

I = Incorporated  
 P = Partially Incorporated  
 N = Not Addressed

## COMMENTS OF REVIEW GROUP

DRAFT EXPLORATORY SHAFT  
TEST PLAN

SD-BWI-TL-006 and -007

September 16, 1983

The following were attendees at the Basalt Waste Isolation Project (BWIP) In Situ Testing Workshop, held October 3-5, 1983.

Wilson Blake  
 Dick Bieniawski  
 Phil Collyer  
 Victor Der  
 Doug Hansen  
 Bill Hustrulid

Bill Ives  
 Frank Parker  
 Mark Saidman  
 Berger Schmidt  
 Jay Smith  
 Peter Stevens

GENERAL COMMENTS

The Exploratory Shaft (ES) Test Plan is a great improvement over the earlier draft reviewed in the ES Workshop of April 7-9, 1983. The present draft's organization and expression make for easier reading and its content and emphasis make the technical program more readily understandable and appropriately complete, with the acknowledged exceptions stated in "Information for Reviewers" contained in the documents preface.

The following comments reflect the highlights of the Review Group's discussions for two days with Rockwell Hanford Operations (Rockwell) and U. S. Department of Energy, Richland Operations (DOE-RL) staffs. During this time many more detailed comments and suggestions were discussed than can be recounted here. Consequently, the following is a general summary and is inherently incomplete. Even though the comments reflect collective thoughts of the group, they do not necessarily represent the thinking of the respective organizations that sponsor the individual attendees.

I -- PLAN FORMAT AND ORGANIZATION

The Exploratory Shaft (ES) Test Plan should be one document, perhaps in two volumes each with its own distinguishing title, e.g. General Plan for Volume I, the document labeled SD-BWI-TP-007, and Volume II Preliminary Test Descriptions for the document labeled SD-BWI-TL-006.

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- P -- Appendix D of Volume I, Constructibility Reporting, should be removed from Volume I and made a section in Volume II, perhaps modifying or expanding it so that it is similar in format and content to other sections in Volume II.
- I -- Appendix C in Volume I, Summary Information From The Principal Borehole (borehole RRL-2), should be removed from Volume I and placed as an appendix in Volume II.
- I -- Appendices A and B of Volume I should remain as is and where is. The order of appendices in Volume II should be A, C, B.
- I -- A new section should be placed at the beginning of Volume I and be titled, "Summary", which would describe briefly the contents of each volume in order to guide the reader as to the differences. The intent of the Summary should not be to abstract or to concisely summarize the contents of each volume.
- P -- Section I.1 of Volume I should be expanded to describe the overall object and context of the ES activities, identifying relationships with other characterization activities, and stating what is needed, why it is needed, how generally it will be obtained, and how it will be used in concert with others. That is, the role of the ES in site characterization should be described in the context of all characterization activities to give the reader perspective.

#### CONTENT

- I -- The last sentence on page 1-2 is misleading in that it suggests that the in situ characterization will be the determinant of site suitability. Clearly, the ES activities are not the only contributor to this determination. What is needed, rather, is acknowledgement that a system of determinants is in operation and the ES contributes unique information which, when considered in the context of other activities, helps to determine site suitability.
- I -- Also on this page and in this sentence, the phrase "candidate repository horizon" is used and is the first of many references to the repository horizon. It is important that the modifiers of repository horizon are consistent as used throughout the report, whereas in some places it currently is described as the repository horizon or the candidate repository horizon or the preferred horizon. Also, early on in this section or section 1.2 reference should be made to the "Horizon Selection Report".
- P -- On page 1-5 another bullet item should be inserted that refers to applications of the ES data to modeling and performance assessment, e.g. "Identification of applications to modeling the site system and to performance assessment."

