

REVIEW OF DRAFT TECHNICAL POSITION ON COORDINATING THE ESF DESIGN
WITH THE DESIGN OF THE GEOLOGIC REPOSITORY OPERATIONS AREA

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I. Introduction

The Draft Technical Position (TP) on "Coordinating the ESF Design with the Design of the Geologic Repository Operations Area," reviewed herein includes incorporation of some of the comments made by the CNWRA on an earlier draft. The CNWRA comments made on the earlier draft were submitted to NRC as the Intermediate Milestone No. 20-3702-022-071. The present comments by the CNWRA staff complement the CNWRA staff's comments on the earlier draft. The NRC staff is urged to consider both sets of comments as important. The present review consists of specific comments on the draft technical position.

II. Specific Comments

Comments on Table of Contents

For Figure 1, if the title is expanded to indicate that these are steps pertinent only to this TP and not compliance demonstration in general, the expanded title should appear here as well as on Figure 1. (See subsequent comment on Figure 1.)

Comments on Introduction

Page 1, First Paragraph, Third Sentence:

Suggest re-writing the phrase "...as part of an eventual repository, the ESF design may be required..." to read "...as part of an eventual repository, portions of the ESF design may be required..." Certain design features will apply only to data-gathering activities during site characterization and will not affect repository or exhaust shaft performance. Likewise, operations can easily interfere with data-gathering, unless appropriately designed.

Page 1, Second Paragraph, Second Sentence:

Consider removing the adjective "inclined", as ramps are inclined by definition.

Page 1, Third Paragraph, First Sentence:

Suggest using the word "applicable" instead of "relevant".

Page 2, Second Paragraph, Lines 3 & 5:

Replace "...the ESF design and construction should..." by "...the ESF design, construction and operation should..." to avoid preclusion of gathering site data due to the operation of the ESF.

Page 2, Second Paragraph, Last Sentence:

The requirements set in Figure 1 may impose requirements on DOE which are too stringent. Is the intent that this diagram will also apply to all alternative designs? If so, this should be brought out in the text.

Page 2, Third Paragraph:

The "uncertainties," at least part of them if not all, need to be reduced during the site characterization. Since the ESF will be designed before site characterization, the "uncertainties" should be allowed for in the ESF design by a conservative design approach to yield a robust, tolerant design. Far more information about the "uncertainties" will become available later.

Page 2, Third Paragraph, First Sentence:

Consider changing the wording from "The purpose of..." to "The principal purpose of..." Although initially the intended use of the ESF will be for site characterization, it may later be used as part of the repository if the site is found acceptable.

Page 2, Third Paragraph, Third Line:

Insert the word "information" as follows: "...limited subsurface information, in situ testing..."

Page 2, Fourth Paragraph, First Line:

Replace "NRC regulations" by "10 CFR Part 60 Requirements". A technical position should be as specific as possible to be most useful and effective.

Comments on Regulatory Background Pages 2-3 & Appendix B

Page 3, Second Bullet:

Replace "... (3) the exploratory boreholes and shafts should be located where large unexcavated pillars..." by "... (3) to the extent practical, the exploratory boreholes and shafts should be located where shafts are planned for underground facility construction and operation or where large unexcavated pillars...."

Page 4, Fourth Bullet:

Replace "...to be important to waste isolation..." with "...to be important to safety or waste isolation...."

Comments on Texts of Technical Positions Pages 4-5

Technical Position (1):

Consider making the text citations more explicit, as "[10 CFR 60.151 and 10 CFR 60.152]."

Technical Position (2): Remove the qualifier "several" from the third line. The word "several" arbitrarily indicates more than one alternative. On page 5, replace "...justified on the basis of an analysis..." with "...justified on the basis of site characterization requirements and on the basis of an analysis...." In the citation from 10 CFR Part 60, replace "(4)" with "(4)" and replace "(10" with "10."

Technical Position (3):

In the citation from 10 CFR Part 60, replace "(2, 3, and 4)" with "(2), (3), and (4)" for consistency throughout the paper.

Technical Position (4):

In the citation from 10 CFR Part 60, replace "(d, e, and f)" with "(d), (e), and (f)" for consistency throughout the paper.

Technical Position (7): It is suggested that each of the 3 parenthetical regulatory citations be prefixed with "10 CFR 60," in accordance with standard practice. Consider replacing "...as designed..." by "...as designed and constructed..." since construction practice has been known to significantly change performance relative to the original design.

Comments on Discussion of Quality Assurance Pages 6-7

Page 6, Second Paragraph, Second Line:
Add two commas, as follows: "...with the ESF, and, using the methodology in NUREG-1318, identify those that are...."

Page 6, Third Paragraph, Bottom Line:
Consider changing "basis" to "bases".

Comments on Discussion of Selection of Access Openings Pages 7-8

Page 7, Second Paragraph, Line 8:
Consider replacing "...the GROA be developed first..." by "...the GROA be developed before or at the same time as the ESF...."

Page 7, Fourth Paragraph, Lines 1 & 3:
Consider replacing "repository" with "GROA."

Comments on Discussion of Consideration of Alternative for ESF Features Pages 8-9

In the title, "Alternative" should be "Alternatives," and "Featuress" should be "Features."

Page 8, Fourth Paragraph, Third Sentence:
Although the flow chart of Figure 1 initiates with conceptual design(s), the draft TP purports that "a" conceptual design for the repository should be developed first. The ESF is to use the same shafts and ramps of the repository. The "several alternatives" for GROA layouts must mean something other than shafts and ramps. Does each alternative for GROA layout constitute "a" conceptual design? If it does, we are looking at several conceptual designs and all of them have to be pre-designed to satisfy the flow chart in Figure 1, not just "a" design as required in the third paragraph under "(2) Selection of Access Openings" on page 7. It is recommended that a single "reference" design would be proposed by DOE, and all other designs would then be "alternatives."

Page 8, Last Paragraph:
Suggest adding a second sentence: "The results from a preliminary performance analysis for the conceptual repository design could be used to provide this information."

Comments on Discussion of Excavation Methods Page 9

Page 9, Second Paragraph, First Sentence:

Consider re-writing the sentence to read as follows: "If the ESF is to be a part of the GROA, the methods of constructing the underground openings for the ESF should be compatible with the requirements for the repository to meet the performance objectives." As currently written, it implies that this does not have to be done unless (implicitly, until) the "site is found suitable." This is logically inconsistent.

Comments on Discussion of Test Interference and Representativeness Pages 9-10

Page 10, Second Paragraph, Last Sentence:

Consider replacing "...representative of range of conditions..." with "...representative of the range of conditions...."

Comments on Discussion of Performance Requirements Pages 10-11

Page 11, Second Paragraph, Third Sentence:

Consider replacing "...the size and orientation of all underground excavations ..." with "...the size, orientation, and location of all underground excavations...", to be consistent with usage in other parts of the Draft TP.

Comments on References:

For Reference 5, consider adding the date (January 1990).

Comments on Figure 1:

Consider expanding the title of the figure to reflect the fact that these steps are valid for the subject of this TP, not compliance demonstration in general. See also the comment on the last sentence of the second paragraph of page 2.