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OFFICE OF CIVILIAN  
RADIOACTIVE WASTE MANAGEMENT  
IMPLEMENTING LINE PROCEDURES

TITLE:

DOE/HQ Review of Study Plans

Procedure No.: 22.3.1	Revision: 1	Date: 02/22/90	Page: 1 of 25
ASSOCIATE DIRECTOR, OCRWM : <i>L. B. Coyle</i>	Date: 2/8/90	Director, OGA <i>James A. Shelton</i>	Date: 2/12/90

## 1.0 PURPOSE

The purpose of this procedure is to describe the process for HQ-OCRWM review and final approval of Project Office Study Plans which support the Site Characterization Plan (SCP).

## 2.0 SCOPE

This procedure applies to the review of study plans submitted by the Project Office for HQ-OCRWM approval.

## 3.0 REFERENCES AND DEFINITIONS

### 3.1 REFERENCES

- 3.1.1 QAAP 3.1 Technical Review
- 3.1.2 QAAP 2.1 Indoctrination and Training
- 3.1.3 QAAP 17.1 Records Management
- 3.1.4 QAAP 2.2 Personnel Qualification
- 3.1.5 AP-1.10Q Preparation, Review, and Approval of Study Plans, Project Office Administrative Procedure

### 3.2 DEFINITIONS

- 3.2.1 Comment Consolidation Meeting - the meeting held to consolidate comments received from HQ-OCRWM reviewers on study plans into a group of comments consistent with the scope of the review as described in this procedure. The meeting is typically led by the DOE/HQ Lead Reviewer or designee, with support from the Siting and Geoscience Branch.
- 3.2.2 Comment Resolution Meeting - the meeting between the study plan authors, Project Office representatives and DOE/HQ reviewers or designees, to discuss and resolve DOE/HQ review comments on the study plan under review.



- 3.2.3 Verification Review - a review of a revised study plan, produced in response to the comment resolution meeting, to confirm that the plans were revised as agreed to during the comment resolution meeting. Typically performed by the DOE Lead Reviewer, or designee, with support as deemed appropriate by the Lead Reviewer.
- 3.2.4 Mandatory Comment - a comment that must be resolved to the satisfaction of DOE/HQ prior to document acceptance. These comments may include identified deviations from existing approved OCRWM policy, quality assurance requirements, programmatic or management requirements, technical positions, or any other criteria applicable to the document. Attachment C gives criteria for reviewers in identifying mandatory comments for study plans.
- 3.2.5 Non-Mandatory Comment - a comment that does not require DOE/HQ concurrence for resolution.
- 3.2.6 Lead Reviewer - a designated Lead Technical reviewer for a subject for study plan.
- 3.2.7 Management/Integration Overview - a review of the study plans, conducted in compliance with Reference 3.1.1 and this Implementing Line Procedure, consisting of two aspects: (1) integration with the SCP and (2) a technical overview of the study. The SCP integration aspect of this review concerns consistency between the SCP and the study plan relative to the following: the scope of work, QA requirements, schedule considerations, deviations from program policy, HQ direction and any other applicable management aspects. The technical overview will consider the appropriateness of the technical approach (adequacy of the study) to satisfy known performance and design issue needs, discussions of impacts on the site and interferences with other studies, general consistency with the Level-of-Detail Agreement (Attachment A) and any other known technical overview aspects relevant to the study.



3.2.8 Detailed Technical Review - a review, conducted in compliance with Reference 3.1.1 and this Implementing Line Procedure, encompassing all aspects of the study plan. It includes considerations described in 3.2.7, as well as more detailed aspects. Typical aspects to be reviewed include the adequacy and defensibility of sampling plans and strategy, analytical methods, instrumentation, data reduction analysis and interpretation techniques, interferences between activities, consideration of alternatives, description of procedures, and the technical adequacy, defensibility and completeness of the plan relative to the specific content requirements of the Level-of-Detail Agreement (Attachment A).

#### 4.0 RESPONSIBILITIES

- 4.1 The Associate Director of the Office of Facilities Siting and Development (OFS&D) is responsible for determining if study plans should be reviewed (as reflected in Reference 3.1.1, review of technical documents is at the discretion of the cognizant Associate Director) and for implementing HQ-OCRWM review of study plans; designating individuals to coordinate and manage review of study plans; interacting with other Associate Directors to ensure the availability of such outside support as may be needed; assuring that the HQ-OCRWM review is conducted for study plans; and approving study plans prior to submittal to the NRC.
- 4.2 The Director of the Siting and Facility Technology Division (S&FTD) or designee, is designated by the Associate Director, OFS&D, as responsible for identifying the Lead Technical branch for each study plan review, for overseeing the review process, and for transmitting the results of the review to the Associate Director, OFS&D, the Project Office, and other parties to the review process.
- 4.3 The Branch Chief of the Siting and Geosciences Branch (SGB) or designee is designated by the Associate Director, OFS&D, as responsible for coordinating and managing the implementation of this study plan review procedure; for consulting with the Lead Technical Branch Chief to determine the type of review to be conducted (as described in 3.2.7 and 3.2.8) and to identify the Lead Reviewer and the composition of the review team; for oversight; and for reporting the results of the reviews to the Director, S&FTD.



