOE on BWIP site characterization plans.

The DOE meeting will focus on groundwater investigations to be conducted during site characterization. These are the investigations that will provide information to allow answering the following related questions at time of licensing (the construction authorization stage):

1. How will the repository and site perform with regard to groundwater flow and radionuclide migration (as evaluated through performance assessment modeling)?
2. Is the site acceptable--i.e., does it meet 10CFR60 performance objectives and requirements?

While the process of site characterization will obviously unfold in stages, the scope of the January 12, 1982 meeting will be the full program of site characterization in hydrology and supporting disciplines. Many of the questions in the attached agenda are broad rhetorical questions which will be fully answered only after struggling with them internally and with DOE over the next year or so. However, it is essential that we begin to attempt to answer them now, and at least determine the method for arriving at an answer where this is not possible or appropriate now. The problem cannot be handled responsibly in piecemeal fashion.

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Attached also is the RHO proposed meeting agenda. It is obvious they want to cover the full program of hydrologic testing. We must be able to discuss with them what would be acceptable strategies for testing and site characterization.

For NRC to be responsible and sensitive to DOE's schedule and planning needs, positions will have to be taken by NRC staff in the January 12, 1982 meeting on some of the questions raised in the attached. This is the beginning of the process through which all NRC activities in the areas of groundwater transport and performance assessment will have payoff in the licensing of BWIP. Therefore, the January 7, 1982 meeting is intended to coordinate all NRC activities in this area, in addition to preparing for the January 12, 1982 meeting.

January 7, 1982 Meeting attendees will include:

NRC Staff

R. Wright
H. Miller
M. Knapp
L. Lehman
P. Justus
R. Johnson
P. Prestholt
L. Hartung

NRC Consultants

R. Williams
A. Brown (Golder)
J. Mercer (Geotrans)
M. Reeves (INTERA)
C. Wilson (LBL)

Meeting participants should be prepared to address the questions in the attached agenda.

ORIGINAL SIGNED BY

Hubert J. Miller, Chief
High-Level Waste Technical
Development Branch
Division of Waste Management

cc: F. Arsenault
P. Comella

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AGENDA FOR MEETING ON BWIP GROUNDWATER INVESTIGATIONS

TIME AND PLACE: Willste Bldg., Silver Spring, MD; 8:30 am, January 7, 1982

AGENDA:

- . Review objectives, organization, activities and schedules of NRC BWIP licensing project Miller/Wright
- . Review scope, purpose and objectives of January 12, 1982 meeting with DOE Miller/Wright
- . Summarize current status of BWIP Hydrologic Investigations and NRC Trip Report Positions. Wright
- . Review Questions Group
- . Summarize Approaches, Objectives, and Responsibilities for January 12, 1982 meeting. Wright/Miller
 - . Details of Initial Investigations
 - . Strategies for Full Site Characterization

QUESTIONS FOR DISCUSSION PURPOSES

General Questions

1. What is currently known about the groundwater systems from investigations to date?
2. What issues are apparent from investigations to date?
3. What is an acceptable program for resolving these issues?
4. What information is needed for an adequate performance assessment?

Specific Questions:

5. What is the strategy for developing the investigative program? Later steps will depend on results from the first steps, but the problem cannot be tackled in a piecemeal fashion. What are some of the likely scenarios (illustrative dimensions, number of wells, screened intervals, etc.).
6. What is the area of concern in the hydrologic testing? On what scale should testing be done? How many holes? Where? What are the bounds of the investigations?
7. What test methods, specific test procedures and analytical techniques should be used in the testing program?
8. How do the above questions change if the accessible environment is assumed to be: (a) Columbia River or other surface discharge; (b) the first flow zone immediately above or below the Umtanum which contains significant quantities of water; or (c) in adjacent flow zones at some distance (eg., 1mi, 10km...). Review EPA's definition of accessible environment (attached).
9. What testing will be required to determine what driving forces for flow will be?
 - natural pressure gradient
 - thermally induced buoyant forces
10. What large scale tests if any should be performed in the underground facility?
11. What level of detail is required to be known about the site to do an adequate job of modeling the site?
12. What does NRC modeling to date indicate about data needs? Location, scale and density of testing that will be required.

Other Areas Requiring Preparation:

13. Review each of the contractor reports, included in NRC BWIP 1981 report that relate to hydrology and groundwater transport modeling. What questions or issues will RHO raise concerning these reports?
14. What are all of the arguments that can be raised for DOE (RHO) positions? What points will RHO raise in defense of its positions?

AGENDA

**HYDROLOGIC PROGRAM FOR
BASALT WASTE ISOLATION PROJECT**

JANUARY 12, 1982

- 8:00 a.m. Welcome R. B. Goranson**
- 8:10 a.m. Purpose of Meeting R. A. Deju**
- 1) Address the Concerns Raised by the NRC**
 - 2) State the BWIP Position Relative to These Concerns**
 - 3) Reach Agreement on the Future BWIP Hydrology Activities**
- 8:20 a.m. Hydrologic Drilling Program G. S. Hunt and Staff**
- 1) NRC Comments**
 - 2) Relationship of Basalt Layers and Aquifers**
 - 3) BWIP Approach**
- 12:00 p.m. Lunch**
- 1:00 p.m. Groundwater Modeling G. S. Hunt and Staff**
- 1) NRC Comments**
 - 2) BWIP Approach**
 - o Involvement of PNL & USGS**
 - o Determination of Boundary Conditions**
- 4:30 p.m. Conclusion**



Note: If specific questions remain, time can be made available to discuss them on January 13, 1982.

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(g) "Parts of the lithosphere containing significant amounts of groundwater" means all geologic formations containing significant amounts of groundwater except: (i) formations situated at a depth or location which makes recovery of water economically or technologically impractical for the foreseeable future, or (ii) formations containing groundwater of such poor quality that it would serve no economic or environmental purpose in the foreseeable future even if recoverable. The Federal environmental impact statement for each disposal system shall identify all sources of groundwater within ten kilometers of the disposal system and shall explain why each source is or is not a significant source of groundwater.

(h) "Accessible environment" includes (i) the atmosphere, (ii) land surfaces, (iii) surface waters, (iv) oceans, and (v) parts of the lithosphere containing significant amounts of groundwater; the accessible environment also includes (vi) parts of the lithosphere containing insignificant amounts of groundwater that are more than ten kilometers in any direction from the original location of the radioactive wastes in a disposal system.

(i) "Reasonably foreseeable releases" means releases of radioactive wastes to the accessible environment that are estimated to have more than one chance in 100 of occurring within 10,000 years.

(j) "Very unlikely releases" means releases of radioactive wastes to the accessible environment that are estimated to have between one chance in 100 and one chance in 10,000 of occurring within 10,000 years.

(k) "Performance assessment" means an analysis which identifies those events and processes which might affect the disposal system, examines their effects upon its barriers, and estimates the probabilities