



Department of Energy
Washington, DC 20585

JUN 21 1991

Mr. John J. Linehan, Acting Director
Repository Licensing and Quality
Assurance Project Directorate
Division of High-Level Waste Management
Office of Nuclear Material Safety
and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Linehan:

Enclosed with this letter is a controlled copy of Study Plan 8.3.1.15.1.3, prepared by the U.S. Department of Energy (DOE) for the Yucca Mountain Site. The study plan number corresponds to the same number used in the Site Characterization Plan (SCP) for the Yucca Mountain Site. The study plan is identified as follows:

<u>Number</u>	<u>Title</u>
8.3.1.15.1.3, Revision 0	Laboratory Determination of Mechanical Properties of Intact Rock

DOE has reviewed this study plan for consistency with the content requirements for study plans, as given in Attachment B to the Summary of the DOE/U.S. Nuclear Regulatory Commission (NRC) meeting on the Level-of-Detail for the SCP (May 7-8, 1986). DOE is submitting this plan to NRC as agreed to in the meeting.

As discussed during the DOE/NRC meeting (December 15, 1988) on study plans, DOE has decided to control preparation and review of study plans as a quality activity. Because this study plan was in preparation prior to that decision, it was not prepared under current Yucca Mountain Site Characterization Project Office (YMPO) and DOE Headquarters Office of Civilian Radioactive Waste Management (OCRWM) quality assurance (QA) procedures.

During the December 15, 1988, meeting on study plans, DOE agreed to prepare an assessment of the five construction phase Exploratory Studies Facility (previously Exploratory Shaft Facility) study plans relative to current QA requirements. This assessment was transmitted to you on June 23, 1989. An abbreviated quality assessment, similar in intent and complementary to the earlier assessment, has been performed for Study Plan 8.3.1.15.1.3 and is enclosed with this letter. This evaluation has been performed under current OCRWM QA procedures. Results of this quality assessment indicated that the plan listed

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above meets all major QA requirements for planning documents and is of sufficient technical quality for NRC review.

Study plans prepared under current procedures do not require detailed information on QA requirements. To satisfy the May 7-8, 1986, agreement to provide specific QA requirements, current study plans indicate that applicable QA criteria will be specified in Yucca Mountain Site Characterization Project QA Grading Reports, which are issued as separate controlled documents.

It should also be noted that there may be some inconsistencies in the milestone report titles and schedules given in this study plan and those in the SCP. Study plans, in general, represent a further evolution of the study in the areas related to schedules and milestones relative to the SCP, and, as such, represent DOE's current plans. A status on the schedule for preparation, review, and approval of study plans is provided in site characterization progress reports.

Should you have any questions, please contact Sharon Skuchko of my office at (202) 586-4590.

Sincerely,



Dwight E. Shelor *for*
Acting Associate Director for
Systems and Compliance
Office of Civilian Radioactive
Waste Management

2 Enclosures:

1. Study Plan 8.3.1.15.1.3, Revision 0, "Laboratory Determination of Mechanical Properties of Intact Rock"
2. Study Plan Assessment for 8.3.1.15.1.3

cc w/Enclosures 1 and 2:
Arturo Ramose, CNWRA, San Antonio, TX

cc w/Enclosure 2 only:

C. Gertz, YMPO
R. Loux, State of Nevada
K. Whipple, Lincoln County, NV
M. Baughman, Lincoln County, NV
J. Bingham, Clark County, NV
D. Bechtel, Clark County, NV
S. Bradhurst, Nye County, NV
B. Raper, Nye County, NV
P. Niedzielski-Eichner, Nye County, NV
R. Campbell, Inyo County, CA
R. Michener, Inyo County, CA
G. Derby, Lander County, NV
P. Goicoechea, Eureka, NV
C. Schank, Churchill County, NV
C. Jackson, Mineral County, NV
F. Sperry, White Pine County, NV
L. Vaughan, Esmeralda County, NV
K. Hooks, NRC

Study Plan Assessment for
8.3.1.15.1.3: Laboratory Determination of
Mechanical Properties of Intact Rock