- 4.4 The S&FTD Lead Technical Branch Chief is designated by the Director, S&FTD, as responsible for maintaining technical oversight of the study plan reviews conducted under an assigned area of responsibility. The Lead Technical Branch Chief will, in consultation with the Branch Chief, SGB: determine the type of review to be conducted and the review criteria to be utilized in addition to these generally required by this procedure (see 3.2.7 and 3.2.8); name a Lead Reviewer; and concur on the composition of the review team.
- 4.5 Designated reviewers are responsible for conducting the review in a timely and professional manner. The Lead Reviewer is expected to be present during the comment consolidation and the comment resolution meetings. The Lead Reviewer, or designee, signs the Study Plan Document Review Records as the DOE Headquarters representative, and is responsible for completing comment consolidation and the verification review and interacting with The Branch Chief, SGB, or designee, to develop the review team composition.
- 4.6 The Director of the Office of Quality Assurance (OQA) is responsible for participating in the review process and for assuring that QA audits and surveillances are conducted as needed on the review process.
- 4.7 The Associate Director of the Office of Systems Integration and Regulations (OSI&R) is responsible for providing the OCRWM-approved study plan to the NRC for review. The Regulatory Compliance Branch is responsible for participating in the study plan review as described in 6.6. The Licensing Branch is responsible for coordinating interactions with the NRC concerning NRC comments on the approved study plans (see 6.24).
- 4.8 The Project Office is responsible for preparation and revision of study plans and transmittal of the approved study plans to the state of Nevada and affected parties for information, and distribution of the controlled copies of the plans, including revisions to the plans.

## 5.0 GENERAL

- 5.1 Reference 3.1.1 requires that technical reviews be performed, as appropriate, to verify the technical adequacy of data and documents, which may also include study plans. Review of study plans is performed at the discretion at the Associate Director OFS&D. A schematic flow chart of the DOE/HQ review procedure is given in Attachment G to this procedure.



- 5.2 This procedure complies with the requirements of Reference 3.1.1 and provides specific details for HQ-OCRWM review and approval of Project Office Study Plans.
- 5.3 The emphasis of the HQ-OCRWM review will be on the following:
- 5.3.1 A management-level overview including integration between the study plan and the Site Characterization Plan (as described in 3.2.7).
- 5.3.2 A detailed technical review (as described in 3.2.8), if required. The general review requirements and criteria are listed in the definitions of management/integration overview (3.2.7) and detailed technical review (3.2.8).
- 5.4 As a minimum, HQ-OCRWM will perform a management/integration overview as described in 3.2.7.
- 5.5 The Project Office has the primary responsibility for assuring the technical completeness and adequacy of study plans. HQ-OCRWM, however, retains the option of performing a detailed technical review of any, or all, study plans submitted by the Project Office, as described in 3.2.8. Whether an overview or a detailed technical review is conducted, the applicable sections of this procedure shall apply.
- 5.6 The Lead Technical HQ-OCRWM Branch Chief shall ensure that the reviewers are independent of the work being reviewed but have demonstrated expertise in the subject area.
- 5.7 For HQ-OCRWM personnel, the qualification of the reviewers will be performed in accordance with Reference 3.1.4. For reviewers outside HQ-CRWM, the minimum qualifications given in Attachment F will be verified and documented by the management of the reviewer's organization, and written certification of the reviewer's qualifications, provided to the HQ-OCRWM Siting and Geosciences Branch Chief for the study plan review record.
- 5.8 The Lead Technical HQ-OCRWM Branch Chief, or designee, shall verify that the HQ-OCRWM reviewers have received documented indoctrination and training in accordance with Reference 3.1.2 and to the items listed in Attachment E or, in the case of contractors or other program participants, an equivalent training program. The training for the review of study plans may be either by classroom instruction or by reading applicable documents.



