



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

Reply to:  
1050 East Flamingo Road  
Suite 319  
Las Vegas, Nevada 89119  
Tel: (702) 388-6125  
FTS: 598-6125

TO: Dinish Gupta, HLEN, Division of High-Level Waste  
Management

FROM: John W. Gilray, Sr. On-Site Licensing Representative

DATE: November 14, 1989

SUBJECT: RESOLVED DOE/HQ COMMENTS ON THE ESF-SDRD

In accordance with your request I am sending you, for information, the resolutions of DOE/HQ comments to the ESF SDRD for Title II design. Please notify me if you have any questions or actions concerning this package.

JWG:nan  
cc: John J. Linehan, Director, HLPD w/o enc.

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PDR WASTE  
WM-11 PDC

FILE TEXT ARCH 891114

4/c  
WM-11  
102  
NH03



## Department of Energy

Nevada Operations Office  
P. O. Box 98518  
Las Vegas, NV 89193-8518

W.B.S. #1.2.6  
"QA"

**AUG 07 1989**

John H. Nelson, SAIC, Las Vegas, NV  
Thomas O. Hunter, SNL, 6310, Albuquerque, NM

INCORPORATION OF RESOLVED U.S. DEPARTMENT OF ENERGY HEADQUARTERS (DOE/HQ)  
COMMENTS INTO THE EXPLORATORY SHAFT FACILITY (ESF) SUBSYSTEM DESIGN  
REQUIREMENTS DOCUMENT (SDRD) FOR TITLE II DESIGN

Based on the results of a recent DOE/HQ review of the ESF SDRD for Title II, Revision 0, Technical & Management Support Services is directed to revise the Benchmark 6 version of the ESF SDRD for Title II in accordance with the enclosed set of resolved and approved DOE/HQ comments (enclosure 1). It is understood that Benchmark 6, following review and approval by Sandia National Laboratories (enclosure 2), will be submitted as a Change Request to the Yucca Mountain Project Change Control Board for conversion to ESF SDRD for Title II, Revision 1.

If you have any questions, please contact Anthony L. Baca of my staff at (702) 794-7960 or FTS 544-7960.

Leo E. Little, Director  
Engineering and Development Division  
Yucca Mountain Project Office

YMP:ALB-5219

**Enclosures:**

1. Resolved and Approved  
DOE/HQ Comment 7/21/89
2. Ltr 7/19/89 Change Request

**cc w/encls:**

J. D. Waddell, SAIC, Las Vegas, NV  
S. C. Smith, SAIC, Las Vegas, NV  
Al Stevens, SNL, 6311, Albuquerque, NM  
A. W. Dennis, SNL, 6311, Albuquerque, NM  
P. N. Standish, W, Las Vegas, NV

RECEIVED

AUG 08 1989

STEVEN C. SMITH

# memorandum

*2 encl.*

DATE: JUL 21 1989

REPLY TO  
ATTN OF: RW-223

SUBJECT: HQ Comments on the YUCCA Mountain Project Office (YMPO)  
ESF-SDRD

TO: Leo Little, YMPO

The outstanding comments of DOE HQ and Weston on Benchmark IV of the Exploratory Shaft Facility, Subsystem Design Requirements Document (ESF-SDRD) were satisfactorily resolved in the meeting on July 12th, 13th, and 14th in Las Vegas.

Enclosed are HQ signed comment sheets for incorporation per comment resolution into the next revision of the SDRD (SDRD, Rev. I) prior to its release.

Please transmit the revised SDRD for HQ concurrence. Should you have any questions on this matter, please contact Ram Lahoti at FTS 896-4099.

*for R. B. Lahoti*  
Mark W. Frei, Director  
Siting and Facilities Technology  
Division  
Office of Civilian Radioactive  
Waste Management

Attachments

- cc: R. Stein, RW-30
- J. Saltzman, RW-20
- W. Danker, RW-321
- G. Appel, RW-331
- J. Hale, RW-222
- S. Brocoum, RW-221

*DWI-1989-3067*

- ACTION: *Bishop*
- CC: *Waters*
- CC: *Chapman*
- CC: ~~\_\_\_\_\_~~
- CC: *Christy*
- CC: *Dymmett*
- CC: *Chandler*
- CC: *Muller*
- CC: *Osaka*
- CC: *White*
- CC: *Beall-Daic*

REC'D IN WMPO  
*7/28/89* *Sack-wood*

ENCLOSURE /

RECORD COPY

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date FEB 21, 1989

Page 0 of    

Document Title Yucca Mountain Project, Exploratory Shaft Facility Subsystem Design Requirements Document

Document No., Revision and Date Benchmark IV January 31, 1989

Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph GENERAL

Comments and Rationale

The recommendations of the TRA/TOG as specified in the Technical Review Report (SORD) dated Dec 8<sup>th</sup> 88 and the recommendations of the DAA subcommittee as identified in the RRM Appendix I-4, have been examined and found to be addressed in the SORD Benchmark IV.

Proposed Revision

Date 2/21/89 Signed DWagg  
Reviewer

Date 3/20/89 Signed R Blebot  
Branch Chief

Resolution

No action required

Date 6/27/89 Signed DWagg  
Reviewer

Date 7/20/89 Signed R Blebot  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph GENERAL

Comments and Rationale

The document addressess very few requirements of sections 6.1 and 6.8 of Appendix E. The Project position is that these sections will be covered by other Project Documents.

However section 6.1 PC 5c concerning the preparation of a Safety Analysis, is an important requirement and shall be included in the SDED.

Proposed Revision

Include the requirement specified in 6.1 PC 5c as a PC in Section 1.2.6.0

Date 2/21/89 Signed DWagg  
Reviewer

Date 3/20/89 Signed RBlahots  
Branch Chief

Resolution

~~Disagree. GR App E 6.1 PC 5c belongs to Project Management Plan. See P. Kumar comment 2 of 9 resolution. 7-13-89~~

Date 6/10/89 Signed DWagg  
Reviewer

Date 7/20/89 Signed RBlahots  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph GENERAL

Comments and Rationale

There are many areas where the designer needs more specific detailed criteria in order to perform his work. If it is the project's intent that these criteria be developed as part of the A/E's Basis for Design documents, HQ has no way of control or approving these criteria as the SEWP does not specifically require HQ approval of the Basis for Design documents

Proposed Revision

DOE/HQ should be given the option to review and concur upon the results of Trade off studies etc. prior to their incorporation into the design documents

Date 2/21/89 Signed DWagg  
Reviewer

Date 3/20/89 Signed R Blahol  
Branch Chief

Resolution

AP-5.180 has been revised to require Project review and approval of the A/E's design basis documents

Date 6/27/89 Signed DWagg  
Reviewer

Date 7/20/89 Signed R Blahol  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph Page, CONTENTS - 6      APPENDIX A-3

Comments and Rationale

EDITORIAL  
"THERMAL" IS MIS-SPELLED  
CHANGE TO "THERMAL"

Proposed Revision

Date 2/20/89 Signed DWagg Date 3/20/89 Signed R Blahuta  
Reviewer Branch Chief

Resolution

This change has been made

Date 6/27/89 Signed DWagg Date 7/20/89 Signed R Blahuta  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph Page 6.0-2 Para. 1 - Applicable Regs, Codes, & Sps

Comments and Rationale

As written, sentences 4 and 5 do not convey the intended meaning. Period and Comma are in the wrong place.

