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STANDARD REVIEW PLAN

FOR

FINAL ENVIRONMENTAL ASSESSMENTS

U.S. NUCLEAR REGULATORY COMMISSION
DIVISION OF WASTE MANAGEMENT

March 18, 1986

Enclosure 2

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STANDARD REVIEW PLAN FOR THE FINAL ENVIRONMENTAL ASSESSMENTS (FEA)

1.0 INTRODUCTION

The Department of Energy (DOE) released nine Draft Environmental Assessments (DEAs) on December 20, 1984, and the Nuclear Regulatory Commission (NRC) reviewed these nine DEAs and gave DOE comments on March 20, 1985. The Final Environmental Assessments (FEAs) will include revisions to the DEAs resulting from DOEs evaluations of the comments on the DEAs received from NRC and other parties. FEAs are anticipated for the five sites which DOE nominates.

NRC plans on reviewing the five FEAs when they are released. This standard Review Plan for FEAs gives guidance to the NRC staff on conducting the review. The following topics are addressed:

Purpose and Objectives
Scope/Level of Detail
Product Description
FEA Review Activities
Schedule
Organization and Responsibilities
Resource Commitment
Quality Assurance
Review Procedures

The overall review period and schedule for milestones has been determined so the Commission will be prepared to respond to questions from Congress or the President/OMB should they arise. The current understanding is that DOE will release the FEAs and make the site recommendation to the President at the same time. Therefore, under NWPA the President would have 60 days to make his decision or extend his decision period for another six months. The ten week review period is needed to fully complete the various management reviews and prepare a final product to the Commission. However, major comments will be first identified after four weeks, thereby providing for an earlier response for testimony if needed (see section 6.2).

The FEA Review Plan is the best prediction, prior to the beginning of this project, of the required work. While guidance on review fundamentals will not change, if changes are needed due to unforeseen events, they will be done as written revisions to this plan. These revisions will be coordinated with the branch chiefs and issued by the FEA coordinator to the project review teams and discussed in team meetings as needed.

The FEA Review Plan is comprehensive in coverage but not detailed in every area. The essential guidance for review preparations and conducting the review itself is given in this plan. Seven procedures identified in section 11.0 will be developed to provide an additional level of detail to support the plan mainly in the areas of comment writing and product production. To the extent

possible all needed procedures have been identified and are referenced in the FEA Review Plan. These procedures will be developed in a timely manner well in advance of the start of the review.

2.0 PURPOSE

The FEA review is being done to support NRC's ongoing effort to identify major concerns important to NRC's prelicensing consultation with DOE. The FEAs give current information and revised DOE conclusions regarding the sites after considerable evaluation of numerous comments on the DEAs. Therefore, they provide a DOE benchmark or basis upon which DOE's project planning (including preparations for the Site Characterization Plans (SCPs) and draft Environmental Impact Statement (EIS)) will be based for those sites recommended for site characterization. Accordingly, NRC will identify major concerns with information in the FEAs so that DOE can be informed of major technical differences which should be considered by DOE in the plans they are developing. Unless the results of our review dictate otherwise, we would intend to document our major concerns as "open items" to be systematically addressed with DOE, the host states, and affected Indian tribes through our normal prelicensing interactions. The results of this review will also be significant to NRC's program planning, tracking of open items, and preparing to review DOE SCPs.

The FEA review is also being done to inform the Commission of any major concerns the staff may have with the FEAs so they will be prepared to respond to any questions which might be addressed to the Commission on its review of DOE's FEAs.

3.0 OBJECTIVES

1. Identify and document any major concerns with DOE's responses to the NRC major comments and certain detailed comments (detailed comments referenced by major comments and other detailed comments that now appear to warrant the same attention as the major comments based on the ongoing review of DOE's program). In other words identify residual major concerns not adequately addressed by DOE.

2. Become aware of as well as identify and document any major concerns with new data and information resulting from revisions/additions to the DEAs by DOE.

3. Identify and document any major concerns with changes to the findings and supporting material in the FEAs.

4. Identify and document major concerns with the technical evaluations in Chapter 7 including inconsistencies in use of data, interpretations, etc., between Chapter 7 and other supporting FEA chapters. This does <u>not</u> include a review of the evaluation methodology.

5. Identify and document any inconsistencies between the evaluation methodology in Chapter 7 and the siting guidelines as concurred in by the Commission (including whether or not the evaluation methodology is an interpretation of the guidelines).

The FEA review is not a review like that of the DEA; it should not be a comprehensive and detailed review effort to identify every concern regardless of importance and document these concerns as major and detailed comments. The FEA review, as indicated above, focuses only on documenting major concerns as major comments.

4.0 SCOPE/LEVEL OF DETAIL

The FEA review should be a "level-of-effort" review completed within the time period given and focused on documenting major concerns with the FEAs in a form that meets the defined product requirements (see section 5.2). While some guidance on scope is given below, the NRC staff should understand that judgments by the technical reviewers, their section leaders and project managers will be a significant factor in specifically scoping the review, i.e., identifying portions of the FEA to review in detail (after scanning/reading the complete FEA), identifying key, new references and new data to review and developing any major concerns with the FEA. Any questions or uncertainty regarding the scope of the review should be raised immediately to the respective project manager and section leader.

4.1 Documents for Review

- FEAs released by DOE. The current planning assumption is that DOE will release five FEAs for the top five sites identified in the DEA (i.e., Deaf Smith, Davis Canyon, Richton Dome, Hanford, and Yucca Mountain).

- New key FEA references judged by the technical reviewer, in consultation with his section leader to be significant to the review objectives.

- New data and information judged by the technical reviewer, in consultation with his section leader to be significant to the review objectives.

4.2 Portions of FEA for Review

- Scan/read complete document to determine all sections important to area of responsibility (see section 8.0). The FEA comment response appendix should be very useful in identifying where changes have been made in the text in response to DEA comments from NRC and others.

- o Review sections of the text and appendices relevant to area of responsibility (see section 8.0).

- o Based on recent discussions with DOE, the exact scope and content can not be determined at this time. Additional guidance will be developed for reviewing Chapter 7 when this information is obtained from DOE. It appears that Chapter 7 and supporting documents may contain performance assessments different than those given in Chapter 6.

4.3 Types of Concerns to Consider in Review

DOE responses to NRC's major DEA comments (and certain detailed comments, see section 3.0, no. 1) should be reviewed considering the items given below. DOE responses to detailed comments not referenced in major comments or not warranting the same attention as major comments will not be part of this review; concerns with responses to these comments should be considered as necessary in future DOE/NRC prelicensing interactions (see section 6.1 on identifying detailed comments for review).

1. Lack of recognition of NRC comment

2. Lack of understanding of the NRC stated "problem and basis"

3. Lack of agreement with NRC stated "problem and basis"

4. Lack of adequate support for disagreement with NRC stated "problem and basis"

5. Lack of agreement with NRC stated "suggested resolution"

6. Lack of adequate support for disagreement with NRC stated "suggested resolution"

7. Assuming agreement with NRC "suggested resolution," lack of, inadequate, or inconsistent implementation of resolution through changes to appropriate sections of the FEA

Reviews of new information in the FEA should consider the following items identified in the Standard Review Plan for Draft Environmental Assessments:

1. Lack of adequate consideration of available data.

2. Lack of adequate consideration of alternative interpretations, assumptions, or performance assessments.

3. Lack of adequate consideration of uncertainties resulting from all sources including data collection, analyses, interpretations, and performance assessments.

4. Lack of internal consistency of information including data, interpretations, assumptions, and methods of analysis and evaluation.

5. Lack of adequate documentation in EA or references to support interpretations, assumptions, conclusions.

5.0 PRODUCT DESCRIPTION

5.1 Nature of Product

The final product will consist of one comment package with a separate set of comments for each FEA and one common introduction. A commission paper will also be prepared to send the comment package to the Commission for their information along with a recommendation for any appropriate followup actions.

There is also an option for the development of testimony for any hearing or responses to congressional questions should they arise. These products would be based on the comment package described above and their format and content would be determined upon evaluation of the request.

5.2 Defined Product Requirements

Given below are the defined requirements of the final product. These are to be met by both the technical reviewers who review and comment on the FEA and reviewers who check the comments prepared by the technical reviewers (see section 10.1 and Table 3).

1. Technically defensible

2. Accurately represents FEA information (i.e., FEA has been correctly quoted/represented including recognizing what is said on a given topic in all chapters and appendices of the FEA)

3. Consistent with FEA review plan objectives (see section 3.0) and responsibilities (see section 8.2)

4. Technically consistent within a discipline and across projects

5. Technically consistent across different disciplines within one project

6. Consistent with NRC-HLW policies and technical positions

7. Written in a clear, concise, complete, and specific manner consistent with procedures 1 and 2 on comment and product content (see section 11.0)

8. Written in an objective and factual tone consistent with procedures 1 and 2 on comment and product content (see section 11.0)

9. Written grammatically correct and editorially consistent with procedure 3 on editorial and format guidance (see section 11.0)

5.3 Overall Product Format and Content

Given below is the table of contents and estimated number of pages for the comment package. The product would closely resemble in format and length the introduction and only the major comments on NRC's DEA review. Detailed comments as produced for the DEA review would not be prepared for the FEA review. The format below was chosen to provide direct traceability to NRC's major DEA comments.