- I -- On page 2-4 the paragraphs on Phase I and Phase II should be clarified with regard to the confirmatory nature of the data and the implication that the data may be more or less solely determinant. In some cases the data will be confirmatory and supportive, but in others the data will be unique. Also, in the paragraph on Phase I reference should be made to the appendix on the principal borehole contained in Volume II.
- N -- On this page and elsewhere there should be clarification of the circumstances under which porthole drilling and testing will be done in stratigraphic units other than the candidate repository horizons. The point to be made in general is that the portholes are provided as future options for drilling and testing, some of which may or may not be utilized. The review group agrees with the desirable flexibility this provides for contingent investigations later in the ES program.
- N -- At the top of page 2-7 and following the bullet items, consideration should be given to acknowledging the need for continued monitoring and testing beyond the end of Phase II; the subject may be addressed elsewhere as well.
- N -- Section 2.4 on page 2-7 is not meaningful as written, and the real interfaces on the project should be described instead to support the logic diagram that follows.
- I -- The first paragraph of page 2-9 deals with the important topic of the ES Test Plan and its role of BWIP site characterization, but is weakly presented here and appears as an afterthought by virtue of being contained at the end of the Scope section long after the stated purpose of the Test Plan.
- N -- Section 3.0 starting on page 3-1 should have an added paragraph clarifying the two categories of activities: site characterization and repository constructibility. Also, the rationale for the objectives should be added as well as an explanation that the constructibility aspects are subordinate to those for site characterization. Here and elsewhere in the plan the descriptions of constructibility observations and related activities should be subordinate in order and importance to those of site characterization.
- I -- Section 4.0 on page 4-1 might be retitled, Data Needs and Justification, and be expanded to explain why the ES activities are needed to satisfy the needs.
- P -- The first paragraph on page 5-1 should reference Volume II for the detail descriptions of tests. Included under subsection 5.1 Test Location and Environment, should be added the topic of Working Environment so that the anticipated conditions of heat and humidity can be discussed with regard to effects on personnel and instrumentation.

- I -- Section 5.1.2 Selection of the Reference Repository Location should be modified to change the emphasis from the decision methodology to the positive attributes of the candidate horizons.
- N -- The topic of site selection contained on pages 5-10 to 5-17 deserves to be considerably abbreviated, and could be accomplished by referring to the site selection report and reducing the number of figures. It also seems to us that this is background information that would be more appropriate in Section 1 of Volume I.
- I -- The heading for section 5.2 is in two parts that are not parallel, and it is suggested that the discussion of testing in the facilities for site characterization be done separately from a section on constructibility reporting. Furthermore, consistent with earlier suggestions, the site characterization descriptions should precede those of constructibility.
- N -- Section 5.2.3 on page 5-25 is another opportunity for increasing the description and purpose of the portholes and to clarify various uses and options for contingency testing.
- N -- Section 5.3.1.2 on page 5-34 should acknowledge that features found in the ES facility that are deemed to be of interest or concern will be investigated further in a manner yet to be determined, but will be done according to the nature and importance of the features. The point to be made here is that discovered features will not merely be identified and documented, but that investigations will be designed and carried out to adequately characterize them and assess their importance.
- I -- Figure 5-11 on page 5-28 indicates the importance of carefully checking the consistency between text and figures and the completeness and self-explanation of the figures. For example, the plugs are not identified on the figure, nor are they referred to as diverter assembly and the ability for the penetration to be sealed and under control.
- I -- Section 5.4 on page 5-46 should be clarified with regard to the intent of analysis and use of data not being within the scope of the ES Test Plan. Clearly, some analysis must be done as the data is collected to confirm its useability in modeling and performance assessment and to confirm its validity.
- I -- On page 5-53 the first paragraph regarding data base management should be changed with respect to authorized or unauthorized review and usage.
- I -- Section 6.0 on page 6-1 should be modified by rewriting the introduction to indicate that the expected results of the program are to provide adequate amounts and quality of data to contribute to the judgment of site suitability. Also, the paragraph on the predicted ranges would be

- I -- improved by deleting reference to level of confidence and by stating that predicted ranges are based on historic experiences with other site characterization investigation. In the tables of page 6-3 to 6-15 there are many items for which decision points are absent. It seems to us that for most of these decision points are not applicable, and rather than identify them in this manner on tables, it would be preferable to discuss the subject of decision points in the text and then treating each specific decision point by itself in following paragraphs.
- I -- Section 6.4 on page 6-16 is very good to be included here, but should be expanded to describe the concept of contingency planning and its relevance to unfolding test plans. Also, the first sentence should be changed to correctly indicate that individual contingency plans according to activity category are described in Volume II.
- N -- Section 13 starting page 13-1 should be modified to place reports dealing with constructibility following those dealing with site characterization. A table or diagram showing generally anticipated time durations for report preparation would also be useful. The descriptions of reports contained on pages 13-4 and 13-5 deserve to be expanded.