Proposed Revision Re-write as follows (changes are underlined)  
"SDRD Appendix E contains a listing of some additional commonly used regulations, codes, and standards. Except for the December 25, 1987 draft Department of Energy Order DOE 6430.1A (excluding seismic requirements 0111.2.7, the latest edition or revision of a regulatory code, or standard .....

Date 2/20/89 Signed [Signature] Date 3/20/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

Reference to 6430.1A and requirement 0111.2.7 to be deleted in next SDRD revision

Date 6/27/89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph Page 6.0-4 Performance Criteria 1k

Comments and Rationale EDITORIAL

The reference 10CFR 60.131 (b)(20) is incorrect

Proposed Revision

change to [Nev. 10CFR 60.131 (b)(2)]

Date 2/20/89 Signed D. Wagg  
Reviewer

Date 3/20/89 Signed R. Blahut  
Branch Chief

Resolution

Agree - will change in  
SDRD Rev. 1

Date 6/27/89 Signed D. Wagg  
Reviewer

Date 7/20/89 Signed R. Blahut  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph Page 6.0-8 Performance criteria 6 m

Comments and Rationale

Add 10CFR 60.152 to list of requirements

Proposed Revision

..... shall meet the requirements of 10CFR 60.150, .151, and .152 [SR] (D.O.S.W).

Date 2/26/89 Signed DWagg  
Reviewer

Date 3/20/89 Signed R.B. Lakota  
Branch Chief

Resolution Agree - Will add .152

Date 6/27/89 Signed DWagg  
Reviewer

Date 7/20/89 Signed R.B. Lakota  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph Page 6.1-2 Functional Requirement 3  
Page 6.1-3 Functional Requirement 4

Comments and Rationale

References made to APPENDIX 6.1 are incorrect. (should be 6.2)

Proposed Revision

Functional Requirement 3 reference should be "[E6.2 FR3] [E89]"  
Functional Requirement 4 reference should be "[E6.2 FR4] [E89]"

Date 2/20/89 Signed [Signature] Date 3/20/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

FUNCT. REQMT 3 ON PAGE 6.1-2 AND FUNCT. REQMT. 4 ON PAGE 6.1-3 WILL BE REVISED TO REFERENCE E6.2.

Date 6/27/89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date FEB 20 1989

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Page/Paragraph Pages 6.5-8 and 6.5-9 CONSTRAINT II

Comments and Rationale

References to 10 CFR 60.122 are incorrect.

Proposed Revision Revise text to read :-

" ..... to meet the performance objectives of 10 CFR 60.112 [NEV, 10 CFR 60.112]

Date 2/20/89 Signed DWagg Reviewer Date 3/20/89 Signed R Blahota Branch Chief

Resolution

C-II HAS BEEN DELETED IN FAVOR OF QUOTING AND CITING 10CFR 60.112

Date 6/27/89 Signed DWagg Reviewer Date 7/20/89 Signed R Blahota Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIR 3.2)

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph Page 6.5-11 CONSTRAINT AS

Comments and Rationale

Reference to 10CFR 60.133 (c)(2) is incorrect

Proposed Revision

change reference at end of paragraph to:  
[NEU, 10CFR 60.133 (e)(2)]

Date 2/20/89 Signed DWagg Date 5/20/89 Signed RBlahuta  
Reviewer Branch Chief

Resolution

C-AS HAS BEEN DELETED AS A RESULT OF OTHER COMMENTS.

Date 6/27/89 Signed DWagg Date 2/20/89 Signed RBlahuta  
Reviewer Branch Chief

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Page/Paragraph Page 6.5-12 CONSTRAINT AT

Comments and Rationale

The reference to 10 CFR 60.133(c)(2) appears to be incorrect. 60.133(c) refers to retrieval requirements. It may be that the constraint is a liberal interpretation of 10 CFR 60.133(e)(2).

Proposed Revision

Please clarify

Date 2/20/89 Signed [Signature]  
Reviewer

Date 3/20/89 Signed [Signature]  
Branch Chief

Resolution

UNDER THE REVISED SDMD FORMAT, REFERENCES TO 10CFR60 FOLLOWING EACH STATEMENT HAVE BEEN DELETED.

Date 6/27/89 Signed [Signature]  
Reviewer

Date 7/20/89 Signed [Signature]  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Page/Paragraph Page 6.7.4-2 Performance Criteria.

Comments and Rationale

There is no direct reference in the SDRS to 60.133(g)(2). Section 1.2.6.0 Constraint NN identifies those requirements for utility systems "Important to Safety". If the underground ventilation system is determined to be not "important to safety", then 10 CFR 60.133(g) will apply.

Proposed Revision

Add an additional Performance criteria 1k to section 1.2.6 "The underground facility ventilation system shall be designed to assure continued function during normal operations and under accident conditions (10 CFR 60.133(g)(2))"

Date 2/20/89 Signed DWogg Reviewer Date 5/20/89 Signed R Blahots Branch Chief

Resolution

AS A RESULT OF OTHER COMMENTS, 10 CFR 60.133(g) HAS BEEN QUOTED AND CITED IN THE PERFORMANCE CRITERIA OF 1.2.6.4, 1.2.6.5 AND 1.2.6.6. IT WILL BE ADDED TO 1.2.6.7 FOR CONSISTENCY.

Date 6/27/89 Signed DWogg Reviewer Date 7/20/89 Signed R Blahots Branch Chief

HEADQUARTERS - DEPARTMENT OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph Page 6.9-3 Constraint B

Comments and Rationale

Reference to 10 CFR 60.21 (e)(11) is incorrect  
it should be 10 CFR 60.21 (c)(11)

Proposed Revision 1.2.6.9 Constraint B.

"..... to the environment. [NEU 10 CFR 60.15(d)(1),  
10 CFR 60.21(c)(11), .....

Date 2/20/89 Signed DWagg  
Reviewer

Date 3/20/89 Signed R Blahut  
Branch Chief

Resolution

**CONSTRAINT B ON PAGE 6.9-3 WILL BE REVISED TO  
REFERENCE 10 CFR 60.21 (C)(11)**

Date 6/27/89 Signed DWagg  
Reviewer

Date 2/20/89 Signed R Blahut  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date FEB 20 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph Page 69-3 Constraint B

Comments and Rationale

Add an additional requirement (60.133(h)) to the list of 10CFR 60 References

Proposed Revision Section 1.2.6.9 Constraint B

..... to the environment. [NEU 10CFR 60.15(d)(1), 10 CFR 60.21 (c)(11), 10 CFR 60.112, 10 CFR 60.133(b) and 10 CFR 60.133(h)]

Date 2/20/89 Signed DWagg Reviewer Date 3/20/89 Signed RBlahut Branch Chief

Resolution

REFERENCE 10 CFR 60.133(h) WILL BE ADDED TO CONSTRAINT "B" ON PAGE 6.9-3.