FEA Review Contributors (1 page)
Introduction (2 pages)
- Background
  - NRC Staff Review
  - Presentation of FEA comments
- Major comments on Hanford Site (a total of about 10-20 pages for each FEA)
  - Major comments on DOE Responses to NRC Major Comments (order to be determined)
    - Comment 1 (Title)
    - Comment 2 (Title)
    - etc.
  - Other Comments
    - (include comments on new information and changes to findings and supporting material in FEA)
  - References
- Major comments on Yucca Mountain Site
  - (same format as Hanford comments above)
- Major comments on Deaf Smith Site
  - (same format as Hanford comments above)
- Major comments on Davis Canyon Site
  - (same format as Hanford comments above)
- Major comments on Richton Dome Site
  - (same format as Hanford comments above)

5.4 Comment Format and Content

For comments on DOE Responses to NRC major comments the following should be used:

- Only provide a comment for which there is some type of major concern with DOE's response.

- The comment should consist of the following content:

  Full title as used in NRC's DEA comments and major comment number.

  Statement of the concern(s) (i.e., problem), associated basis for the concern(s), and significance. Refer to location(s) in FEA which is the source(s) of the concern (give section no., page no., paragraph no.). (See procedures 1 and 2, section 11.0, to be developed.)

  Where there is more than a single concern these should be presented separately if possible along with the basis as needed for clarity.

  Unless the results of our review dictate otherwise, suggested resolutions for the FEA should not be part of the comment. Resolutions related to DOE's SCP preparations will also not be part of the comment but will be handled in future NRC/DOE interactions (see section 2.0 paragraph 1).

- See procedure 2, section 11.0, for example comments (to be prepared).

For other comments relating to major concerns with either new or changed information the following should be used:

- Organize comments by the guideline number and title and number comments sequentially.

- The comment should consist of:

  Statement of the concern(s) (i.e., problem), associated basis for the concern(s), and significance. Refer to the location in FEA which is the source of the concern (section no., page no., paragraph no.).

  Unless the results of our review dictate otherwise, suggested resolutions for the FEA should not be part of the comment. Resolution related to DOE's SCP preparations will also not be part of the comment but will be handled in future NRC/DOE interactions.

- Concerns here should be major technical problems equivalent to NRC's major comments on the DEA. Nontechnical concerns such as editorial problems are not included.

6.0 FEA REVIEW ACTIVITIES

6.1 Review Preparation

The following activities should be conducted to meet the specific needs in a given technical area.

1. Obtain working knowledge of Draft EA in areas of responsibility.

2. Obtain detailed knowledge of NRC major comments and supporting specific comments in areas of responsibility.

3. Obtain familiarity with States, Tribes, USGS, others, comments on the DEA in areas of responsibility. Identify any major concerns not identified by NRC's comments on the DEAs. (note: these reviews were conducted earlier this year.)

4. Obtain detailed understanding of FEA Review Plan through reading, briefings, and discussions.

5. Obtain lists of new FEA references, and obtain copies of new FEA references.

6. Select and review key new FEA references judged by the technical reviewer, in consultation with his section leader as potentially significant to NRC's review.

7. Identify and review any new data judged by the technical reviewer, in consultation with his section leader as potentially significant to NRC review. NRC's on-site representatives and DOE's points of contact should be consulted as needed.

8. Identify those detailed comments from the DEA review that now appear to warrant the same attention as the major comments based on the ongoing review of DOE's program.

9. RP complete all review procedures (e.g., example comments, production activities, see section 11.0).

10. Obtain agreement on the DOE release date of the necessary numbers of FEA copies to support NRC's review (RP).

6.2 Steps in FEA Review and Product Development

Given below are the review activities for the FEA review:

FEA Review Activities	Responsibilities*
Step 1	
Rapid "reading/scanning" of entire FEA(s)	All (TR, SL, PM)
Review applicable sections of FEA & key references	TR
Discuss with PM and SL review status	TR, SL, PM
Prepare draft of comments for quality reviews	TR
Step 2	
Section/technical quality review	SL (supporting reviewers)
Project review	PM (assigned reviewers)
Briefings as needed	-
Resolve review markups	TR, SL, PM
Prepare revised draft of comments	TR
Verbal concurrence on revised draft	TR, SL, PM
Prepare draft of introduction and commission paper	RP
Review draft introduction and Commission Paper	RP
Resolve comments on draft introduction, and Commission Paper	RP
Prepare revised draft of introduction, and Commission Paper	RP

*

TR - Technical Reviewer
SL - Section Leaders
PM - Project Managers
BC - Branch Chiefs
RP - Repository Projects Branch
T - Project Team
PE - Production/Editing Team
PC - Policy and Program Control Branch
DSSRT - Decision Support System Review Team

Step 3

Merge comments and introduction, into a complete product	PE
Complete final editing	PE
Branch Chief review and resolution	BC
Decision support system review and resolution	DSSRT
Division review and resolution	All as needed
Office review and resolution	All as needed
Written concurrence	TR, SL, PM, BC, DSSRT
Reproduction	PE
Transmittal to Commission	PE

Step 4 (Optional)

Respond to requests for testimony	PC/RP/EG/GT

6.3 Production of Comments and Overall Product

Production (typing, merging, etc.), editorial and format guidance is given in procedures 3 and 4 (to be developed).

7.0 SCHEDULE

The overall review period is ten weeks. Major milestones within this review period are shown in Figure 1 for the Hanford and Yucca Mountain sites and Figure 2 for the Deaf Smith, Davis Canyon and Richton Dome sites. Note that the schedules for the major milestones are the same for both BWIP and NNWSI but that an additional one week has been added to the step 1 for the salt review to account for reviewing three salt FEAs.

Specific dates will be identified when the final release date of the FEAs is known (see procedure 7, section 11.0). The overall review period and schedule for milestones has been determined so the Commission will be prepared to respond to questions from Congress or the President/OMB should they arise. The current understanding is that DOE will release the FEAs and make the site recommendation to the President at the same time. Therefore, under NWPA the President would have 60 days to make his decision or extend his decision period for another six months.

8.0 ORGANIZATION AND RESPONSIBILITIES

8.1 Organization

The general organization for the FEA review will follow the project team approach which has been in use for repository project work and which was used for reviewing the Draft EA's. The elements of this organization are shown in Figure 2.

8.2 Responsibilities

In the broadest sense all staff and TA contractors assigned to this review are responsible for conducting their portion of the review following all the elements of this FEA Review Plan. In short this consists of conducting a technical review of the FEA, producing comments, and checking the quality of the comments in the areas of assigned responsibility which meets the defined product requirements given in Section 5.2 and follows the milestones and schedules given in Section 7.0. Assignment of various responsibilities for this review are given below.

The general responsibilities of the branches and sections are those defined in "Matrix Management Principles and Application," September 5, 1984. The Projects Section of RP is responsible for overall project management with the FEA Review Coordinator directing and coordinating the work of the three project managers. The project managers are responsible for managing the technical review and coordination of the overall product development for the FEAs for their project. Also included is conducting project reviews described in section 10.1. The technical reviewers from GT, EG, and RP functional sections making up each project team are responsible for conducting the technical review of the FEAs, developing comments in the areas of responsibility defined below, and resolving review comments in steps 2 and 3. Technical reviewers are also responsible for identifying to appropriate technical reviewers potential major concerns in other technical areas that they become aware of during their review. Lead technical reviewers are responsible for coordinating the review and comment development for their assigned technical area by other technical reviewers (i.e., staff and/or contractors). The section leaders are responsible for the technical quality of the comments produced by their staff. Therefore, the section leaders and other members of the functional sections or contractors assigned by the section leaders are responsible for conducting section/technical quality reviews described in section 10.1. The production and editorial team is responsible for developing the editorial and format requirements of the product (well in advance of the review), coordinating the production and producing the product, editing, reproduction, and distribution.

The review objectives for which the technical reviewers and the respective quality reviews are responsible are defined in Table 1.

Responsibilities with respect to the review steps and associated activities are identified in Section 6.2.

The technical reviewers responsible for reviewing DOE responses to NRC major and supporting detailed comments are given in Table 2. The team management responsibilities, lead and supporting technical

reviewers (staff and TA contractors) for each technical area and quality reviewers are given in Tables 3 through 7. The lead technical reviewer should obtain input from TA contractors as needed.

Responsibilities for guidelines and supporting information in the FEA and references are the same as used in the review of the Draft EAs and are given in Appendix 1.