6.0 PROCEDURE

- 6.1 When the study plan is considered ready for HQ-OCRWM review, the Project Office shall transmit copies by memorandum to the Branch Chief SGB of the S&FTD. The HQ-OCRWM review may be conducted after completion of the Project Office review or in parallel with it at the discretion of the Branch Chief, SGB.
- 6.2 After receipt of the study plan, the Branch Chief, SGB, or designee will consult with the Director, S&FTD, to identify the Lead Technical branch for the study plan review. The Lead Technical Branch Chief in consultation with the Branch Chief, SGB, will determine the type of review to be conducted, to specify any review and acceptance criteria in addition to those generally required by this procedure, and to name a Lead Reviewer to act as the designee of the Lead Technical Branch Chief in the conduct of the review. The choice to perform a technical review of a study plan is at the discretion of the Lead Technical Branch Chief. Factors to be considered in determining the need for a detailed technical review may include, for example, the importance of the study to issue resolution strategies, or the beyond state-of-the-art nature of the work to be conducted.
- 6.3 At a minimum, the Regulatory Compliance Branch (OSI&R), and the Office of Quality Assurance will be included on all study plan reviews. Other participants, such as the Office of General Council (OGC) and Environmental Safety and Health (EH) may be included at the discretion of the Branch Chief, SGB.
- 6.4 The Lead Reviewer, in consultation with the Branch Chief, SGB, or designee, will identify individual reviewers within appropriate branches in DOE, their support contractors and qualified personnel outside the OCRWM program, (see section 5.6 also).
- 6.5 After selection of reviewers and concurrence by the Lead Branch Chief, a memorandum will be prepared by the Branch Chief, SGB, requesting the review and transmitting the study plan. The transmitting memorandum will specify: the identity of the reviewers; the type of review required (management/integration overview or detailed technical review); the review criteria or reference to them; the time frame for the review; the requirements and materials for reviewer training; and any other direction appropriate for the review.



- 6.6 Reviewers from outside of the Lead Technical Branch, and designated reviewers from outside technical support organizations, will review the study plan relative to their designated areas of responsibility. The Office of Quality Assurance will review the plans for the adequacy of the treatment of Quality Assurance requirements given in the plan and for any other areas relevant to their responsibilities as defined in reference 3.1.1. The Regulatory Compliance Branch (OSI&R) will review the plans for consistency with the content requirements of the Level-of-Detail Agreement (Attachment A) and any other areas relevant to their responsibilities. The responsibilities of other designated reviewers will be contained in the memorandum described under 6.5.
- 6.7 The HQ-OCRWM review will always consist of a management-level overview as described in 5.3 and 5.4, and may also include a detailed technical review. In the detailed technical review, comments may address any aspect of the technical execution of the work, such as instrumentation, sampling plans, data analysis techniques, etc. as described in 3.2.8.
- 6.8 If a detailed technical review is performed by HQ-OCRWM, the study plan contents shall be reviewed for technical adequacy, defensibility, and completeness relative to the content description given in the DOE/NRC Level-of-Detail agreement (Attachment A), and any other guidance issued by DOE relevant to the technical content of study plans. In addition, any non-standard procedures shall be identified in the study plan and the use of scientific notebooks identified where appropriate.
- 6.9 Each review comment and specific recommendations for resolution shall be documented on separate Study Plan Document Review Record (SPDRR) forms (Attachment B). Reviewers will indicate the type of review requested by DOE/HQ by checking the appropriate box on the SPDRR forms. Suggested wording or clarifications should be made in the comment, if possible. If the reviewer has no comments, "No comments" shall be entered on the SPDRR and the reviewer will sign this form.
- 6.10 Results of the reviews by the Regulatory Compliance Branch and the Office of Quality Assurance will be transmitted to the Branch Chief, SGB, by memorandum, attaching any Study Plan Document Review Record forms (discussed in 6.9) generated by their review. Other reviewers will also transmit their comments to the SGB as directed in the memorandum requesting the review (6.5).



- 6.11 The Lead Technical Branch Chief, or designee (typically the Lead Reviewer), shall perform a comment consolidation with support from the SGB to develop a consolidated set of comments. Comments will be deleted from the consolidated set of comments on the basis of being duplicative, editorial in nature or outside the scope of the review. For comments judged to be outside the scope of the review, these comments will be referred to the appropriate Branch of HQ-OCRWM for discussion and resolution. At the discretion of HQ-OCRWM, a comment consolidation can be done in conjunction with the Project Office when a parallel review of the plan is performed by the Project Office and HQ-OCRWM. During the comment consolidation, the comments will be prioritized into categories as described below.
- 6.12 The comments will be assigned by the Lead Reviewer to either of two categories, mandatory or non-mandatory, based upon the criteria for determining these categories as identified in Attachment C. Mandatory comments must be resolved to HQ-OCRWM's satisfaction, usually at the comment resolution meeting, prior to document acceptance. Resolution of mandatory comments may not always involve text revisions. Comments will be labelled as mandatory or non-mandatory on the "Priority" line of the SPDRR sheets (Attachment B). After the mandatory and non-mandatory comments have been determined and consolidated, the comments shall be numbered sequentially.
- 6.13 The consolidated comments shall be transmitted by memorandum through the Siting and Geosciences Branch Chief to the Project Office. The Lead Reviewer in consultation with the Branch Chief, SGB, will determine if a comment resolution meeting or teleconference is needed to resolve the comments.
- 6.14 A comment resolution meeting, if necessary, will be scheduled by the Branch Chief, SGB, or designee, in consultation with the Lead Technical Branch at the earliest time when the Project Office representatives, study plan authors, and HQ-OCRWM reviewers (or designees) can be present. This meeting should be held no earlier than five(5) after the transmittal of the consolidated comments, in order to give the Project Office reasonable time to review the comments and to either accept or develop alternatives to the proposed dispositions. Study plan authors are strongly encouraged to develop written text revisions in response to the comments, for consideration at the comment resolution meeting.