Date 6/27/89 Signed DWagg Reviewer Date 7/20/89 Signed RBlahut Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph APPENDIX A-1 REPOSITORY INTERFACE DRAWINGS

Comments and Rationale

These revised drawings show the N° 2 shaft station orientation as approx. N 30 E, as against the previous orientation of approx. E-W. This will change the location of the hoistrooms and consequently could have an effect on the size and shape of the surface pad. As the pad is a critical path item for start of shaft sinking, please provide rationale to show that the schedule can be met.

Date 2/20/89 Signed DWagg  
Reviewer

Date 3/20/89 Signed RRL  
Branch Chief

Resolution

The reviewer is reading too much into the drawing. The drawing shows no detail related to the ES-2 shaft station. No change will be made as a result of this comment.

Date 6/27/89 Signed DWagg  
Reviewer

Date 7/20/89 Signed RRL  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date Feb 20, 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph APPENDIX A-2 Sheet R07072

Comments and Rationale

Detail ① Anchor to Bedrock Plug at elevation 3868' references note 3. Plus reference should be Note 4.

Proposed Revision

change (see note 3) under "Anchor to Bedrock plug at El. 3868 to, (see note 4).

Date 2/20/89 Signed [Signature]  
Reviewer

Date 3/20/89 Signed [Signature]  
Branch Chief

Resolution

This change will be made on subsequent issue of this drawing

Date 6/27/89 Signed [Signature]  
Reviewer

Date 7/20/89 Signed [Signature]  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph Page Appendix E-3

Comments and Rationale

DOE ORDER 5480.4 IS CITED AS AN APPLICABLE REGULATION. (Page APP.E-2). THIS ORDER REQUIRES MANDATORY COMPLIANCE (AS A MATTER OF DOE POLICY) WITH CALIFORNIA ADMINISTRATIVE CODE, MINE AND TUNNEL SAFETY ORDERS.

Proposed Revision

ADD TO APPENDIX E  
STATE OF CALIFORNIA.

- Tunnel Safety Orders Administrative Code, Title 8 chapter 4 Subchapter 20, State of California
- Mine Safety Orders Administrative Code, Title 8 chapter 4 Subchapter 17, State of California.

Date 2/21/89 Signed DWagg  
Reviewer H

Date 3/20/89 Signed RRL  
Branch Chief

Resolution Disagree. NVO memo exempts ESF from California Tunnel and Mine Safety orders. (See Attached)

Date 6/27/89 Signed DWagg  
Reviewer

Date 7/20/89 Signed RRL  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Page/Paragraph APPENDIX H

Comments and Rationale - Table of Contents refer to Appendix H but not Appendix I. The volume 2B contains the cover page only for Appendix H but the following pages refer to Appendix I. There are two alternatives: - (1) Appendix H is missing completely, and the cover page for Appendix I is also missing. or (2) The sheets following Appendix H cover sheet have to be taken from the YMPo REM Appendix I and the text relating to Appendix I left unchanged.

Proposed Revision

Either: Add the missing Appendix H and Appendix I cover page  
or: Change the reference to Appendix I in the text to refer to Appendix H.

Date 2/21/89 signed DWogg Date 3/20/89 signed R Blalock  
Reviewer Branch Chief

Resolution Appx H was changed from Appx I during assembly of B/M 4, however references internal to the Appx did not get changed. Appx will be revised to be consistent with the TOC and to be internally consistent. Al Stevens 4-28-89

Date 6/27/89 signed DWogg Date 7/20/89 signed R Blalock  
Reviewer Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT  
 TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date FEB 21 1989

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Organization Office of Facilities Siting and Development

Page/Paragraph APPENDIX H or I ?

Comments and Rationale

It is unclear whether this is Appendix H or I.  
 In Section I-1 Pages 9 and 14 through 31 are missing.  
 In Section I-2 Pages 1 through 10 are missing.  
 In Section I-3 pages 5-6 missing.

THIS JUDGMENT IS BASED ON THE CONTENTS OF RRM APP I-3

Proposed Revision

Review Appendix H (I)? and insert the missing pages.

If pages have been purposely left out, reason for inconsistency with the RRM should be given and page numbers changed to be consecutive.

Date 2/21/89 Signed [Signature] Date 3/20/89 Signed [Signature]  
 Reviewer Branch Chief

Resolution Pages were excerpts from DAA and Appx was changed from I to H during assembly of 8/11/89. All proposed revisions will be completed. Resolved April 25, 1989

Date 6/27/89 Signed [Signature] Date 7/20/89 Signed [Signature]  
 Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2.24.89

Page 1 of 9

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph GENERAL

Comments and Rationale

BENCHMARK IV OF THE SDRD SHOWS VAST IMPROVEMENT OVER THE REVISION I OF SDRD IN TERMS OF CONTENT AND DETAIL. AUTHORS SHOULD BE CONGRATULATED.

Proposed Revision \_\_\_\_\_

Date 2/24/89 Signed P. Kumar  
Reviewer

Date 3/20/89 Signed RBL  
Branch Chief

Resolution

No action required

Date 6/27/89 Signed P. Kumar  
Reviewer

Date 7/20/89 Signed RBL  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 3.3.89

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Organization Office of Facilities Siting and Development

Page/Paragraph GENERAL

Comments and Rationale

SECTION 6.1 OF APPENDIX E TO GR GIVES CRITERIA AND CONSTRAINTS RELATED TO MANAGEMENT AND INTEGRATION. SOME OF THESE ARE APPLICABLE DURING THE DESIGN PROCESS FROM THE DESIGNER'S VIEWPOINT. MANY SUCH ITEMS ARE INCLUDED IN THE SDRD IN SECTION 1.2.6.0. HOWEVER, SOME CRUCIAL ITEMS ARE NOT ADDRESSED (SUCH AS PC1, PC5.C, ETC., OF APPENDIX E) AND THESE SHOULD BE ADDU

Proposed Revision

- ① PROVIDE CRITERIA AND/OR CONSTRAINTS TO SATISFY 6.1 ~~REQUIREMENTS~~ APPENDIX E REQUIREMENTS, PREFERABLY IN 1.2.6.0 OF SDRD AND GIVE PER CITATION (FOR EXAMPLE, 1.2.6.0, 3 SHOULD CITE APPENDIX E, 6.1. PC1, ETC.).
- ② ALSO, THE INTRODUCTORY STATEMENTS MADE IN APPENDIX (DOE-USA MOU, ETC.) SHOULD BE COVERED IN THE INTRODUCTORY PART OF SDRD OR ELSEWHERE IN SDRD IF NOT COVERED.