1. Introduction

The Nuclear Regulatory Commission (NRC) has expressed a concern that the quality assurance controls used to prepare and review the five construction phase Exploratory Shaft Facility (ESF) study plans may not have been adequate and therefore the technical quality of the documents should be assessed and verified (DOE, 1989). Some study plans were fully or partially prepared and reviewed prior to the effective dates of Revision 2 of the Project Quality Assurance Plan (QAP), NNWSI/88-9, the Yucca Mountain Project Administrative Procedure (AP)-1.10Q (Preparation, Review and Approval of SCP Study Plans), and the HQ Implementing Line Procedure (ILP) 22.3.1 (DOE/HQ Review of Study Plans). NNWSI/88-9 became effective December 9, 1988, and AP-1.10Q was approved December 14, 1988.

This document provides the Yucca Mountain Site Characterization Project Office assessment of Study Plan 8.3.1.15.1.3 and associated documentation of the DOE process for preparation and review against current QA requirements. The purpose of this assessment is to evaluate the controls that were in place during the development of this study plan and to determine whether the document is of the technical quality expected under current controls.

2. Evaluation of Study Plan 8.3.1.15.1.3

2.1 Basis for the Assessment

Since the responsibility for preparation and review of Study Plans has been delegated by OCRWM to the Project Office, the evaluation is based on the requirements established in the Project Office QA Plan, NNWSI/88-9, Revision 2, which was accepted by the NRC on December 30, 1988. A fundamental premise of this assessment is that study plans developed in accordance with NNWSI/88-9 are adequate to meet NRC requirements. NNWSI/88-9 imposes several requirements on the preparation, review and approval of study plans:

- 1) Study plans must be prepared and reviewed by qualified personnel
- 2) The format and content of study plans must meet all applicable requirements (including specific provisions for technical, regulatory and quality-related content).
- 3) The process of development, review, approval, issuance and revision must be controlled.
- 4) Records documenting that all the requirements have been met must be maintained.

The following section summarizes the controls that were in place during the preparation and review of this study plan and provides an evaluation of the these controls against the relevant requirements of the OCRWM QARD.

2.2 Description of the Review Process

At the time that this study plan was prepared by Sandia National Laboratory (SNL), procedures for study plan preparation, qualification of personnel, and for technical review were in place at SNL (DOE, 1989). The review procedure required independent and documented technical and QA reviews. SNL submitted an initial draft of the study plan to the Yucca Mountain Project Office on February 8, 1988. This draft was forwarded to the project participants for technical review on February 23, 1988 and to DOE/HQ on March 30, 1988. The DOE/HQ review was governed by their final procedure for study plan reviews; this procedure became effective on April 14, 1987.

DOE/HQ provided four technical specialists and the Project Office provided six technical specialist to review the study plan. A comment resolution meeting was held on July 6-7, 1988, to develop proposed resolutions to each comment. SNL then revised the study plan to address these comments and forwarded the revised study plan to the Project Office on November 29, 1988. The comments and final disposition were documented on comment resolution forms. Verification that these comments were adequately addressed was also documented on these comment resolution forms.

The Project Office initiated an AP-1.10Q management, regulatory, and QA review of the study plan on January 11, 1989. The plan was reviewed by three reviewers who generated 33 comments (8 QA, 6 management, and 19 regulatory). SNL revised the study plan to address these comments and forwarded the revised study plan to the Project Office on November 29, 1989. The comments and final disposition were documented on comment resolution forms. Verification that these comments were adequately addressed was also documented on these comment resolution forms.

Jon White of the Project Office provided additional technical comments to the revised study plan and these were forwarded to SNL on March 20, 1990. SNL addressed these comments and transmitted a revised study plan to the Project Office on May 5, 1990. The comments and final disposition were documented on comment resolution forms and Jon White verified that the revised study plan adequately addressed his comments on May 15, 1990.

DOE/HQ verified that the most recent version of the study plan adequately addressed the proposed resolutions to the HQ comments. This verification was documented on the comment resolution forms. Confirmation of the HQ verification was sent to the Project Office on July 6, 1990.