- 6.15 A combined comment resolution meeting with the Project Office may be performed when review comments from HQ-OCRWM and Project Office reviewers have been consolidated into one set of comments sent to the study plan authors. If a combined comment resolution meeting is held, resolution of HQ-OCRWM comments will follow this procedure, and resolution of Project Office comments will follow Reference 3.1.5.
- 6.16 HQ-OCRWM may elect to hold a teleconference instead of a meeting if the nature of the comments do not require more extensive interaction between reviewers and authors. Results of teleconferences shall be documented.
- 6.17 The proposed comment dispositions, agreed to by HQ-OCRWM and the Project Office, shall be documented on the Study Plan Document Review Record Forms. The dispositions shall receive the concurrence of the Lead Technical Branch Chief, or the Lead Reviewer, and the Lead Project Office representative, or designee, and documented by their initials and date on the concurrence block of the SPDDR forms.
- 6.18 If mandatory comments cannot be resolved by the lead HQ-OCRWM Branch Chief, resolution shall be elevated to the appropriate higher level of management (Division Directors, Office Directors as appropriate).
- 6.19 Upon disposition of the comments, the Project Office shall revise the study plan, as appropriate, and resubmit it by memo to the Branch Chief, SGB, for verification review. The purpose of the verification review is to verify that the actual dispositions of the comments have been incorporated into the study plan as proposed in the comment resolution meeting and assure that the text is adequate to satisfy the HQ-OCRWM mandatory comments. The Lead Reviewer, and any support deemed necessary by him/her, will conduct the verification review by examining the SPDRR forms and any corresponding study plan text revision. For comments that have been satisfactorily resolved, the designated Lead Reviewer or the Lead Technical Branch Chief, and the Lead Project Office representative or designee, will sign the final concurrence block (Actual Disposition) on the SPDRR forms.
- 6.20 If mandatory comments have not been satisfactorily resolved, the Director S&FTD, or designee, shall inform the Project Office by memorandum, or other appropriate means, of the revisions needed to resolve the comment.



- 6.21 After the verification review is successfully completed as described in 6.19-20, the Branch Chief, SGB will notify the Associate Director, OFS&D, who will issue a memorandum indicating approval of the plan, to the Associate Director, OSI&R. A copy of the approval memorandum will be sent to the Project Office representative along with a copy of the HQ-OCRWM SPDRRs, for inclusion in the Project Office file. The HQ-OCRWM SPDRRs will be maintained as described in 7.0.
- 6.22 Upon receipt of the approved study plan, the Associate Director, OSI&R, or designee, is responsible for preparing a cover letter and transmitting the study plan to the NRC for review.
- 6.23 If the NRC chooses to comment on the study plan following their review, HQ-OCRWM and the Project Office will confer to determine how the comments will be addressed. If the NRC identifies any major concerns during their review, the Lead Technical HQ-OCRWM Branch Chief and Lead Project Office representative, together with the Branch Chief, Licensing Branch, meet with the NRC, if necessary, to reach an appropriate resolution. This resolution will be documented by memorandum from the Division Director, SF&T, to the Project Office representative. The memo will include instructions on incorporating required changes into the final study plan if revisions to the plan are considered necessary.
- 6.24 The Project Office shall revise the study plan as deemed appropriate in response to the NRC comments, following the instructions developed as described in 6.23.
- 6.25 The Project Office shall transmit the revised study plan by memorandum to the Siting and Geosciences Branch Chief for final review and for approval by the Associate Director, OFS&D. This memorandum shall identify how the NRC comments were addressed.
- 6.26 Once the revised study plan has been reviewed and approved following this procedure, the Associate Director, OFS&D shall forward the final study plan by memorandum to the Associate Director, OSI&R for transmittal to the NRC.
- 6.27 A Tracking Sign-Off Sheet for Technical Review of Study Plans (Attachment D) shall be used to document completion of required steps during the review process.
- 6.28 If revisions to approved study plans prove to be necessary, proposed revisions are made by YMPO in accordance with Reference 3.1.5, and applicable Project Office and HQ change control procedures and responsibilities.