Date 3/3/89 Signed P. Kumar Date 3/20/89 Signed R. Blahut  
Reviewer Branch Chief

Resolution

~~Disagree. The GR App E 6.1 statements not included in the SDRD belong in the Project Management Plan. See attached for revised resolution. At 7/12/89~~

Date 7/12/89 Signed P. Kumar Date 7/20/89 Signed R. Blahut  
Reviewer Branch Chief

Personna Kumar comment 2 of 9

1-12-87

1. Will reference the location of the E6.1 and E6.8 in the ESF SORD introduction (ie, Project Management Plan etc.)
2. Agree. will add reference to E6.1PC4 in 1.2.6.0PC36.
3. Will include Para 10, bottom of page E-2, ~~APP E~~ of the GR into 1.2.6.0 of the ~~ESF SORD~~.

11 7-12-89

P. Kumar 7/12/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2.24.89

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Page/Paragraph

GENERAL

Comments and Rationale

IN GENERAL APPENDIX E MODIFICATIONS (PROPOSED) ON 10CFR60 AND OTHER REQUIREMENTS HAVE BEEN ADDRESSED. LEVEL OF DETAIL IN THE DOCUMENT DEPENDS ON WHETHER SDRD IS EXPECTED TO PROVIDE ALL DETAILS AT THIS STAGE OF DESIGN OR WHETHER IT IS THE RESPONSIBILITY OF THE A/E TO DEVELOP THE CRITERIA IN THE BASIS FOR DESIGN.

THE INTRODUCTORY PART SHOULD ELABORATE ON THIS AND PROVIDE CLEAR DIRECTION. ALSO, THE PROJECT OFFICE SHOULD ENSURE THAT THE A/ES OR OTHERS PERFORMING VARIOUS ANALYSES/TRADE-OFF STUDIES GET CLEAR DEFINITION/SCOPE IN A STATEMENT OF WORK.

Date 2/24/89 Signed P. Kumar Date 3/20/89 Signed R. Blahut  
Reviewer Branch Chief

Resolution

A separate responsibility matrix document is in preparation. The SDRD introduction will discuss this document, its purpose, and scope.

Date 7/12/89 Signed P. Kumar Date 7/20/89 Signed R. Blahut  
Reviewer Branch Chief

The basis for design document, produced by the AE will address scope, statement of work, studies etc. and/or Eng. Plan  
M 7/12/89

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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GENERAL

Comments and Rationale

ACCORDING TO EXISTING OGR SMP, THE SDN IS EXPECTED TO BE REVIEWED SEMIANNUALLY. THE INTRODUCTORY PORTION SHOULD STATE THE AND INDICATE THAT CHANGES, IF ANY, RESULTING FROM PROGRAM REDIRECTION OR APPENDIX E CHANGES WILL BE INCORPORATED AFTER SUCH PERIODIC REVIEWS.

Proposed Revision

AS ABOVE

Date 2/24/89 Signed P. Kumar Date 3/20/89 Signed R. Blahut  
Reviewer Branch Chief

Resolution

Agree, Text incorporating the above statement will be added.

Date 6/27/89 Signed P. Kumar Date 7/20/89 Signed R. Blahut  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 3.3.89

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Page/Paragraph 6.0-2, TOP PARAGRAPH

Comments and Rationale

DEC. 25, 1987 DRAFT DOE ORDER 6430.1A IS REFERENCED UNDER THIS PARAGRAPH. THIS ORDER IS STILL IN DRAFT ~~VERSION~~ VERSION. IMPLICATIONS OF QA ON REFERENCING A DRAFT DOCUMENT FOR TITLE II DESIGN NEEDS TO BE EVALUATED. RECENT APPENDIX E (42) REVISIONS FOR 10CFR 60 AND NON-10CFR GO REQUIREMENTS FLOWDOWN DO NOT PROPOSED REVISION REFERENCE DRAFT 6430.1A BUT THE OLD 643

AS ABOVE. QA IMPLICATIONS ON TITLE II DESIGN SHOULD BE RESOLVED.

Date 3/3/89 Signed P. Kumar Reviewer Date 3/20/89 Signed R. Blahut Branch Chief

Resolution

Reference to 6430.1A to be deleted in next SBTRD revision.

Not a DRAFT DOCUMENT 4/6/89

Date 7/12/89 Signed P. Kumar Reviewer Date 7/20/89 Signed R. Blahut Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph 6.4-7, Item H  
 6.4-8, items S & T  
 6.4-10, Item LL  
 6.4-11, Item ZZ  
Comments and Rationale and LL in 6.4-10  
 and ZZ on 6.4-11  
 ITEMS S & T ON PAGE 6.4-8, BECOME  
 MEANINGLESS IN VIEW OF THE CONSTRAINT  
 IMPOSED BY ITEM H ON P. 6.4-7.

Proposed Revision

IF THE COORDINATES OF THE SHAFT(S) ARE  
 FIXED, THEN IT SHOULD HAVE BEEN DONE  
 TO SATISFY THE CONDITIONS MENTIONED ON  
 PAGES 6.4-8. SUGGEST ELABORATING ITEM H TO INCLUDE  
 CONDITIONS S, T, LL, and ZZ (SAME FOR 2nd SHAFT)

Date 3/3/89 Signed P. Kumar Date 3/20/89 Signed R. Blahuta  
 Reviewer Branch Chief

Resolution

THE COORDINATES HAVE BEEN REMOVED FROM THE SAND AND USER<sup>ARE</sup> REFERENCED  
 TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED  
 TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING THE REQUIREMENT.

Date 7.12.89 Signed P. Kumar Date 7/20/89 Signed R. Blahuta  
 Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph P. 6.4-7, ITEM K

Comments and Rationale

CONSTRAINT K IMPOSES 12' INSIDE DIAMETER OF SHAFT. HOWEVER, ON PAGE 6.4-4, PCS 1L, 1m, and 1m GIVE THE CRITERIA FOR DETERMINING THE SIZE AND SHAPE OF SHAFT. IT IS NOT CLEAR WHO IS RESPONSIBLE FOR MAKING SUCH DETERMINATION AND AT WHAT STAGE. IF 12' DIA. IS ALREADY DETERMINED TO BE THE SHAFT SIZE, THEN EITHER THAT IT ~~MEETS~~ MEETS ALL THE CRITERIA INDICATED OR A STATEMENT Proposed Revision NEEDS TO BE ADDED TO CONFIRM IF 12' DIA. MEETS THE REQUIREMENTS. <sup>CONDUCT STUDIES TO</sup>

(SAME FOR SHAFT 2)

AS ABOVE

Date 3/3/89 Signed P. Kumar  
Reviewer

Date 3/20/89 Signed R. Blalock  
Branch Chief

Resolution

THE DIAMETER HAS BEEN REMOVED FROM THE SDRD AND USER REFERRED TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING <sup>EACH</sup> REQUIREMENT.

Date 7/12/89 Signed P. Kumar  
Reviewer

Date 7/20/89 Signed R. Blalock  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph 6.4-7, Item N  
6.5-13, Item BD

Comments and Rationale

Suggest adding "related to the ESF" after SCP and changing ~~skipped~~ "addressed" to "considered".

Proposed Revision

As above to comply with latest appendix E (CR) revision.