Responsibilities for reviewing sections of the FEAs are the same as used in the review of the Draft EA's. An example from the DEA review is given in Appendix 2. Similar markups for each project will be provided when the Table of Contents for the FEAs is received. It should be reiterated here that all technical reviewers are responsible for a scanning/selective reading of the complete FEA to determine where information in their technical area of responsibility is located.

Responsibilities for quality assurance including concurrence are given in section 10.0 on Quality Assurance.

9.0 RESOURCE COMMITMENT

It is anticipated that most of the FEA review will be done by the NRC staff. Needed TA contractor support will be determined by the technical reviewer and his section leader on a case-by-case basis. Contractor involvement could range from technical review of portions of the FEA to doing quality reviews of staff comments on the FEA.

This review is considered to be a "level of effort" review with the product prepared in the time frame determined by the schedule. General levels of resource commitment for the staff are given below, but should be considered somewhat variable depending on the nature of changes and new material in each FEA.

Review Steps	Estimated Level of Commitment	Branch
Preparations	Variable and as needed depending on new information and new staff	RP, EG, GT
Steps 1 & 2	Up to full time as needed	EG, GT, RP
Step 3	Up to full time as needed	RP
	Up to quarter time as needed	GT, EG

10.0 QUALITY ASSURANCE

10.1 QA Requirements

The QA requirements for reviewing the FEA consist of the following:

1. Develop and issue a review plan
2. Conduct the FEA review and develop the product following the issued review plan
3. Conduct internal quality reviews of the product against defined product requirements
4. Assure that the quality review of the product was satisfactorily conducted
5. Document that the requirements in 1-4 above have been satisfactorily completed

1. Develop and Issue FEA Review Plan

A review plan will be developed in coordination with the Geotechnical Branch, Engineering Branch, and Policy and Program Control Branch. It will be issued to the complete review team in advance of the release of the FEAs and start of the review. More detailed review procedures identified in section 11.0 will also be issued before review work begins. Any changes or review procedures developed will be issued to the complete review team along with an updated log of changes to the FEA Review Plan (see procedure 6 on the procedure for issuing changes to the FEA Review Plan).

2. Apply the FEA Review Plan

All work in steps 1, 2, and 3 will be conducted following the review plan and procedures. Specifically, for step 1 and before the quality reviews of step 2 begin, the FEA technical reviewers should review their own product and be satisfied that they have met all the defined product requirements (see no. 3 below) to the best of their ability. In addition, informal review meetings and discussions will be held during step 1 as appropriate with and among FEA technical reviewers, section leaders, and project managers. These interactions are intended to give early feedback to assist the technical reviewers in producing a high quality draft and should minimize iterations during the resolution of section/technical quality reviews and project reviews.

3. Conduct Section/Technical Quality Reviews and Project Reviews

Quality reviews will be done under step 2 on the comments prepared in step 1 by the FEA technical reviewers. These quality reviews are conducted internally by NRC staff and contractors as section/technical quality reviews and project reviews described below.

The section/technical quality review and the project review will consist of a complete reading of all comments and selected checks or smart audits to various levels of detail (e.g., of calculations, comments accurately representing FEA information, etc.) to determine if the products meet the defined product requirements in section 5.2. While all requirements may be reviewed under the section/technical quality review, the responsibility is technical and on product requirements nos. 1, 2, 3, 4, and 6. Likewise, while the project review may cover all product requirements, its responsibility is an nos. 3, 5, 6, 7, and 8. These reviews should also follow the "Matrix Management Principles and Applications" (September 5, 1984) p. 3 and Reviews and Concurrence (see section 10.1, no. 5).

An editorial review will also be conducted by the editors of the production and editorial team and will focus only on nos. 7, 8, and 9.

For section quality reviews, section leaders can designate either staff or contractors to support them in doing their quality reviews where either additional resources are needed or specific technical expertise is needed. Those supporting the section quality review should have: 1) technical expertise in the technical area being checked, 2) familiarity with the HLW program, 3) read applicable sections of the FEA, 4) read applicable NRC comments on the DEA and 5) read the FEA Review Plan and 6) not contributed to that portion of the specific product being reviewed.

For project reviews project managers can also be supported by staff (most likely the project teams performance assessment member). Policy reviews done by PC and reviews of consistency with NRC regulation by ELD will also be part of project reviews.

Section/technical quality reviews and project reviews will be done in parallel with the reviews completed during the first week of step 2. This will consist of giving each FEA

technical reviewer a markup of the comments showing specific changes proposed. Comment resolutions are the responsibility of the technical reviewer and will take place during the second week and will result after a minimum of interactions in a revised draft when complete. Significant disagreements which cannot be resolved among the technical reviewer, section leader or project manager should be resolved by the FEA coordinator and the responsible branch chiefs.

4. Conduct Branch Chief, Decision Support System and Division/ Office Director Reviews

After the internal quality reviews in step 2 have been completed the following reviews to assure the product quality will be done: 1) Branch Chief Review, 2) Decision Support System Review, and 3) Division and Office Director Review. Revisions to the product resulting from any of the above reviews will be coordinated with the appropriate staff in the review chain. For example, a change that is recommended by the Decision Support System Team needs to be reviewed and resolved by the respective technical reviewer, section leader/support reviewer, project manager, and branch chiefs.

Branch Chief Review (RP, EG, GT)

At a minimum the review will consist of the following:

- Reading of all comments and Commission Paper.
- Identify inadequacies obvious to the reviewer with respect to product requirements 1 through 9 and recommend and agree on resolutions. While all requirements may be reviewed by the RP, GT and EG branch chiefs, the responsibility is technical and on product requirements nos. 1, 2, 3, 4 and 6 for EG and GT and nos. 3, 5, 6, 7, 8 and 9 for RP.
- Check that section/quality reviews and project reviews were conducted and that there are no outstanding significant differences with respect to product requirements (e.g., discuss review with individuals involved).
- Spot checks in selected areas as needed.

Decision Support System Review

The Decision Support System Review will provide an independent review by senior staff members not directly involved with the products development. It will consist of the following:

- o Reading of all comments and Commission Paper.
- o Identify inadequacies obvious to the reviewers with respect to product requirements 1 through 8 and recommend and agree on resolutions.

Division/Office Director Review

At a minimum the review will consist of the following:

- o Reading of only the Commission Paper.
- o Identify inadequacies in the Commission paper and recommend and agree on resolutions.
- o Check by way of a briefing that section/quality reviews, project reviews and branch chief reviews were conducted and that there are no outstanding significant technical differences of opinion.
- o Check by way of a briefing that the Decision Support System Team Review was conducted and that there are no outstanding significant technical differences of opinion.

5. Concurrence

Concurrence signoffs shall be obtained from each FEA technical reviewer, section/technical quality reviewer, project reviewer, branch chief, and decision support system team member involved with the FEA review when the product is final. A standard memorandum will be used which will be signed and will have attached initialed final comments (see procedure 5 to be developed). These signoffs document that the QA requirements in numbers 2 to 4 above have been met for the portion of the review for which the person was responsible. With the exception of having signoffs from each person, the concurrence signoffs should follow the guidance in "Matrix Management Principles and Applications" (September 5, 1984) p. 3. Reviews and Concurrence which is as follows:

"Concurrence should be limited to areas of responsibility. No more than one concurrence is expected from each responsible branch. The model here is 'no legal objection.' Sections and branches should not feel responsible for reviewing and commenting on subjects outside of their areas of responsibility. Project review of technical products should emphasize scope, clarity, completeness, and consistency with regulatory and licensing needs, NRC policy, and other technical products. If differences of opinion between technical and projects branches cannot be resolved, project branch views will generally prevail on project issues and functional branch views will generally prevail on functional issues. However, any staff member who has a disagreement with the final product is obliged to bring his views to management attention and document them as appropriate..."

10.2 QA Records

The QA records for this review will consist of:

1. Issued FEA Review Plan, procedures, and any revisions
2. Concurrence signoff sheets for product
3. Any calculation sheets supporting comments
4. A copy of each product revision resulting from the technical review (step 1), the section/technical quality review and project review (step 2), the branch chief review, the decision support system review and finally the final product after Division and Office Director Review. In addition, the markup drafts from the Decision Support System Review will also become a QA record.

11.0 Review Procedures

The specific review procedures identified in this FEA review plan and listed below will be developed and issued before the review begins.