2.3 Evaluation of the Technical Quality of the Study Plan

The requirements of the participant, Project Office, and DOE/HQ implementing procedures for study plan development are summarized in the study plan assessment for the five construction phase study plans for the Exploratory Shaft Facility (DOE, 1989). For this assessment, these requirements were compared against the requirements of NNWSI/88-9. The SNL, the Yucca Mountain Project, and the DOE/HQ procedures for study plan preparation, review and approval adequately implement the applicable requirements of NNWSI/88-9 (DOE, 1989).

Although some minor revisions have been or will be made to the DOE and participant procedures to improve the implementation of the relevant QA requirements, these changes will not affect the technical content of study plan 8.3.1.15.1.3. Documented, traceable technical reviews were completed qualified reviewers; the Study Plan was also reviewed by QA and regulatory specialists, and management. The Project Office and DOE/HQ technical comments were reviewed and were found to constitute an adequate detailed technical review of the plan. The review process described above supports the conclusion that the technical quality of this study plan was not adversely impacted by the quality controls that were in place when the document was written and reviewed.

3. Summary and Conclusions

The DOE believes that the preparation and review of Study Plan 8.3.1.15.1.3 were substantially in accordance with AP-1.10Q and ILP 22.3.1, which implements the NRC-reviewed and accepted controls described in the OCRWM QARD. This assessment demonstrates that the development of the study plan was conducted under quality controls that were equivalent to those which would be found in a QA program that meets current requirements. Moreover, this assessment of the study plan and associated quality assurance records indicate that the technical content of the study plan would not change in any substantive way if the development of the study plan had been completed under current QA controls. The DOE considers this study plan to be technically acceptable for NRC review. The four requirements that provide the bases for this assessment have been fulfilled.

4. References

U.S. Department of Energy, Yucca Mountain Project Office, Administrative Procedure (AP)-1.10Q, Preparation, Review and Approval of SCF Study Plans, Revision 0.

U. S. Department of Energy, OCRWM Implementing Line Procedure (ILP)-22.3.1, DOE/HQ Review of Study Plans.

U.S. Department of Energy, Yucca Mountain Project Office, Quality Assurance Plan, NNWSI/88-9, Revision 2.

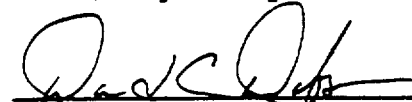
U.S. Department of Energy, Yucca Mountain Project Office (DOE), 1989, DOE Assessment of the Process Used to Review and Approve the Five Construction Phase Exploratory Shaft Study Plans.

U.S. Department of Energy, OCRWM Quality Assurance Requirements Document, DOE/RW-0214

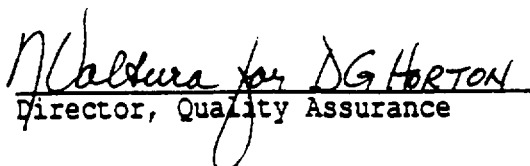
Approval:



Chief, Regulatory Interactions Branch 5/17/91



Director, Regulatory and Site Evaluation Division 5/20/91



Director, Quality Assurance

5/21/91

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LINEHAN J J
NRC/WASHINGTON

ONE WHITE FLINT NORTH
11555 ROCKVILE PIKE
ROCKVILLE, MD 20852-0000

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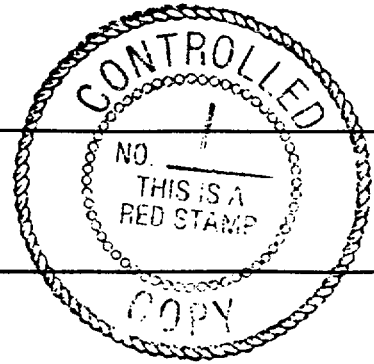
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**Study Plan for
Study 8.3.1.15.1.3**



Laboratory Determination of the Mechanical Properties of Intact Rock

Revision 0

**U.S. Department of Energy
Office of Civilian Radioactive Waste Management
Washington, DC 20585**

**Prepared by
Sandia National Laboratories**