Date 3/3/89 Signed J. Kumar  
Reviewer

Date 3/20/89 Signed R. Blahots  
Branch Chief

Resolution

\* ADDING "RELATED TO THE ESF" IS NOT NECESSARY BECAUSE THERE IS ONLY ONE SCP THAT PERTAINS TO THIS SORD. Relph Star Comment  
"ADDRESSED" HAS BEEN CHANGED TO "CONSIDERED" AS A RESULT OF OTHER COMMENTS.

Date 7/17/89 Signed J. Kumar  
Reviewer

Date 7/20/89 Signed R. Blah  
Branch Chief

Actual 10 CFR 60.16 is quoted in ESF SORD and item N will be deleted. Same for item BD.

## TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 3.3.89Page 9 of 9Document Title Yucca Mountain Project, Exploratory Shaft Facility Subsystem  
Design Requirements DocumentDocument No., Revision and Date Benchmark IV January 31, 1989Reviewer Technical Review GroupOrganization Office of Facilities Siting and DevelopmentPage/Paragraph P. 6.5-12, ITEM 'AT'Comments and Rationale

THIS ~~REQUIREMENT~~ CONSTRAINT IS REDUNDANT IN VIEW OF THE FACT THAT SDLD IMPOSES THE CENTERLINE COORDINATES FOR THE TWO SHAFTS.

Proposed Revision

SOME EXPLANATION (UPFRONT OR IN THE SHAFT DISCUSSION) IS NECESSARY TO INDICATE THE RATIONALE FOR SELECTING THE COORDINATES.

Date 3/3/89 Signed P. Kumar Date 3/20/89 Signed R. Blahut  
Reviewer Branch Chief

Resolution

THE COORDINATES HAVE BEEN REMOVED FROM THE WORD AND USER<sup>ARE</sup> REFERENCE TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING <sup>EACH</sup> REQUIREMENT.

Date 7/12/89 Signed P. Kumar Date 7/20/89 Signed R. Blahut  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 Jul 89

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Page/Paragraph

*Introduction - 4 bottom of page*

Comments and Rationale

*Project has chosen to ~~design~~ modify its interpretation of Part 60 as such implementation to a later version of the SDRD. Execution of this proper resolution. ~~ESF SDRD. 21. has been intended not to apply to ESF yet it forms substantial part of the philosophy of the SDRD. How will this be resolved?~~*

Proposed Revision WHEN AND HOW CAN HQ DETERMINE IMPLEMENTATION OF ITS GUIDANCE ?

Date 23 Feb 89 Signed [Signature] Date 3/20/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

*ESF SDRD for Title II, Rev. 1, currently in development. Benchmarks 5 and 6 will provide previews of Rev. 1.*

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

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Page/Paragraph

6.0-3/1d.

Comments and Rationale

In presentations to NRC, DOE has defended flexibility as being 100%. Is the 35% supported by referencable decision? If not, leave as 100%

Proposed Revision

- a. Remove the term for 35% allowance.
- b. Unless 35% is supportable, change to 100%  
a initiate change process

Date 23 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

Disagree. 100% is misleading and does not accurately convey the original intent of "uncertainty allowance". Currently no source or qualified backup exists for the 100%. 35% will be deleted from SORD Rev. 1

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 Dec 89

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Page/Paragraph

6.0-3/1e

Comments and Rationale

Unattainable requirement: "to the extent practicable, breakdowns during construction and operation will not adversely affect schedule or budget [6.0-3/PC-1e]

Proposed Revision

Delete Perf. Cont. 1e

Date 23 Dec 89 Signed H. Hermann Date 3/21/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution Disagree. GR App. E quote.

Date 11 July 89 Signed H. Hermann Date 7/20/89 Signed R. Blalock  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 15 Feb 89

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Page/Paragraph

6.0-3 Para 1. f.

Comments and Rationale

"Management" will not provide, but some specific participant should already have, such as SNL

Proposed Revision

Delete and reference source where items important to safety are identified; i.e. "DOE"

Date 15 Feb 89 Signed Albermann Date 3/21/89 Signed R Blalock  
Reviewer Branch Chief

Resolution Disagree - GR App E quote.

Date 11 July 89 Signed Albermann Date 7/20/89 Signed R Blalock  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 15 Feb 89

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Page/Paragraph  
6.0-3/ and -4

Comments and Rationale  
Paragraphs 1.i and 1.k are redundant

Proposed Revision  
Delete paragraph 1.i and renumber rest.

Date 15 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution Agree. Will combine in  
SORD Rev. 1

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

b 25

Date 15 FEB 89

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Page/Paragraph

. pg 6.c-4 / 2.c (i)

Comments and Rationale

PERMANENT ESF ITEMS WERE DISCUSSED UNDER 2.6 ; THIS PARAGRAPH SHOULD DEAL WITH NON-PERMANENT ITEMS. THEIR DESIGN LIFE NEED NOT BE 100 YEARS

Proposed Revision

i. Non-permanent ESF structures, systems, and components shall be designed and constructed for a 5-year maintainable life, unless otherwise specified. See paragraph 2.c.

Date 15 Feb 89 Signed [Signature]  
Reviewer

Date 3/21/89 Signed [Signature]  
Branch Chief

Resolution

~~Disagree. Design life required is 100-year maintainable life.~~ Text rewritten. All design life requirements have been compiled under a single performance criteria (see

Date 11 July 89 Signed [Signature]  
Reviewer

Date 7/20/89 Signed [Signature]  
Branch Chief

1.2.6.0 PC 2b of Benchmark 5) 117-13-89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.0-5 para 3.e

Comments and Rationale

DOE case 6430.1 is cancelled and replaced with 6430.1A  
See also page 6.0-7, para 5.j.

Proposed Revision

replace 6430.1 with 6430.1A

Date 15 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution Agree. Will revise in SDRD Rev. 1

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

pg 6.C - 10

Comments and Rationale

In para E and F, damage to the site is limited to permanent items of the ESF. This should be extended to any ESF item.

Proposed Revision

In para E & F, delete "permanent"

Date 15 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution Disagree on E, statement is GR App. E quote. Agree on F, "permanent" will be changed to "important to waste isolation" and the statement editorially revised.

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.0-2 1st paragraph

Comments and Rationale

DCE Code 6430.1A is in effect and applies in its entirety unless a deviation has been filed with DCE/ES14 and approved. We can not pick and choose at will

Proposed Revision

Delete the exception (0111.27) until concurred in by ES14

Date 23 Feb 89 Signed Uberman Date 3/21/89 Signed RBL  
Reviewer Branch Chief

Resolution

Agree, will be deleted as requested in next revision.

Date 11 July 89 Signed Uberman Date 7/20/89 Signed RBL  
Reviewer Branch Chief

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Page/Paragraph 6.0-5/2c(ii)

Comments and Rationale

We should not impose requirements which can not be provided. For example, a maintainable liner underneath a muck pile. See PC 1e on pg 6.0-3, which requires that ESF ~~is~~ shall be designed, to the extent practicable, so that breakdowns during design and construction will not adversely impact schedule or budget. How can that be achieved? See also pg 6.1.2-3.