1. Guidance on writing comments
2. Example comments
3. Editorial and format guidance
4. Production guidance
5. Concurrence signoff memorandum
6. Issuing changes to the FEA Review Plan
7. Detailed milestones and schedules

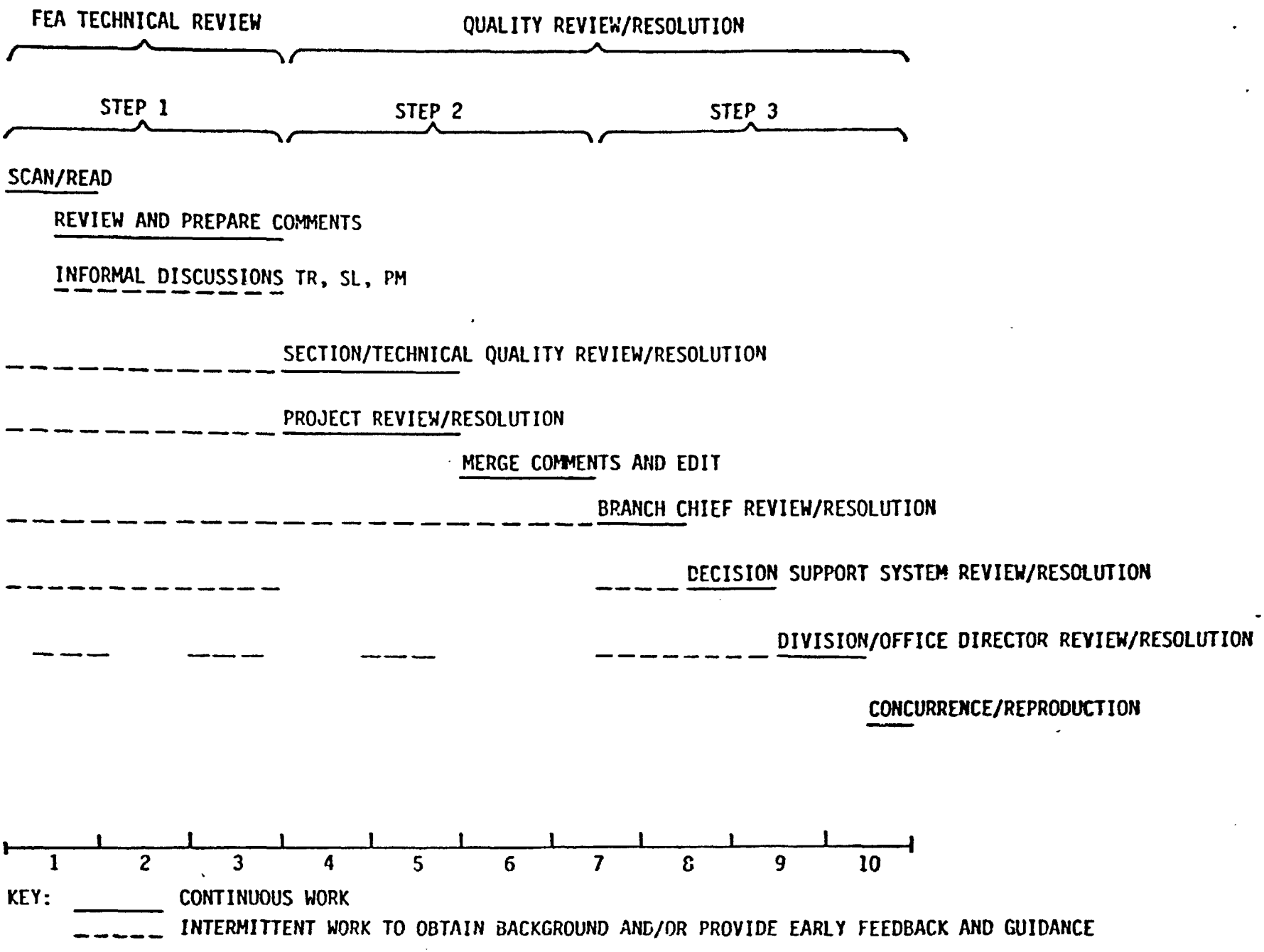


Figure 1 -- FEA Review Schedule for Hanford and Yucca Mountain FEA's

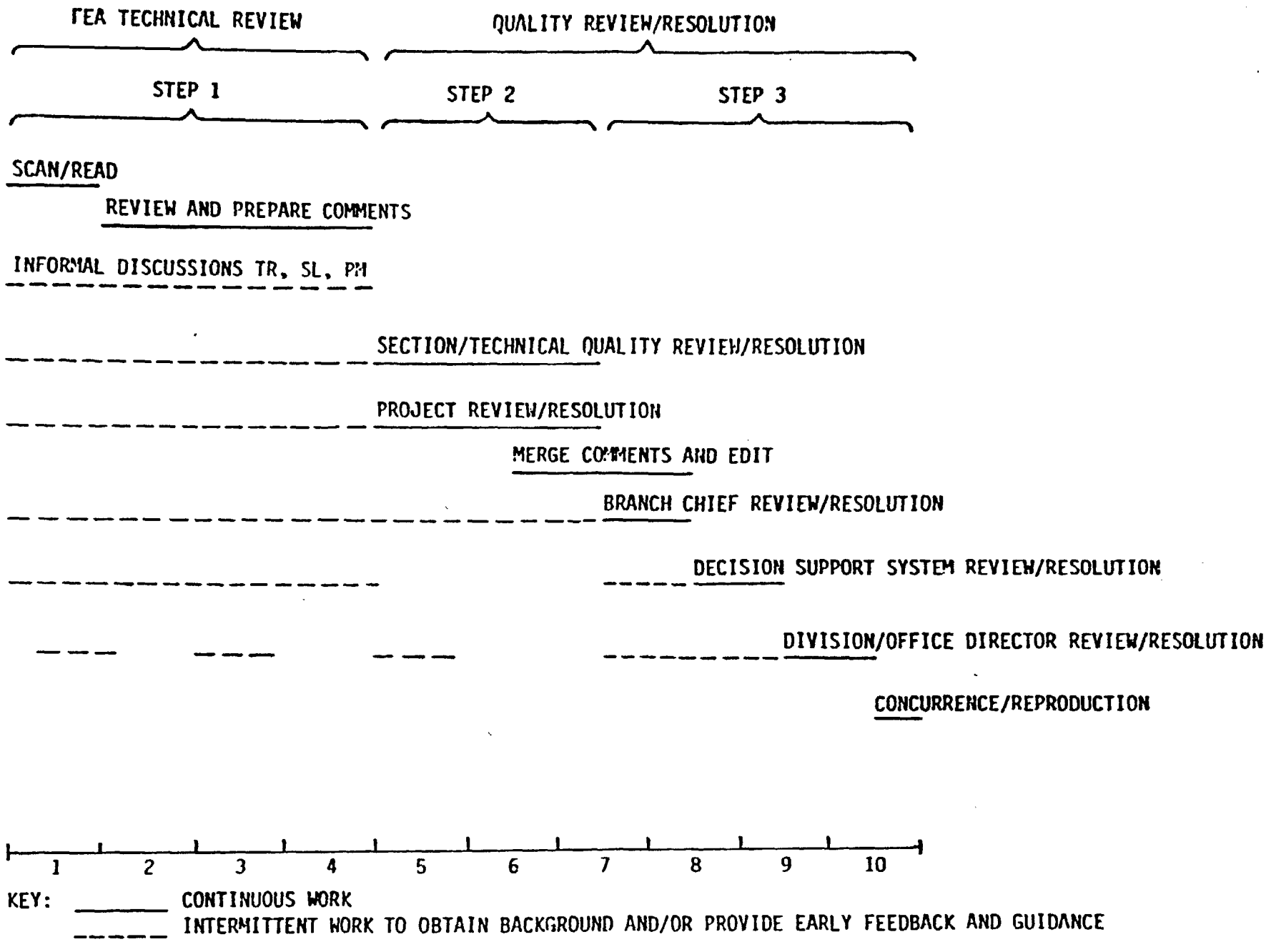


Figure 2 -- FEA Review Schedule for Deaf Smith, Davis Canyon and Richton Dome FEA's