6.29 HQ-OCRWM may perform a review of any major revisions to approved study plans, following the same process used during the original study plan review. Major revisions are any significant changes to the purpose, scope, testing strategy, quality assurance level assignments, or changes that result in significant cost or schedule impacts. Change requests approved by the Project Office will be monitored by the Branch Chief, SGB, who will consult with the Lead Technical Branch Chief and the Associate Director, OFSD, to determine which changes constitute major revisions requiring HQ-OCRWM review. The size of the review team used for these reviews may, at the discretion of the SGB and the Lead Technical Branch, be smaller than that used to review the plan originally.



7.0 RECORDS

7.1 Records for the technical reviews of study plans are lifetime records and as such shall be maintained in accordance with Reference 3.1.3.

7.2 As a minimum, the following records shall be maintained:

- 7.2.1 The signed and dated SPDRR sheets showing the proposed and final dispositions of the comments.
- 7.2.2 Documentation or certification of the reviewers qualifications to perform the review and the training received by the reviewers.
- 7.2.3 Tracking Sign-off Sheets.
- 7.2.4 Documentation of the HQ-OCRWM Comment Consolidation including identification of reviewers.
- 7.2.5 Documentation of the HQ-OCRWM and Project Office Comment Resolution Meeting (or teleconference) including a list of attendees.
- 7.2.6 Results of the HQ-OCRWM Verification Review.

Supporting documentation that may be included in the record of the review include:

- 7.2.7 The Memorandum from the Project Office transmitting the study plan to HQ-OCRWM.
- 7.2.8 Transmittal letters to the NRC.
- 7.2.9 Transmittal letters from the NRC documenting the results of their review.
- 7.2.10 Disposition of NRC comments.



8.0 ATTACHMENTS

Attachment A DOE/NRC Level-of-Detail Agreement for the content of study plans

Attachment B Study Plan Document Review Record

Attachment C Criteria for Identifying Mandatory Comments for Study Plan Review

Attachment D Tracking Sign-Off Sheet for the Study Plan Review

Attachment E Study Plan Reviewer Training Certification Form

Attachment F Minimum Qualifications for Study Plan Reviewers

Attachment G Schematic Flow-chart of the DOE/OCRWM Review of Study Plans



Attachment A

DOE/NRC Level-of-Detail Agreement for the Content of Study Plans

(Attachment B - May 7-8, 1986 DOE/NRC Level-of-Detail Agreement  
for the Content of the SCP and Study Plans)

The test program presented in Chapter 8 of the SCP will be subdivided into a hierarchy of increasing detail. The SCP test hierarchy will include (in increasing detail): generic program; specific program; investigation; study; tests and analyses; and procedures. Details for studies and tests and analyses, listed Chapter 8 of the SCP, will be presented in study plans. Study plan will be separate from the SCP proper and will be issued periodically throughout site characterization. Individual test procedures will be referenced in the study plans.

The following outline describes the information on studies and analyses that will be presented in the study plans. A study involves a single test or a set of tests and analyses, as appropriate. The tests include those measurements of physical parameters, or observations of physical phenomena, that are performed in the field or in the laboratory. Test activities include preparation of procedures, test set-up, conduct of the test, data acquisition, and data reduction. The analyses include those calculations or other evaluations needed to assess site characteristics and support design activities.

Th items listed in the outline will be addressed for study tests and analyses to the extent that each item applies. Not all items will be applicable in all studies.

In some cases, tests and analyses may be planned for later stages in the study for which the detailed plans depend on the results of earlier tests and analyses. Under these circumstance it will not be possible to provide the same level of detail for all tests and analyses at the time the study plan is first issued. In such cases, the initial study plans will present complete descriptions of the tests and analyses that occur early in the study and less detailed information for tests and analyses that occur later.

I. Purpose and Objectives of Studies:

- o Describe the information that will be obtained in this study. Briefly discuss how this information will be used.
- o Provide the rationale and justification for the information to be obtained by the study. It can be justified by: 1) a performance goal and a confidence level in that goal



(developed via the performance allocation process and results that will be described elsewhere in the SCP); 2) a design goal and a confidence level in that goal (design goals beyond those related to performance issues); and 3) direct Federal, State, and other regulatory requirements for specific studies. Where relevant performance or design goals actually apply at a higher level than the study (e.g., where the goals apply) to a group of studies), describe the relationship between this study and the higher level goal.