Proposed Revision

delete "maintainable" from PC 2c.ii

Date 23 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution ~~Agree~~ ~~Disagree~~. ~~25-year maintainable life is feasible~~. ~~Disagree~~. Focus of maintainability is on the period during the construction of the muck pile (possibly several years) when the liner is in place and exposed to construction traffic etc.

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

years) when the liner is in place and exposed to construction traffic etc.

7-13-89

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Page/Paragraph

6-15 / BD

Comments and Rationale

NRC requirements (as well as those of the State of Nevada) regarding tests and observations underground will be accommodated by the design flexibility assured through a 100% uncertainty allowance.

Proposed Revision

Delete BD

Date 23 FEB 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution Disagree. 10 CFR 60.74 & .75 requirement. Uncertainty allowance for the entire facility is not 100%.

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

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Page/Paragraph

6.1.4/D

Comments and Rationale

10 CFR 60.21(C)(ii) does not require restoration of the site to original contours. No reason to require it. ~~No safety or environmental purpose would be served by this~~

Proposed Revision

Delete Constraint D

Date 23 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution CONSTRAINT "D" WILL BE REVISED TO DELETE REFERENCE TO 10 CFR 60.21(C)(II) AND WILL BE REVISED TO READ:  
"THE PAD WILL BE DESIGNED SO WHEN THE FACILITY IS DECOMMISSIONED THE GROUND CAN BE RESTORED TO A CONTOUR COMPATIBLE WITH ITS INITIAL CONDITIONS."

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

Date 8 March 89

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Page/Paragraph

~~6.1.1-2~~ 6.1.1-2/1c. 1e

Comments and Rationale

Criterion lacks any specificity: "The main pad shall be constructed in such a manner as to limit adverse effects on the long-term performance of the geologic repository to the extent practical." [6.1.1-2/PC1e]

Proposed Revision

Delete "... to the extent practical"

Date 8 Mar 89 Signed [Signature]  
Reviewer

Date 3/21/89

Signed [Signature]  
Branch Chief

Resolution **REJECTED- SPECIFIC ADVERSE EFFECTS ON THE LONG-TERM PERFORMANCE OF THE REPOSITORY HAVE BEEN IDENTIFIED AS TBD ITEMS. A RESPONSIBILITY MATRIX, TO BE REFERENCED IN THE SDRO, WILL IDENTIFY PARTICIPANTS RESPONSIBLE FOR IDENTIFYING SPECIFIC ADVERSE EFFECTS AND PARTICIPANTS RESPONSIBLE FOR COMPLYING WITH THESE ADVERSE EFFECTS.**

Date 11 July 89 Signed [Signature]  
Reviewer

Date 2/20/89

Signed [Signature]  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 5 MAR 89

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Page/Paragraph 6.1.1-2 / PERF. CRIT. 1a  
6.1.4-1 / Functional Req't

Comments and Rationale

Functional requirement undefined: 'probable maximum flood' needs recurrence interval to be meaningful.

Proposed Revision

Add the recurrence interval (100 yrs, 500 yrs etc) before "... probable maximum flood"

Date 8 Mar 89 Signed [Signature]  
Reviewer

Date 3/21/89 Signed [Signature]  
Branch Chief

Resolution **REJECTED - THE SPECIFIC VALUES OF A PROBABLE MAXIMUM FLOOD WILL BE IDENTIFIED AS TBD ITEMS. A RESPONSIBILITY MATRIX TO BE DEVELOPED IN THE SORO WILL IDENTIFY PARTICIPANTS RESPONSIBLE FOR IDENTIFYING THE PROBABLE MAXIMUM FLOOD AND THE PARTICIPANTS RESPONSIBLE FOR COMPLYING WITH THESE REQUIREMENTS.**

Date 11 July 89 Signed [Signature]  
Reviewer

Date 7/20/89 Signed [Signature]  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 Feb 89

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Page/Paragraph

pages 6.4-4 and 6.4-7

Comments and Rationale

Performance criterion 1n and Constraint K appear <sup>not</sup> to be mutually supportive for a Requirement document: PC 1n offers design flexibility (shaft shall be adequate) while Constraint K says it shall be 12 ft dia.

Proposed Revision

Delete Constraint K

Date 23 Feb 89 Signed [Signature] Reviewer Date 3/21/89 Signed [Signature] Branch Chief

Resolution

THE DIAMETER HAS BEEN REMOVED FROM THE SDRD AND USERS <sup>ARE</sup> REFERRED TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING <sup>EACH</sup> THE REQUIREMENT.

Date 11 July 89 Signed [Signature] Reviewer Date 7/20/89 Signed [Signature] Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.4-8, 4

Comments and Rationale

Requirement that liner be removable is not demanded by 10 CFR 60.21 (c)(11). It might not be necessary to remove the liner prior to closure. This must be determined by future analyses. Requirement instead that the design not preclude removal before closure.

Proposed Revision

If there is no regulatory or operational need, delete Constraint G. Also delete Constraint FF, page 6.5-8

Date 23 Feb 89 Signed [Signature] Reviewer Date 3/24/89 Signed [Signature] Branch Chief

Resolution

C-Y IN 6.4 AND C-FF IN 6.5 HAVE BEEN REMOVED AS FOLLOWS:  
"THE CAPABILITY TO ENHANCE POSTCLOSURE PERFORMANCE BY REMOVING THE SHAFT LINER SHALL BE RETAINED."

Date 11 July 89 Signed [Signature] Reviewer Date 7/20/89 Signed [Signature] Branch Chief

Date 23 Feb 89

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Page/Paragraph

6.4-11 and 6.4-12

Comments and Rationale

Constraints ZZ and AC are redundant. AC is the better.

Proposed Revision

Delete Constraint ZZ  
~~Same with C~~

Date 23 Feb 89 Signed [Signature] Date 3/2/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

C-ZZ HAS BEEN DELETED AS A RESULT OF OTHER COMMENTS.

Date 11 Jun 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

Date 8 Mar 89

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Page/Paragraph

pg 6.4-9 / Constr. GG

Comments and Rationale

Inappropriate interpretation of reg.: 60.130 does not require an inventory of materials left after decommissioning. If the material is not used for backfill, why should it not be left in place.

Proposed Revision

Delete Constraint GG

Date 9 Mar 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
 Reviewer: Branch Chief

Resolution

THIS CONSTRAINT HAS BEEN MADE SUBORDINATE TO 60.15(d)(1). ALL MATERIALS LEFT OVER MAY NOT BE SUITABLE FOR BACKFILL. THIS CONSTRAINT ESTABLISHES A PROGRAM TO KNOW WHAT MATERIALS ARE LEFT OVER.

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
 Reviewer: Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3 2)

Date 8 Mar 89

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Page/Paragraph

6.4-10/Const. LL  
6.5-9/Const. SS

Comments and Rationale

Inappropriate interpretation of reg.: "..shall contribute to..." as stated in 60.133(a)(1) is not the equivalent of "...should contribute to or not detract from..."