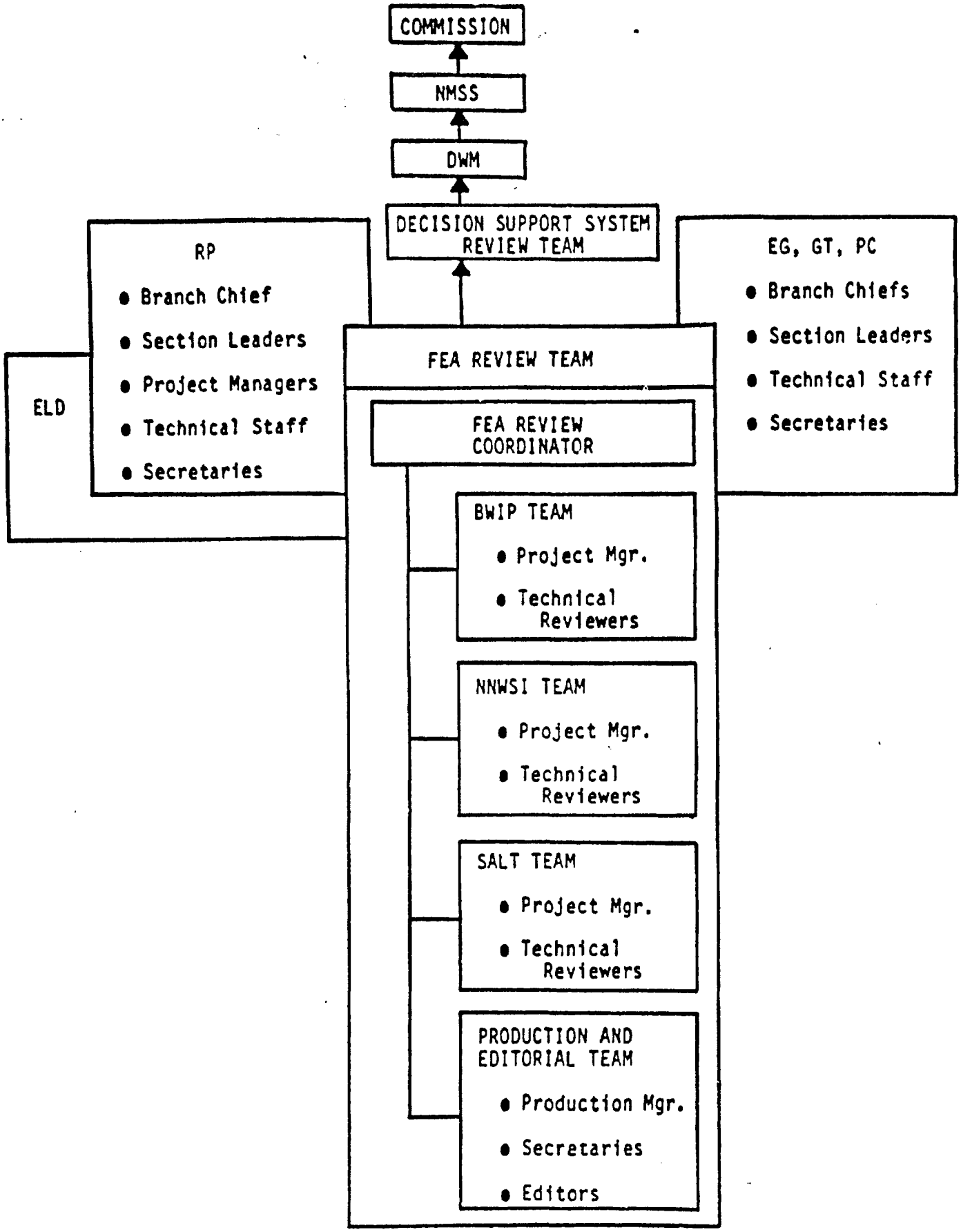


Figure 3 -- FEA Review Organization

Table 1 Responsibilities with Respect to Review Objectives

	FEA Review Objectives				
	Response to Major Comments	New Information	Changes in Findings	Technical Evaluation Guidelines in Chapter 7	
	1	2	3	4	5
Repository Projects					
Projects	2	2	2	2	2
Performance Assessment		1, 2	1, 2	1, 2	
External QA					
Reg/Environment		1, 2	1, 2	1, 2	1, 2
Geotechnical					
Geology/Geophysics	1, 2	1, 2	1, 2	1, 2	
Hydrology	1, 2	1, 2	1, 2	1, 2	
Geochemistry	1, 2	1, 2	1, 2	1, 2	
Engineering					
Design	1, 2	1, 2	1, 2	1, 2	
Rock Mechanics	1, 2	1, 2	1, 2	1, 2	
Waste Package	1, 2	1, 2	1, 2	1, 2	
Policy and Program Control	2	2	2	2	2
Executive Legal Director				2	2

* 1. technical reviews of FEA and preparation of comments
2. quality reviews of comments prepared by 1

TABLE 2 Responsibilities for Reviewing DOE Responses to NRC Major and Supporting Detailed Comments*

Major Comment Number	Technical Reviewer
SALT/DEAF SMITH SITE	
1.	John Trapp
2.	John Trapp
3.	Frederick Ross
4.	Walt Kelly
5.	Walt Kelly
6.	Jerome Pearring
7.	Jerome Pearring
8.	Jerome Pearring
9.	John Voglewede
10.	Robert Johnson
11.	Ted Johnson
12.	Seth Coplan
SALT/DAVIS CANYON SITE	
1.	John Trapp
2.	John Trapp
3.	Frederick Ross/Atef Elzeftawy
4.	Frederick Ross/Atef Elzeftawy
5.	Walt Kelly
6.	Walt Kelly
7.	Jerome Pearring
8.	Jerome Pearring
9.	Jerome Pearring
10.	John Voglewede
11.	Robert Johnson
12.	John Trapp/Frederick Ross
13.	Ted Johnson
14.	Seth Coplan
SALT/RICHTON DOME SITE	
1.	Richard Lee
2.	Richard Lee
3.	William Ford
4.	Walt Kelly
5.	Jerome Pearring
6.	Jerome Pearring
7.	Jerome Pearring
8.	John Voglewede

Table 2 (Continued)

Major Comment Number	Technical Reviewer
9.	Robert Johnson
10.	Ted Johnson
11.	Seth Coplan
NNWSI/YUCCA MTN. SITE	
1.	Charlotte Abrams
2.	Charlotte Abrams
3.	Jeff Pohle
4.	Jeff Pohle
5.	Linda Kovach
6.	Linda Kovach
7.	Linda Kovach
8.	Jeff Pohle
9.	Ted Johnson
10.	Tom Jungling
11.	Seth Coplan
BWIP/HANFORD SITE	
1.	Neil Coleman
2.	Neil Coleman
3.	David Brooks
4.	Harold Lefevre
5.	Harold Lefevre
6.	John Buckley
7.	John Buckley
8.	Kien Chang
9.	Ted Johnson
10.	Seth Coplan

*Only detailed comments specifically referenced in the major comment

Table 3 Responsibilities for Salt Team Management, Technical Reviews, and Quality Reviews for the Deaf Smith Site FEA.

Technical Area	Technical Reviewers	Section Quality Reviewers**	Project Quality Reviewers**
Geology/Geophysics	John Trapp* Michael Blackford Buck Ibrahim	Philip Justus*	Robert Johnson*
Hydrology	Frederick Ross* Ted Johnson	Mike Fliegel*	Robert Johnson*
Geochemistry	Walt Kelly* John Bradbury	Kenneth Jackson*	Robert Johnson*
Design/Rock Mechanics	Jerome Pearring* Naiem Tanious	Mysore Nataraja*	Robert Johnson*
Waste Package	John Voglewede* Charles Peterson	Timothy Johnson*	Robert Johnson*
Performance Assessment	Pauline Brooks*	Seth Coplan*	Robert Johnson*
Environment/ Socioeconomics/ Trans.	William Lilley* John Cook	Regis Boyle*	Robert Johnson*
FEA Review Coordinator**			
Project Manager	Robert Johnson		
Project Management Support**			
Production/Editorial Manager**			
Decision Support System Review Team			

*lead technical, section or project reviewer
**staff to be assigned

Table 4 Responsibilities for Salt Team Management, Technical Reviews, and Quality Reviews for the Davis Canyon Site FEA.

Technical Area	Technical Reviewers	Section Quality Reviewers**	Project Quality Reviewers**
Geology/Geophysics	John Trapp* Michael Blackford Buck Ibrahim	Philip Justus*	Robert Johnson*
Hydrology	Atef Elzeftawy* Ted Johnson Frederick Ross	Mike Fliegel*	Robert Johnson*
Geochemistry	Walt Kelly* John Bradbury	Kenneth Jackson*	Robert Johnson*
Design/Rock Mechanics	Jerome Pearring* Li Yang	Mysore Nataraja*	Robert Johnson*
Waste Package	John Voglewede* Charles Peterson	Timothy Johnson*	Robert Johnson*
Performance Assessment	Pauline Brooks*	Seth Coplan*	Robert Johnson*
Environment/ Socioeconomics/ Trans.	William Lilley* John Cook	Regis Boyle*	Robert Johnson*
FEA Review Coordinator**			
Project Manager	Robert Johnson		
Project Management Support**			
Production/Editorial Manager**			
Decision Support System Review Team			

*lead technical, section or project reviewer
**staff to be assigned

Table 5 Responsibilities for Salt Team Management Technical Reviews, and Quality Reviews for the Richton Dome Site FEA.

