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MEMO/FY86/87/JP/86/02/14

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MEMORANDUM FOR: Myron H. Fliegel, Section Leader
 Hydrology Section, WMGT

FROM: Jeffrey A. Pohle, Project Officer
 Hydrology Section, WMGT

SUBJECT: PROGRAM PLAN FOR HLW HYDROGEOLOGY EFFORTS IN FY86 AND FY87
 DIRECTED TOWARD PREPARING FOR SITE CHARACTERIZATION PLAN
 REVIEWS

The amount of information being evaluated by section staff responsible for HLW hydrogeology has become so great, and detail so fine, that focusing disparate work efforts toward a common goal has become an increasingly difficult task. While our mission in the broad terms of licensing responsibility is clear, it has become necessary to establish a clear approach, or philosophy, as to just what our near term objectives are and how those objectives are to be accomplished. Therefore, the purpose of this memorandum is to delineate such a planned approach in order to integrate ongoing work efforts and ensure compatibility between near and long term objectives as we prepare to review DOE's site characterization plans. Objectives, products and potential problems are discussed herein.

Objectives

Over the long term our objectives include reviewing major DOE milestone reports, re-evaluating site issues, identifying technical concerns and, ultimately, tracking progress toward resolution of outstanding site issues. I believe that "issue tracking" is the most important long-term objective. However, before progress toward some targets can be assessed those targets need to be established. While in the long term the targets are the performance objectives of the regulations and related performance and site issues, near term targets are a potential myriad of detailed technical concerns. The problem confronting the technical staff in the near term is identifying these details in order to lay the foundation against which DOE's program can be evaluated and progress assessed.

Other than reviewing the Final Environmental Assessments, the next major milestone for the NRC is to review DOE's Site Characterization Plans. In order to lay the foundation for thorough and efficient review of the SCP's, there are four near term objectives, and potentially a fifth, which hydrology section staff may choose to accomplish prior to receipt of the SCP's. These objectives include:

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1. Identify key conditions, assumptions or interpretations inherent in existing or alternative conceptual models.

Accomplishing this objective will not be a trivial task even though time and resources require simplistic approaches be used. This is not an exercise in identifying "key parameters" which can be accomplished through inspection of the fundamental equations of flow and which has often been requested of us. The "key" terms here are "conditions, assumptions or interpretations".

2. Identify the type of data (information) necessary to verify key conditions, assumptions or interpretations in order to validate use of a conceptual model(s).

"Data" has often been assumed to mean specific measurements or values for given parameters. In this case "data" may well include observations of steady-state or transient phenomena, without quantitative value, as verification of an assumed condition.

3. Identify gaps in needed data/information base.

The objective here is not to evaluate each piece of information as to whether or not it is supportive of some key assumption but rather, having accomplished the first two objectives, reviewing the existing data base against data needs in order to identify gaps.

4. Develop GT Branch perspectives on technical considerations needing evaluation during site characterization.

These perspectives provide a guideline against which to review both the objectives and planned accomplishments of DOE's testing strategies related to characterizing the present groundwater system. Completion of the first three objectives will provide the technical rationale supporting development of these Branch perspectives.

5. Develop staff positions on acceptable testing strategies.

There is no consensus on the need for such positions at this time. However, past review plans developed within the Division usually require the staff not only to raise technical concerns but also to provide guidance and suggestions as to what is needed to resolve such concerns (SRP for EA Review 12/12/84). As we are informed about the details of DOE's testing programs, technical concerns may arise. It

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may be prudent to do some early work in this area in order to be in a position to develop STP's in a timely manner subsequent to SCP review. No commitment toward fulfilling this potential objective is being made at this time.

Products

Ongoing efforts by technical staff and contractors toward preparing for review of site characterization plans for each DOE HLW disposal site include:

- 1. Technical document reviews;
- 2. Inventory of existing data;
- 3. Evaluation of conceptual models and
- 4. Numerical or analytical analysis of various hydrogeologic conditions, assumptions or interpretations inherent in existing or alternative conceptual models. Although these work efforts can be itemized in linear fashion, in reality work is progressing concurrently.