Proposed Revision

Delete, and use accurate quote from regulation

Date 6 Mar 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

"SHOULD" WAS CHANGED TO "SHALL"

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 Feb 89

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Page/Paragraph

pg 6.5-8 and 6.5-6

Comments and Rationale

Constraint G and CC are not consistent. If 12' dia is a "shall", then CC is superfluous.

Proposed Revision

Delete Constraint CC

Date 23 Feb 89 Signed [Signature]  
Reviewer

Date 3/21/89 Signed [Signature]  
Branch Chief

Resolution

THE DIAMETER HAS BEEN REMOVED FROM THE SORD AND USERS <sup>ARE</sup> REFERRED TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING <sup>EACH</sup> THE REQUIREMENT.

Date 11 July 89 Signed [Signature]  
Reviewer

Date 7/20/89 Signed [Signature]  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.5-8 / Constr. AA

Comments and Rationale

The location of the shafts were determined before the statement of consideration was published and are exempt from the need for alternate considerations.

Proposed Revision

Delete Constraint AA

Date 8 Mar 89 Signed Uberman  
Reviewer

Date 3/21/89 Signed R. Blahuta  
Branch Chief

Resolution

DISAGREE THAT LOCATION OF THE SHAFTS IS EXEMPT FROM ALTERNATE CONSIDERATIONS, SUCH AS C-AA, THAT HAVE A BASIS IN 10 CFR 60. HOWEVER, THE COORDINATES HAVE BEEN REMOVED FROM THE SDRO AND USERS ARE REFERRED TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING THE SHAFT LOCATION REQUIREMENTS.

Date 11 July 89 Signed Uberman  
Reviewer

Date 2/20/89 Signed R. Blahuta  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 Jul 89

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Page/Paragraph

pg 6.5-10 / AG

Comments and Rationale

This is redundant with similar requirements for ES-1. Since the distance from one to the other shaft is the same as from ES-2 to ES-1, this is superfluous.

Proposed Revision

Delete Constraint AG

Date 23 Jul 89 Signed Albermann Date 3/21/89 Signed RBS  
Reviewer Branch Chief

Resolution

AGREE THAT THIS REQUIREMENT IS ALSO STATED FOR ES-1. WILL RETAIN AG FOR COMPLETENESS SO THAT THE REQUIREMENTS ARE FULLY STATED FOR EACH SHAFT AND NOT SIMPLY IMPLIED AS WOULD BE THE CASE USING THE REVIEWER'S LOGIC.

Date 11 July 89 Signed Albermann Date 2/20/89 Signed RBS  
Reviewer Branch Chief

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Page/Paragraph

6.5-13 / BD

Comments and Rationale

This constraint properly belongs in the SEMIP, not the SDCD.  
see also pg. 6.4-7 constraint N

Proposed Revision

Delete Constraint BD  
and delete Constraint N on page 6.4-7

Date 23 Feb 89 Signed [Signature] Reviewer Date 3/21/89 Signed [Signature] Branch Chief

Resolution

C-N IN 6.4 AND C-BD IN 6.5 WERE ADDED TO THE SDCD AT THE SPECIAL REQUEST OF THE R. LAHOTI HQ TASK FORCE.

Date 11 July 89 Signed [Signature] Reviewer Date 7/20/89 Signed [Signature] Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.9.1-2 / c

Comments and Rationale

The ESF closure and decommissioning of surface facilities should be consistent with public health and safety and protection of the environment, and no more. Stockpiling topsoil from construction of the pool for up to, say, 80 years is specious and futile. Recontouring and reclaiming disturbed land is not required for the pool area, except to reduce erosion around shaft collars. Dust spraying is only appropriate during construction and operation.

Proposed Revision

Delete requirements constraints C.i, C.ii, and C.v

Date 23 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
 Reviewer Branch Chief

Resolution THE ENGINEERING PRACTICES AND RECLAMATION GUIDELINES SPECIFIED COMPLY WITH THE REQUIREMENTS SET FORTH IN THE RIGHT-OF-WAY RESERVATION (ROW) N-47748 WHICH INCLUDES THE PLAN OF DEVELOPMENT AGREED TO BETWEEN THE YUCCA MOUNTAIN PROJECT AND THE BUREAU OF LAND MANAGEMENT, JANUARY 1988

Date 11 July 89 Signed [Signature] Date 7/20/89 Signed [Signature]  
 Reviewer Branch Chief

Date 23 FEB 89

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Organization Office of Facilities Siting and Development

Page/Paragraph

~~6.3-1/1.1~~ 6.0-2/ 1st para

Comments and Rationale

Requirement for latest regulation/code/standard in effect at the time of baselining of SDRD not sound. Should be those in effect at time of purchase order, license application, or approval of design document, whichever is appropriate.

Proposed Revision

Delete sentence starting "The latest edition..." and replace with:  
 "The regulation, code, or standard in effect at the time of issuance of purchase order, or license application, or approval of design document, whichever is appropriate, shall be used."

Date 23 Feb 89 Signed [Signature] Date 3/21/89 Signed [Signature]  
 Reviewer Branch Chief

Resolution

Disagree. This document (ESF SDRD for Title II) is the focus of the requirements for design and not procurement license application. Such a requirement, as stated, belongs in other Project documents, not the SDRD.

Date 4 July 89 Signed [Signature] Date 2/20/89 Signed [Signature]  
 Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/17/89

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Organization Office of Facilities Siting and Development

Page/Paragraph General

Comments and Rationale

No comments that would delay the start of Title II design. The attached comments are generally for clarification.

Proposed Revision

Date 2/17/89 Signed [Signature] Date 3/23/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

No action required.

Date 7/11/89 Signed [Signature] Date 7/20/89 Signed [Signature]  
Reviewer Branch Chief

## TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/17/89Page 1 of 7Document Title Yucca Mountain Project, Exploratory Shaft Facility Subsystem  
Design Requirements DocumentDocument No., Revision and Date Benchmark IV January 31, 1989Reviewer Technical Review GroupOrganization Office of Facilities Siting and DevelopmentPage/Paragraph Introduction - 1 / 2<sup>nd</sup> paragraphComments and Rationale

The first sentence explains the organization of how the YMP is managed within NVO by the YMPO; however on the preceding page, 3<sup>rd</sup> paragraph, it is stated that all activities are directed by OCRWM. It is not clear how OCRWM relates to, or manages, YMPO and/or NVO.

Proposed Revision

Explain how OCRWM relates to, or manages, YMPO and/or NVO.  
(I am not sure)

Date 2/17/89 Signed Scott B. U. Cox Date 3/23/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution

Disagree. Connection is sufficiently discussed for this document. More detail is captured in the SEMP and other Project management related documents.

Date 7/11/89 Signed Scott B. U. Cox Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph Introduction - 1 / First bullet, last sentence

Comments and Rationale

ESF workings will also be on the above ground surface (since this is included in the definition of the ESF on page 6.0-1, first paragraph, 2<sup>nd</sup> sentence)

Proposed Revision

At end of sentence ending "... to the unsaturated zone." add "and the above ground surface."