Technical Area	Technical Reviewers	Section Quality Reviewers**	Project Quality Reviewers**
Geology/Geophysics	Richard Lee* Michael Blackford Buck Ibrahim	Philip Justus*	Robert Johnson*
Hydrology	William Ford* Ted Johnson	Mike Fliegel*	Robert Johnson*
Geochemistry	Walt Kelly* John Bradbury	Kenneth Jackson*	Robert Johnson*
Design/Rock Mechanics	Jerome Pearring* Banad Jagannath	Mysore Nataraja*	Robert Johnson*
Waste Package	John Voglewede* Charles Peterson	Timothy Johnson*	Robert Johnson*
Performance Assessment	Pauline Brooks*	Seth Coplan*	Robert Johnson*
Environment/ Socioeconomics/ Trans.	William Lilley* John Cook	Regis Boyle*	Robert Johnson*
FEA Review Coordinator**			
Project Manager	Robert Johnson		
Project Management Support**			
Production/Editorial Manager**			
Decision Support System Review Team			

*lead technical, section or project reviewer
**staff to be assigned

Table 6 Responsibilities for NNWSI Team Management, Technical Reviews, and Quality Reviews for the Yucca Mountain Site FEA.

Technical Area	Technical Reviewers	Section Quality Reviewers**	Project Quality Reviewers**
Geology/Geophysics	Charlotte Abrams* Keith McConnell Mike Blackford Buck Ibrahim	Philip Justus*	King Stablein*
Hydrology	Jeff Pohle* Dick Codell Ted Johnson	Mike Fliegel*	King Stablein*
Geochemistry	Linda Kovach* John Bradbury	Kenneth Jackson*	King Stablein*
Design/Rock Mechanics	Dinesh Gupta* John Peshel Dave Tiktinsky	Mysore Nataraja*	King Stablein*
Waste Package	Tom Jungling* Roy Person	Timothy Johnson*	King Stablein*
Performance Assessment	Sandra Wastler*	Seth Coplan*	King Stablein*
Environment/ Socioeconomics/ Trans.	Bill Lilley* John Cook	Regis Boyle*	King Stablein*
FEA Review Coordinator**			
Project Manager	King Stablein		
Project Management Support**			
Production/Editorial Manager**			
Decision Support System Review Team			

*lead technical section or project reviewer
**staff to be assigned

Table 7 Responsibilities for BWIP Team Management, Technical Reviews, and Quality Reviews for the Hanford Site FEA.

Technical Area	Technical Reviewers	Section Quality Reviewers**	Project Quality Reviewers**
Geology/Geophysics	Harold LeFevre* Michael Blackford Buch Ibrahim	Philip Justus*	Paul Hildenbrand*
Hydrology	Michael Weber* Neil Coleman Ted Johnson	Mike Fliegel*	Paul Hildenbrand*
Geochemistry	David Brooks* John Bradbury	Kenneth Jackson*	Paul Hildenbrand*
Design/Rock Mechanics	John Buckley*	Mysore Nataraja*	Paul Hildenbrand*
Waste Package	Kien Chang* Everett Wick	Timothy Johnson*	Paul Hildenbrand*
Performance Assessment	Wayne Walker*	Seth Coplan*	Paul Hildenbrand*
Environment/ Socioeconomics/ Trans.	Bill Lilley* John Cook	Regis Boyle*	Paul Hildenbrand*
FEA Review Coordinator**			
Project Manager	Paul Hildenbrand		
Project Management Support**			
Production/Editorial Manager**			
Decision Support System Review Team			

*lead technical, section or project reviewer
**staff to be assigned

Appendix A Definition of Roles for Guidelines Responsibilities

The identification of both lead and input roles requires that information relevant to a given guideline or condition under a guideline be reviewed and comments prepared as necessary. These roles do not imply that comments must be made.

1. Lead Role
   - o Reviews and comments as necessary on information relevant to a given guideline, both in chapter 6, other EA chapters, and documents referenced by EA chapters.
   - o Combines input from Input groups with own, as necessary, in order to develop "major comments" with respect to given guidelines and "detailed specific comments" for the guidelines part of chapter 6. This might involve coordinating meetings to decide on and prepare "major comments".
   - o The Lead Role does not necessarily mean that the group has complete expertise in each of the related conditions (e.g., qualifying conditions, etc.), only that the Lead group has expertise for the guideline and is responsible for the coordination of input from others with expertise in specific parts of a guideline.

2. Input Role
   - o Reviews and comments as necessary on information relevant to a given guideline or condition under a guideline, as in the Lead Role above, however gives these comments to the Lead group as input.
   - o Participates, as necessary, in meetings with Lead and other Input groups to develop major comments on a given guideline.
   - o Receives output (staff comments) on given guideline.

3. Wants Output
   - o Receives output (staff comments) on given guideline. Might also request additional supporting information from Lead group.
   - o Reviews output, as necessary, for consistency with other staff comments. Informs Lead group of any inconsistencies.
   - o No review and comments of EA information required.

SUMMARY OF GUIDELINE RESPONSIBILITIES

Guideline	Lead	Input
960.4 Postclosure Guideline	--	--
960.4-1 System Guideline	PA	Geo., Hydro., Geochem. D/RM, WP
-2 Technical Guidelines		
2-1 Geohydrology	Hydro.	Geo., Geochem., D/RM, Envir.
-2 Geochemistry	Geochem.	Geo., Hydro., PA, WP
-3 Rock Characteristics	D/RM, (Geochem.**)	Geo., Hydro., Geochem., WP, PA
-4 Climatic Changes	Hydro.	Geo., Envir.
-5 Erosion	Geo.	
-6 Dissolution	Geo.	Hydro., Geochem.
-7 Tectonics	Geo.	Hydro., Geochem., D/RM
-8 Human Interference		
-1 Natural Resources	Geo.	PA, Hydro., Envir.
-2 Site Ownership & Control	*	Geo., Hydro.
960.5 Preclosure Guidelines		
.5-1 System Guidelines	PA, D/RM, Envir.	Geo., Hydro., Transp.
-2 Technical Guidelines		
-2-1 Population Density/Dist.	Envir	
-2 Site Ownership & Control	RP	Geo., Hydro., Geochem.

-3 Meterology	Envir.	Geo., Hydro.
-4 Offsite Install., & Operat.	RP	Geo., D/RM, Transp.
-5 Environmental Quality	Envir.	Geo., Hydro., D/RM, Transp.,
-6 Socioeconomic Impacts	Envir.	Hydro.
-7 Transportation	Transp.	Geo., D/RM, Envir.
-8 Surface Characteristics	Hydro.	Geo.
-9 Rock Characteristics	D/RM, (Geochem**)	Geo., Hydro., WP
-10 Hydrology	Hydro.	Geo., D/RM
-11 Tectonics	Geo.	D/RM