As ideas and technical concerns are generated and proposals made to me for individual analyses I have begun to feel a need to provide a more integrated focus for these efforts. This is to avoid having the overall objectives lost in piecemeal fashion. To achieve this end a series of products which will integrate the results of ongoing work and accomplish identified objectives have been identified. These are:

- 1. Technical Evaluation Memoranda (TEM's) - These memoranda are undergoing their initial stage of development. The approach used here is a "top down" approach, starting with the regulations (performance objectives and favorable/potentially adverse conditions). Existing Issue-Oriented Site Technical Positions (Drafts) provide an analysis of the regulations which lead to development of site issues. The TEM's will follow-up on the site issues by working downward to summarize existing issues and aid in identifying new unresolved issues, technical concerns and gaps in DOE's program. Ultimately, I anticipate these memoranda will play the most important role in assessing progress of the overall program. In effect, these memoranda will provide the link between long and near term objectives of the staff. Clearly, the technical foundations (supporting rationales) for positions relative to the site issues are not completely developed yet. The number of "bottom line" conclusions which can be reached is limited. It is unlikely that these memoranda will mature fully, in a context important to technical staff, until late FY 87 or FY 88. These memoranda are not intended to be "one time shots" but are to be revised (updated) routinely, possibly annually.

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Table 1

NRC Hydrology Section Efforts in Preparing for DOE HLW SCP Reviews

<u>Product</u>	<u>Section Lead</u>	<u>Contractor Lead</u>	<u>Peer Review</u>	<u>Tentative Schedule</u>
1. Technical Evaluation Memoranda (Updated annually)				
A. NNWSI	Code11	N/A	TBD	4/86
B. BWIP	Weber	N/A	TRD	4/86
C. SALT (Palo Duro)	Ross	N/A	TBD	6/86
2. Data Needs Assessment				
A. NNWSI	Pohle	NWC/WWL	Code11/W&A	Draft 8/86
B. BWIP	Weber	NWC/TT	Coleman/W&A	Draft 8/86
C. SALT (Palo Duro)	Ross	NWC/DBS	Elzeftawy/W&A	Draft 11/86
3. GTBP - Site Characterization Objectives				
A. NNWSI	Pohle	W&A	Code11/NWC	Draft 11/86
B. BWIP	Weber	W&A	Coleman/NWC	Draft 11/86
C. SALT (Palo Duro)	Ross	W&A	Elzeftawy/NWC	Draft 3/87
4. STP - Testing Strategy (No commitments at this time)				
A. NNWSI	Pohle	W&A	Code11/NWC	TRD
B. BWIP (Revision)	Weber	W&A	Coleman/NWC	TBD
C. SALT (Palo Duro)	Ross	W&A	Elzeftawy/NWC	TBD

- 2. Data Needs Assessments - These reports will present the results of ongoing efforts related to review of existing data, conceptual model evaluations and supporting numerical/analytical analyses. Technical conclusions reached in these reports will be directed towards objectives 1, 2, and 3 discussed previously. These are intended to be objective, technical reports and will be prepared using site issues as guidance.
- 3. GT Branch Perspectives On Site Characterization Objectives - These perspectives will build upon the previous reports. Their focus will be on developing the technical considerations needing evaluation during site characterization, in effect, what DOE needs to accomplish. The primary focus will be on characterization of the present groundwater system (Site Issue 1.1 for all sites). These reports fulfill objective 4.
- 4. STP's On Testing Strategies - If the schedule allows and it is decided to pursue preparation of these positions, the focus will be on identifying acceptable testing strategies to accomplish site characterization objectives which, in effect, is guidance to DOE on how to accomplish. It may not be necessary to develop these positions unless serious concerns develop with DOE's planned testing strategies. These reports would fulfill objective 5.

Table 1 outlines the various reports, technical leads, review responsibility and tentative schedule.

Potential Problems

The complexity of the technical work together with time and resource constraints can impact schedules significantly. Some potential problem areas are identified and discussed.

- 1. Our approach to developing the data needs assessments will be as simple as can be justified. At this stage it is more important to be thorough and comprehensive than overly sophisticated. However, because all efforts and conclusions drawn must be related to overall performance of the repository in terms of the regulations, some transport analyses may be required. We may need to involve the geochemistry section and/or Sandia into the production or review process. This will impact schedules.
- 2. Table 1 indicates a more formalized internal review process. While we are fortunate to have considerable expertise available, I

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anticipate review of the Data Needs Assessments will require a number of iterations before acceptable drafts are available.

- 3. Review of final EA's will effectively halt progress in other areas until FEA reviews are complete.
- 4. Ongoing "routine" document reviews will interrupt production on a regular basis. Efforts at establishing bibliographic data bases have identified a considerable number of reports, for all sites, which could be reviewed formally. While the new review procedure does not apply "retroactively", priorities will have to be adjusted often by section staff when scheduling review of documents already on file. If we were to do a written review of every DOE report with any relevance to hydrology I estimate it would require 1 to 1.5 FTE's per site. Although familiarity with the document base is a necessity to produce major reports, individual written reviews will remain an independent production item.
- 5. Resources required for future efforts in preparing Technical Evaluation Memoranda need identification to be factored into schedules.

Fulfilling the objectives outlined prior to SCP reviews will require maximum utilization of resources. The tentative schedule still requires input from our contractors.

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