II. Rationale for Selected Study:

- o Provide the rationale and justification for the selected test and analyses (including standard tests). Indicate the alternative test and analytical methods from which they were selected, including options for type of test, instrumentation, data collection and recording, and alternative analytical approaches. Describe the advantages and limitations of the various options.
- o Provide the rationale for the selected number, location, duration, and timing of tests with consideration to various sources of uncertainty (e.g., test method, interference with other tests, and estimated parameter variability). This rationale should also identify reasonable alternatives; summarize reasons for not selecting these alternatives; and reference, if available, reports which evaluate alternatives considered.
- o Describe the constraints that exist for the study, and explain how these constraints affect selection of test methods and analytical approaches. Factors to be considered include:
  - Potential impacts on the site from testing;
  - Whether the study needs to simulate repository conditions;
  - Required accuracy and precision of parameters to be measured with test instrumentation;
  - Limits of analytical methods that will use the information from the tests;
  - Capability of analytical methods to support the study;
  - Time required versus time available to complete the study;
  - The scale of the phenomena, especially the limitations of the equipment relative to the scale of the phenomena to be measured and the applicability of studies conducted in the laboratory to the scale of the phenomena in the field;



- Interrelationships of tests involving significant interference with other tests and how plans have been designed or sequenced to address such interference; and
- Interrelationships involving significant interference among tests and ESF design and construction, as appropriate (refer to Section 8.4 of the SCP or its references for specific ESF design information).

III. Description of Tests and Analyses:

- o Since studies are comprised of tests and analyses, provide for each type of test;
  - Describe the general approach that will be used in the test. Describe key parameters that will be measured in the test and the experimental conditions under which the test will be conducted. Indicate the number of tests and their locations (e.g., spatial location relative to the site, ESF elements, repository layout, stratigraphic units, depth, and test location);
  - Summarize the test methods. Reference any standard procedures (e.g., ASTM, API) to be used. If any of the procedures to be used are not standard, or if a standard procedure will be modified, summarize the steps of the test, how it will be modified, and reference the technical procedures that will be followed during the test. If procedures are not yet available, indicate when they will be available. Indicate the level of quality assurance and provide a rationale for any tests which are not judged to be QA level 1. Reference the applicable specific QA requirements that will be applied to the test;
  - Specify the tolerance, accuracy, and precision required in the test, where appropriate;
  - Indicate the range of expected results of the test and the basis for those expected results;
  - List the equipment required for the test and describe briefly any such equipment that is special;
  - Describe techniques to be use for data reduction and analysis of the results;
  - Discuss the representativeness of the test including why the test results are considered representative of future conditions or the spatial variability of existing conditions. Also indicate limitations and uncertainties that will apply to the use of the results;



- Provide illustrations such as maps, cross sections, and facility design drawings to show the locations of tests and schematic layouts of tests; and
- Relationship of the test to the set performance goals and confidence levels.
- o For each type of analysis:
  - State the purpose of the analysis, indicating the testing or design activity being supported. Indicate what conditions or environments will be evaluated and any sensitivity or uncertainty analyses that will be performed. Discuss the relationship of the analysis to the set performance goals and confidence levels;
  - Describe the methods of analysis, including any analytical expressions and numerical models that will be employed;
  - Reference the technical procedures document that will be followed during the analysis. If procedures are not yet available, indicate when they will be available. Indicate the level of quality assurance that will be applied to the analysis and provide a rationale for any analyses that are not judged to be QA level 1. Reference the applicable QA requirements;
  - Identify the data input requirements of the analysis;
  - Describe the expected output and accuracy of the analysis; and
  - Describe the representativeness of the analytical approach (e.g., with respect to spatial variability of existing conditions and future conditions) and indicate limitations and uncertainties that will apply to the results.

#### IV. Application of Results:

- o Briefly discuss where the results from the study will be used for the support of other studies (performance assessment, design, and characterization studies);
- o For performance assessment uses, refer to specific performance assessment analyses (described in Section 8.3.5 of the SCP) that will use the information produced from the studies described above, and refer to any use of the results for model validation;



- o For design uses, refer to, or describe, where the information from the study described above will be used in construction equipment design and development, and engineering system design and development (e.g., waste package, repository engineered barriers, and shafts and borehole seals); and
- o For characterization uses, refer to, or describe, where the information from the study described above will be used in planning other characterization activities.

V. Schedule and Milestones:

- o Provide the durations of the interrelationships among the principal activities associated with conducting the study (e.g. preparation of test procedures, test set-up, testing, data analyses, preparation of reports), and indicate the key milestones including decision points associated with the study activities;
- o Describe the timing of this study relative to other studies and other program activities that will affect, or will be affected by, the schedule for completion of the subject study; and
- o Dates for activities or milestones, including durations and interrelationships, for the study plans will be provided. These should reference the master schedules provided in Section 8.5 of the SCP.