** Lead for only one condition under guideline

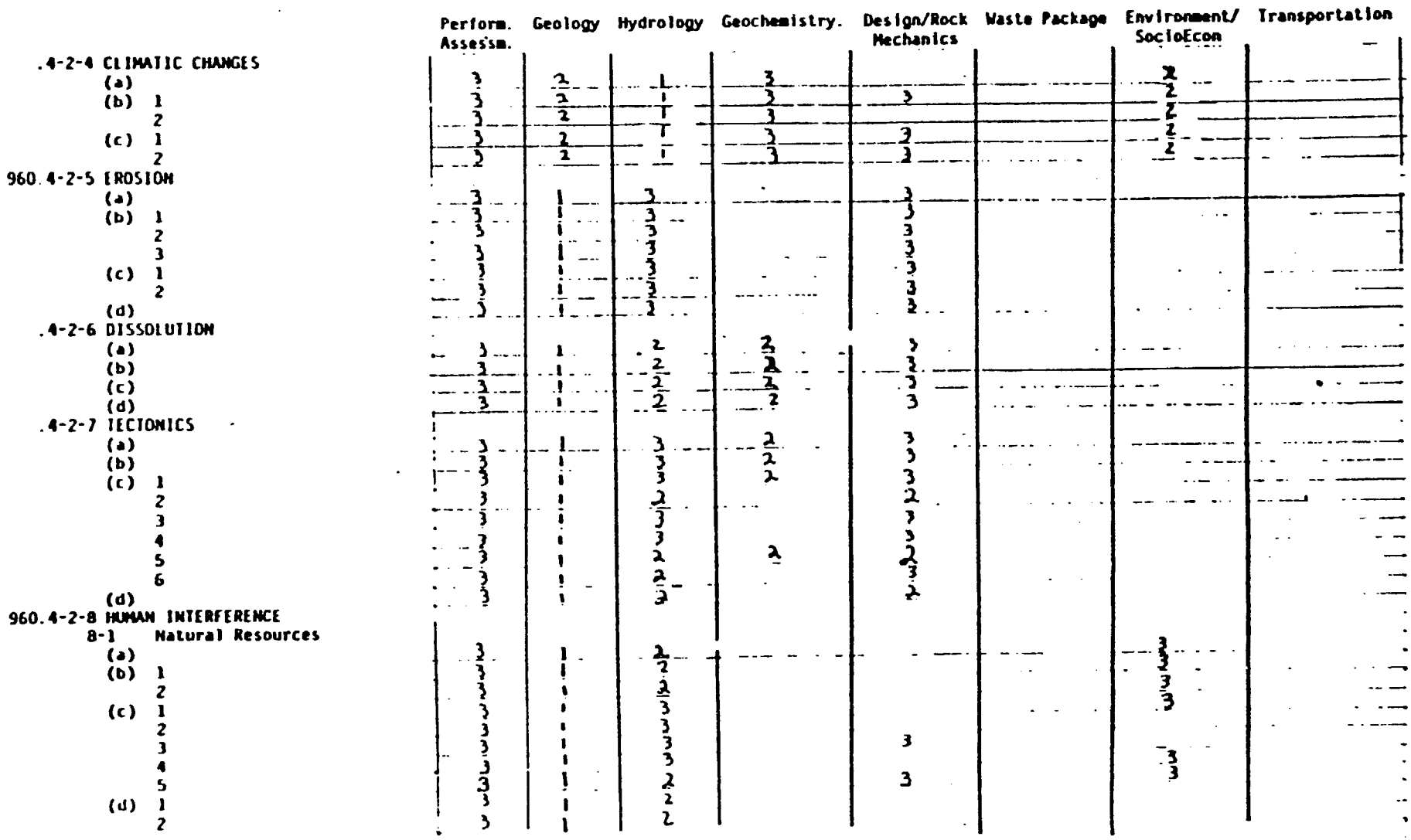
11/13/84

ENCLOSURE 4

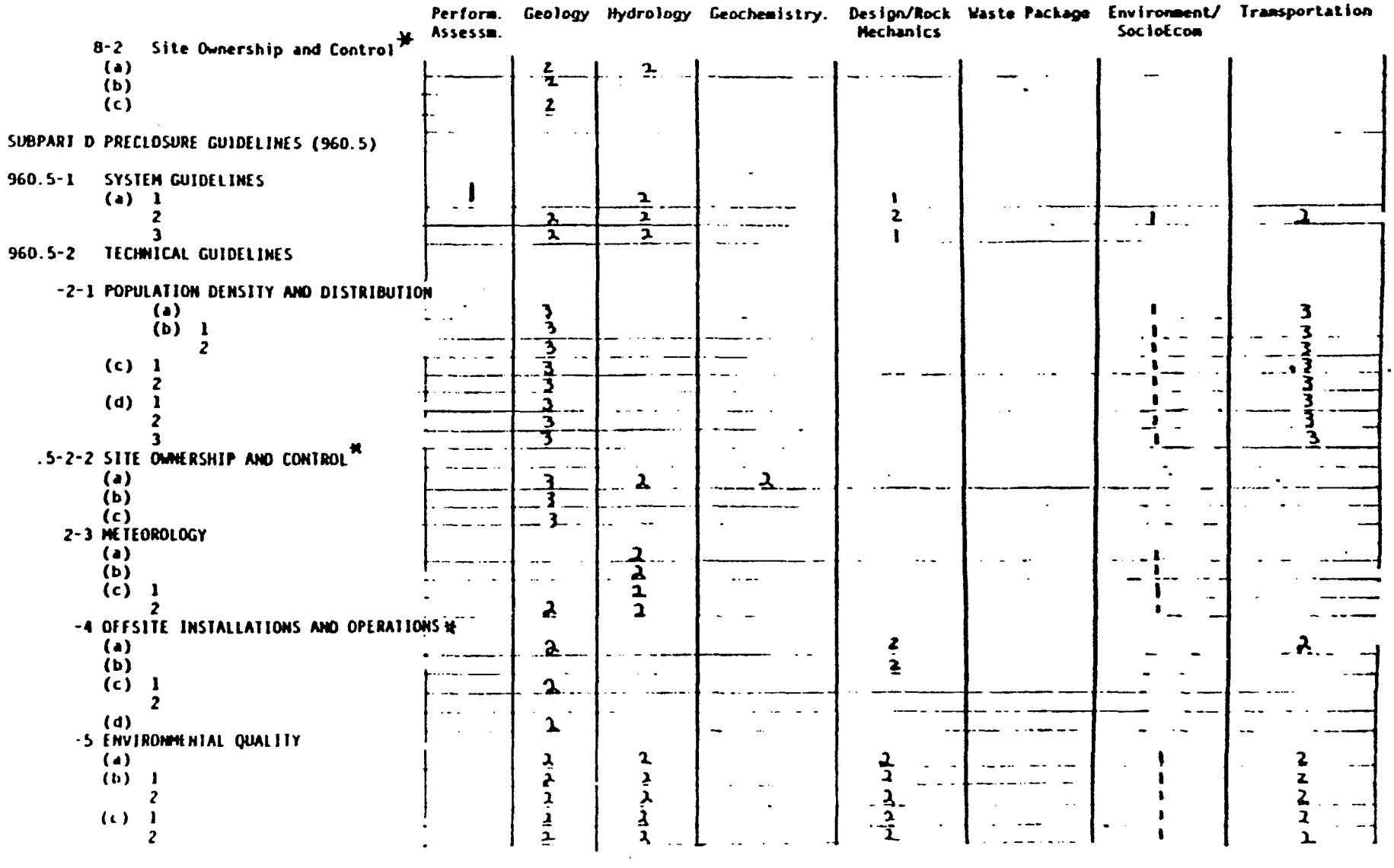
RESPONSIBILITY MATRIX
11/13/84

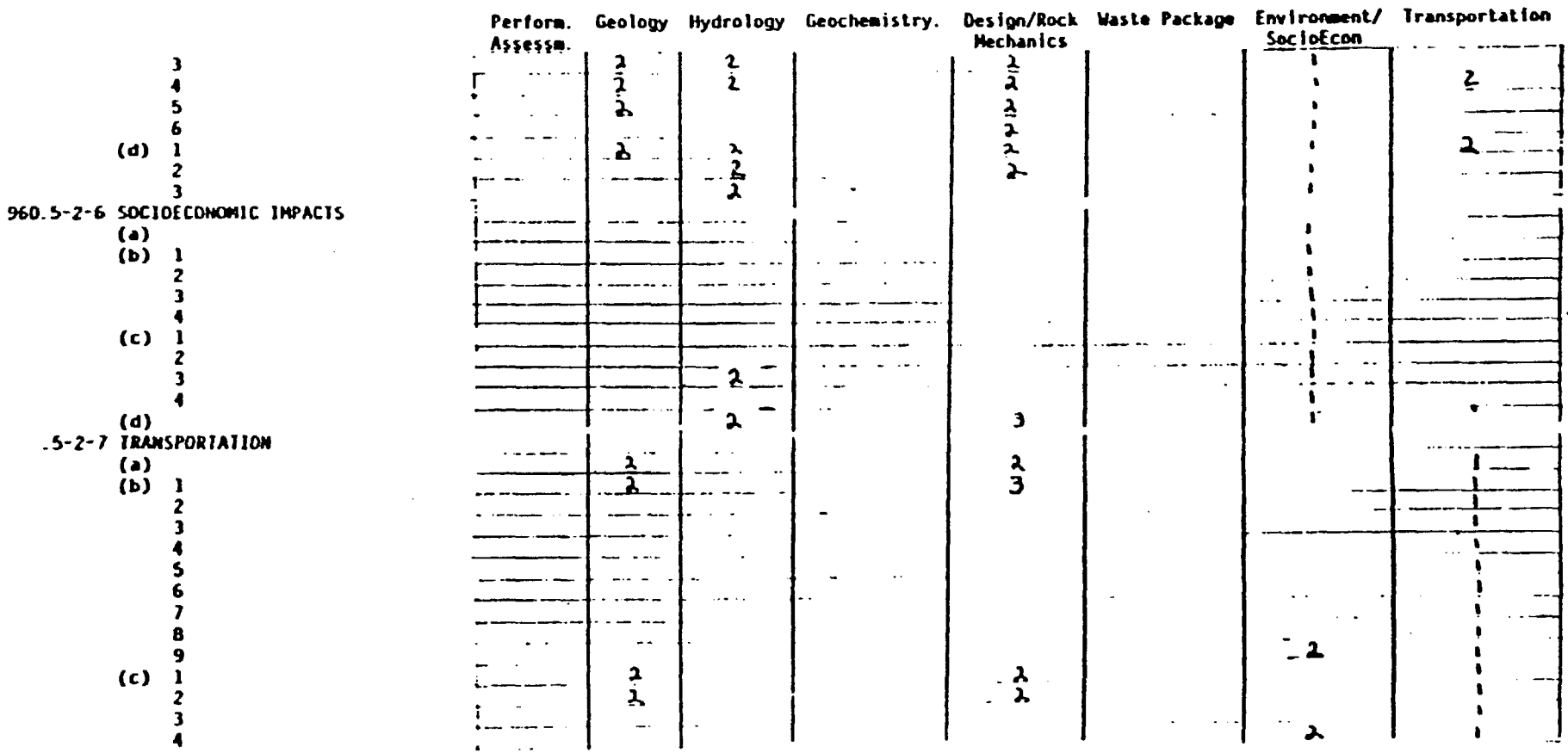
	Perform. Assessm.	Geology	Hydrology	Geochemistry	Design/Rock Mechanics	Waste Package	Environment/ SocioEcon	Transportation
SUBPART C: POSTCLOSURE GUIDELINE (960.4)								
960.4-1 SYSTEM GUIDELINE								
(a)	1	2	2	2	3	2		
960.4-2-1 GEOHYDROLOGY								
(a)	3	2	1	3		2		
(b)- 1	3	2	1	3	2			
2	3	2	1	3				
3	3	2	1	3				
4	3	2	1	3	3			
5	3	2	1	3	3		2	
(c)- 1	3	2	1	2	2			
2	3	2	1	3	2			
3	3	2	1	3	2			
(d)	2	2	1	3	2			
960.4-2-2 GEOCHEMISTRY								
(a)	3	2	2	1	3			
(b) 1	3	2	2	1	3	3		
2	3	2		1	3	3		
3	3	2		1	3	3		
4	3	2	2	1	3	3		
5	3	2	2	1	3	2		
(c) 1	3	2	2	1	3	2		
2	3	2		1				
3	3	2	2	1				
.4-2-3 ROCK CHARACTERISTICS								
(a) 1	3	2	3	2	1	2		
2	3	2	3	2	1	2		
(b) 1	3	2	3	3	1			
2	3	2	2	3	1	2		
(c) 1	3	2	3	3	1			
2	3	2	2	3	2	2		
3	3	2	3	2	1	2		

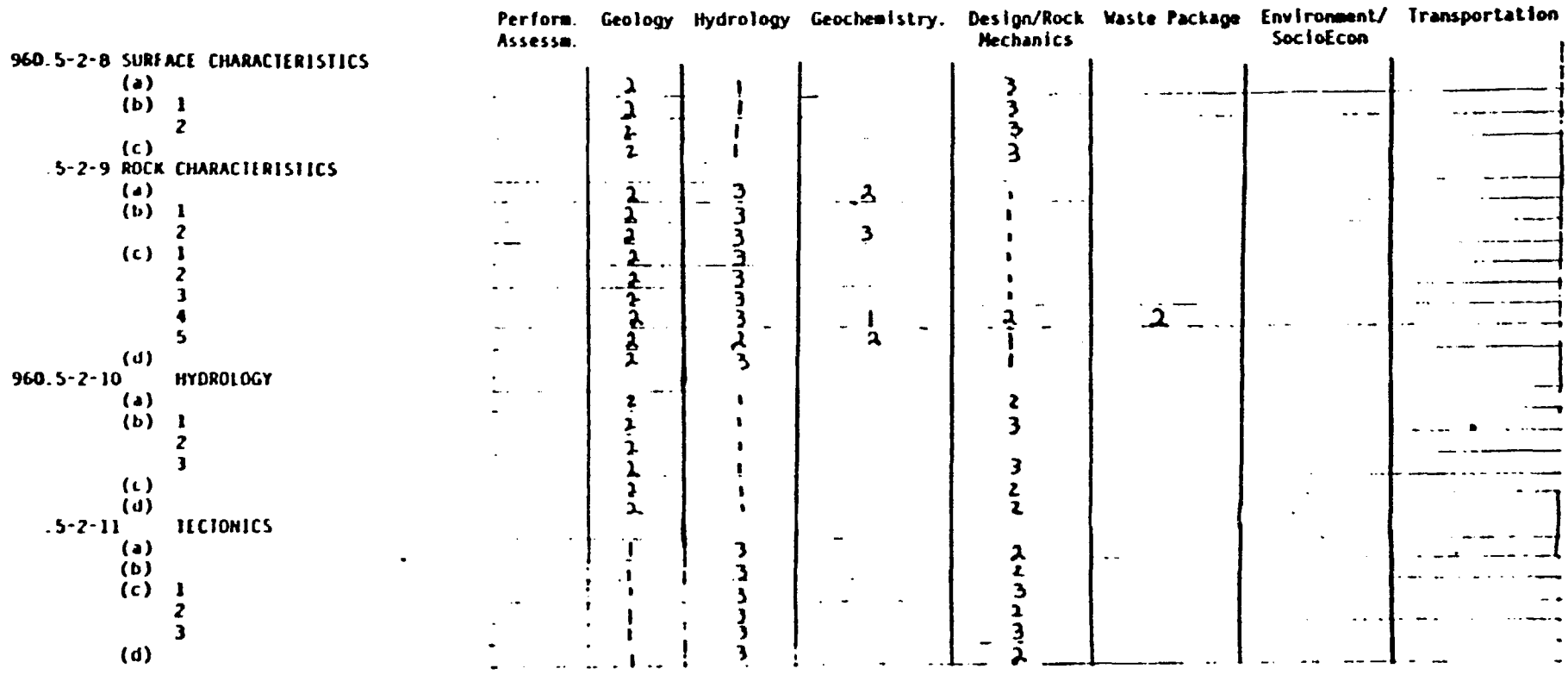
DESIGNATIONS:
1 LEAD ROLE
2 INPUT ROLE
3 WANTS OUTPUT


Perform. Assessm.
Geology
Hydrology
Geochemistry.
Design/Rock Mechanics
Waste Package
Environment/ SocioEcon
Transportation
.4-2-4 CLIMATIC CHANGES
(a)
(b) 1
2
(c) 1
2
960.4-2-5 EROSION
(a)
(b) 1
2
3
(c) 1
2
(d)
.4-2-6 DISSOLUTION
(a)
(b)
(c)
(d)
.4-2-7 TECTONICS
(a)
(b)
(c) 1
2
3
4
5
6
(d)
960.4-2-8 HUMAN INTERFERENCE
8-1 Natural Resources
(a)
(b) 1
2
(c) 1
2
3
4
5
(d) 1
2

* RP will have Lead vote




Perform. Assessm.
Geology
Hydrology
Geochemistry.
Design/Rock Mechanics
Waste Package
Environment/ SocioEcon
Transportation
3
4
5
6
(d) 1
2
3
960.5-2-6 SOCIOECONOMIC IMPACTS
(a)
(b) 1
2
3
4
(c) 1
2
3
4
(d)
.5-2-7 TRANSPORTATION
(a)
(b) 1
2
3
4
5
6
7
8
9
(c) 1
2
3
4


Perform. Assessm.
Geology
Hydrology
Geochemistry.
Design/Rock Mechanics
Waste Package
Environment/ SocioEcon
Transportation
960.5-2-8 SURFACE CHARACTERISTICS
(a)
(b) 1
2
(c)
.5-2-9 ROCK CHARACTERISTICS
(a)
(b) 1
2
(c) 1
2
3
4
5
(d)
960.5-2-10 HYDROLOGY
(a)
(b) 1
2
3
(c)
(d)
.5-2-11 TECTONICS
(a)
(b)
(c) 1
2
3
(d)

Appendix B Example DEA Chapter/Section Responsibilities for Salt

Generic Draft EA Table of Contents

SALT

TABLE OF CONTENTS

All

All

KEY

(1) Lead responsibility
(2) Input to lead group

ENVIR:	Environment
GEO:	Geology/Geophysics
HYDRO:	Hydrology
RM	Rock Mechanics
DES	Design
FC	Fuel Cycle (Transportation)
PA	Performance Assessment
GEOC	Geochemistry
RP	Repository Projects Branch
WP	Waste Package

2ND **DRAFT**
1/8/85

TABLE OF CONTENTS
(Continued)

All

Geo (1)

Geoc (2)

*1) Review of Chapter 2 is for factual accuracy and for consistency with the rest of the EA.

2ND DRAFT
1/18/85

TABLE OF CONTENTS
(Continued)

2nd DRAFT
1/8/85

TABLE OF CONTENTS
(Continued)

ENVIR (1) — FC (2) — Geo/Hydro (2) — Des (2) — Geol (2) — WP (2)

2ND DRAFT
1/8/85

TABLE OF CONTENTS
(Continued)

ENVIR (1) → DES/RM (1) → ALL

RM/DES (1) → RP (1) → ENVIR (1)

FC (2)
Geo (2)
Hydro (2)
Geo (2)
FC (2)
Hydro (2)
Envir (2)
(Geo; Hydro; Envir; DES)
Geo (2)
RM/DES (2)
RM/DES (2)

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TABLE OF CONTENTS
(Continued)

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TABLE OF CONTENTS
(Continued)

example

FC(2)

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TABLE OF CONTENTS
(Continued)

Chapter 6 Report Outline

PA

2ND DRAFT
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TABLE OF CONTENTS
(Continued)

PA → GEO; HYDRO; GEOC; RM/DES; ENVIR; WP/S (2) (all 2's)

ALL (as Chp. 2) → FC (1)