Attachment B

STUDY PLAN DOCUMENT REVIEW RECORD

COMMENT NO. \_\_\_\_\_

A. REVIEWER	B. COMMENT IDENTIFICATION
1. NAME: _____	6. STUDY PLAN NUMBER: _____
2. ORGANIZATION: _____	7. STUDY PLAN TITLE: _____
3. PHONE NO: _____	8. SECTION: _____
4. DATE: _____	9. PAGE: _____
5. SIGNATURE: _____	10. PARAGRAPH: _____
	11. PRIORITY: _____
<input type="checkbox"/> MANAGEMENT INTEGRATION OVERVIEW	<input type="checkbox"/> DETAILED TECHNICAL REVIEW

C. COMMENT AND DISPOSITION

12. COMMENT AND PROPOSED RESOLUTION:

[Empty space for comment and resolution]

13. PROPOSED DISPOSITION (FROM COMMENT RESOLUTION MEETING):

[Empty space for proposed disposition]

15. ACTUAL DISPOSITION:

14. CONCURRENCE: HQ \_\_\_\_\_ DATE \_\_\_\_\_ PO \_\_\_\_\_ DATE \_\_\_\_\_

16. CONCURRENCE: HQ \_\_\_\_\_ DATE \_\_\_\_\_ PO \_\_\_\_\_ DATE \_\_\_\_\_

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Attachment C

Criteria for Identifying Mandatory Comments during  
Study Plan Review

- C.1 The following outline provides criteria to be used in identifying review comments for which HQ-OCRWM considers resolution to be mandatory. These comments must be resolved to the satisfaction of HQ-OCRWM before the study plan is approved and forwarded to the NRC.
- C.2 The criteria are placed under headings I-V given below, which correspond to the major divisions of the study plan content descriptions in the DOE/NRC level-of-detail agreement (May 7-8, 1986). These criteria are focused on identifying comments that would be of sufficient importance to require a mandatory classification.
- C.3 In reviewing study plans from the perspective of program integration with the Site Characterization Plan, headings I, IV and V are most important and headings II and III to a lesser extent. A technical overview, and detailed technical review, would emphasize headings I, II, III, and IV.
- I. Purpose and Objectives of Study
- 1) The study plan does not fulfill the objectives as described in the SCP. The study scope may be either too large or too small. Schedule adjustments may be required to remedy the problem.
  - 2) The study does not collect all the data called for in the list of performance and design parameters given in the SCP, or expands the list beyond that in the SCP without giving an acceptable justification.
  - 3) The description of purpose and objectives is inadequate.
- II. Rationale for Selected Study
- 1) The technical approach or methodology is inconsistent with that in the SCP or the data may not be defensible for the applications described.





Attachment D

DOE/HQ Plan Oa Tracking & Sign-Off Sheet  
 YMP Study Plan Number  
 Study Plan Title  
 Date of Last Revision  
 Name of Preparing Organization

DOE HQ Review Basis:	SCP Integration	Technical Overview	Detailed Tech. Review
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Approval Block

1. Study Plan received from WMPO	_____ Chief, Siting & Geoscience	_____ Date	_____ Rev. #
2. Comment Resolution Mtg. Compl.	_____ Chief, Siting & Geoscience Branch	_____ Date	_____ Rev. #
3. Verification Review Completed	_____ Chief, Siting & Geoscience Branch	_____ Date	_____ Rev. #
4. DOE/HQ approval	_____ Director, OFS&D	_____ Date	_____ Rev. #
	_____ Director, OSI&R	_____ Date	_____ Rev. #

Reviewed and Approved according to QAAP 3.1 and ILP 22.3.1.



Attachment E

Study Plan Reviewer Training Certification

I, \_\_\_\_\_ of the \_\_\_\_\_  
(full name) (organization affiliation)  
hereby certify that I have completed the required reading (HQ Study Plan Reviewers Training Package) consisting of the following items:

<u>Doc. No.</u>	<u>Rev. No. or Date</u>	<u>Title Description</u>
ILP. 22.3.1	R1	Implementing Line Procedures for Review of Study Plans
NA	5/89	DOE/HQ Study Plan Review Briefing for Reviewers (Handout Materials)
NA	5/7-8/86	DOE/NRC Level-of-Detail Agreement, Attachment B - DOE Content Requirements for Description of Investigations in Chapter 8.3 of the Site Characterization Plans
NA	5/7-8/86	DOE/NRC Level-of-Detail Agreement, Attachment C - DOE Content Requirements for Description of Investigations in Chapter 8.3 of the Site Characterization Plans
NA	8/88	Checklist for Technical Review of Study Plan
NA	5/89	Guidance on Integration vs. Technical Review of SCP Study Plans

I have discussed any questions relative to the review process with DOE representatives and am fully satisfied.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Approved:

\_\_\_\_\_  
DOE Lead Technical Branch Chief

\_\_\_\_\_  
Date



Attachment F

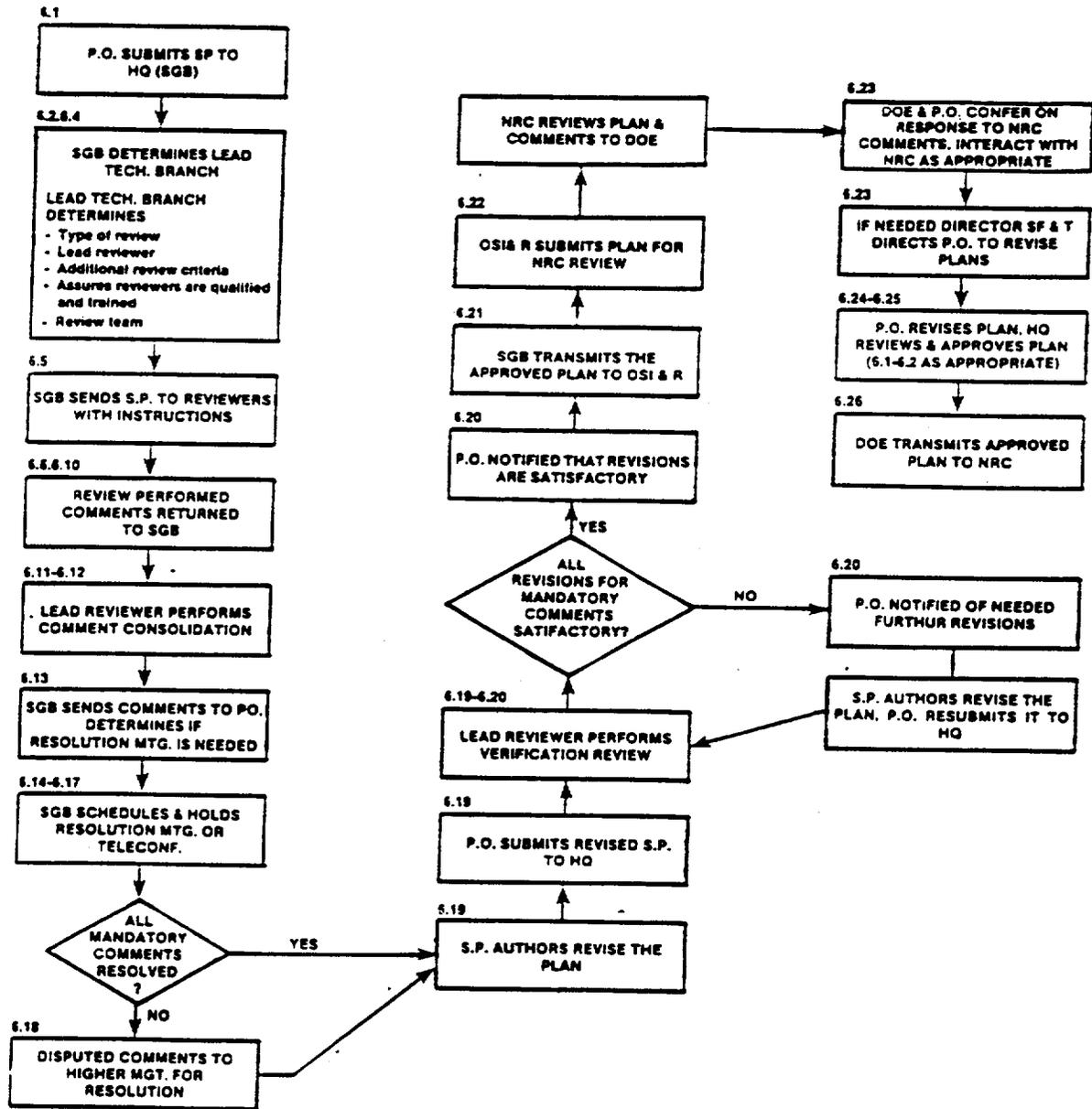
Minimum Qualifications for Study Plan Reviewers

Study Plan reviewers can be qualified by either education, experience, or an appropriate combination of both in accord with ref. 3.1.4. Minimum qualifications are listed below. They can be established for study plan reviewers by examination of an appropriate position description for DOE and support contractor staff, or by examination of resumes. Examination of reviewer qualifications is to be done by the appropriate management-level supervisory personnel for the DOE or support contractor staff assigned as reviewers. The qualification of reviewers is to be certified in writing. Auditable records documenting the basis for the certification will be maintained by the reviewer's employer. The minimum qualifications can be satisfied by one or more of the following criteria.

- a) a master's degree in geoscience, engineering or related fields
- b) five years professional experience in geoscience, engineering or other field related to the expertise needed to fulfill the reviewer's responsibilities, e.g., quality assurance, regulatory analysis, etc.
- c) a combination of education and experience (beyond high school) totaling six years, in geoscience, engineering or other field(s) appropriate to the study plan review.



ATTACHMENT G  
DOE/OCRWM REVIEW OF STUDY PLANS



IMPLEMENTING LINE PROCEDURE  
22.3.1, Rev. 1

The following number is for OCRWM records management purposes only and should not be used when ordering this publication.

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