Date 2/17/89 Signed S. H. U. Cup Date 3/23/89 Signed R. B. [Signature]  
Reviewer Branch Chief

Resolution Disagree.  
"Workings" as used denotes the underground only. The subject of this particular bullet is the "candidate host rock" which does not outcrop within the ESF site.

Date 7/11/89 Signed S. H. U. Cup Date 7/21/89 Signed R. B. [Signature]  
Reviewer Branch Chief

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Organization Office of Facilities Siting and Development

Page/Paragraph 6.0-6 / 4c.

Comments and Rationale

Are the two shafts to be incorporated into the ESF, or into the repository?

Proposed Revision

If the shafts will be incorporated into the repository change "ESF" to "repository".

Date 2/17/89 Signed Scott L. Gray Date 3/23/89 Signed R. Blakely  
Reviewer Branch Chief

Resolution Disagree. This is the ESF SDRD, not RDR document.

Date 7/11/89 Signed Scott L. Gray Date 7/21/89 Signed R. Blakely  
Reviewer Branch Chief

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Page/Paragraph 6.0 - 7 / 5G, 5H, and 5i

Comments and Rationale

These three criteria are ~~too~~ confusing as written (and sometimes mixed).

Proposed Revision Rewrite as follows:

- 5G: .... provided to measure earthquake magnitude and hypocenter.
- 5H: Seismometers will be used, <sup>if necessary</sup> to record first motions for fault plane solutions.
- 5I: ... in order to estimate the event location and amount of energy release of any seismic event. (end of criteria)

Date 2/17/89 Signed Sup G. U. Cox Date 2/23/89 Signed R. B. [Signature]  
 Reviewer Branch Chief

Resolution Disagree - Comments must be directed to SR from which these statements originate.

Date 7/11/89 Signed Sup G. U. Cox Date 7/21/89 Signed R. B. [Signature]  
 Reviewer Branch Chief

- 5G. changed to read "...to measure magnitude, and determine the location..."
  - 5H. rewritten.
  - 5i: rewritten.
- # 7-13-89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph 6.8-8/SS.

Comments and Rationale

Testing will also be conducted in the upper demonstration breakout room, and at other depths in the shaft (ES-1). Therefore, as written, the statement is correct but incomplete. A comment #1 on page 6.8-9 points this out.

Proposed Revision

If ~~possibly~~ <sup>intended</sup> state that testing will also be conducted in the shaft, the Upper Demonstration Breakout Room, and the Main Test Level.

Date 2/17/89 Signed Scott G. Van Cuy Date 3/23/89 Signed R. B. [Signature]  
Reviewer Branch Chief

Resolution Disagree, SS is a 10 CFR 60 requirement quote which identifies a task.

Date 7/11/89 Signed Scott G. Van Cuy Date 7/21/89 Signed \_\_\_\_\_  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/17/89

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Page/Paragraph 6.8-6/T.

Comments and Rationale

The values of  $< 75\%$  and  $< 90\%$  saturation limits seem extremely high, is this correct?

Proposed Revision

Check the 75% and 90% values and change if necessary. (I've been unable to verify these)

Date 2/17/89 Signed Scott G. U. Cox Date 3/23/89 Signed R. B. Blahut  
Reviewer Branch Chief

Resolution Agree. Will check w/ Sandia & revise as appropriate in SDRD Rev. 1

Date 7/11/89 Signed Scott G. U. Cox Date 7/21/89 Signed \_\_\_\_\_  
Reviewer Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Date 2/17/89

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Organization Office of Facilities Siting and Development

Page/Paragraph 6.8.2-2 / 1c., end of 8<sup>th</sup> line

Comments and Rationale

~~Is~~ A plane of mechanical discontinuity? This is unclear, does this statement instead mean a physical discontinuity

Proposed Revision

Consider changing "mechanical" to "physical"

Date 2/17/89 Signed Sgt G. W. Case Date 3/23/89 Signed R. B. Lahr  
Reviewer Branch Chief

Resolution Disagree. Statement to be removed from text in SDRD Rev. 1 based on prior comment requesting that Section 1.7.6.8.2 direct user et. al. to Appendix B.

Date 7/11/89 Signed Sgt G. W. Case Date 7/21/89 Signed \_\_\_\_\_  
Reviewer Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Page/Paragraph

General Comment

Comments and Rationale

E6.1PC1g is not explicitly addressed in the SDRD. If it is addressed elsewhere, this is not clear from the text.

Proposed Revision

Either address E6.1PC1g explicitly in the SDRD or, if addressed elsewhere, state explicitly in the SDRD where.

Date 2/22/89 Signed [Signature] Date 3/23/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

See 1.2.6.0 PC 1f. pg 6.0-3

(E6.1PC1g does not exist)

Date 7/11/89 Signed [Signature] Date 7/24/89 Signed \_\_\_\_\_  
Reviewer Branch Chief

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Page/Paragraph

6.0-14, i; 6.0-15, iii, vi, vii

Comments and Rationale

References to federal regulations and Nevada statutes appear to be incomplete or incorrect. Reference to state implementing regulations is missing.

Proposed Revision

Check all statutory and regulatory references and reference to all implementing regulations as complete as possible.

Date 2/23/89 Signed

  
Reviewer

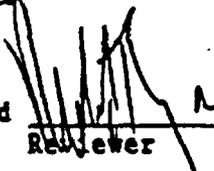
Date 3/23/89 Signed

  
Branch Chief

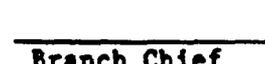
Resolution

*Agree. will check & correct as if necessary*

Date 2/11/89 Signed

  
Reviewer

Date 2/21/89 Signed

  
Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Organization Office of Facilities Siting and Development

Page/Paragraph

p. 6.0-14, 22

Comments and Rationale

Phrase beginning "Since this program could be administered..." is unclear and ambiguous because state agency does administer the regulations

Proposed Revision

Check all similar references and change to positive statements of Nevada authority.

Date 2/23/89 Signed [Signature] Reviewer Date 3/23/89 Signed R Blahotin Branch Chief

Resolution Agree. will revise 1.2.6.0 C L L O L  
as noted. 8/5/89

Date 7/11/89 Signed [Signature] Reviewer Date 7/21/89 Signed RBL Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

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Page/Paragraph

Comments and Rationale

The following DOE orders are listed in the Regulatory Matrix, Appendix E, but not in SDRD, Appendix E: 5480.1B, 5500.4, 5483.1A, 5484.1, 5000.3, 5482.1B

Proposed Revision

Add listed DOE orders.

Date 2/21/89 Signed [Signature]  
Reviewer

Date 3/23/89 Signed [Signature]  
Branch Chief

Resolution 5484.1, 5480.1B, and 5483.1A will be included by reference in the SDRD. 5500.4, 5000.3, and 5482.1B will be included by reference in other project documents which

Date 2/21/89 Signed [Signature]  
Reviewer

Date 2/21/89 Signed [Signature]  
Branch Chief

address management and contractual matters.

H 7-53-89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.0-15, iv, vii, ix

Comments and Rationale

Section 404 of the Clean Water Act, TSCA, and FIRA do not apply in Nevada.

Proposed Revision

Remove references in text.

Date 2/23/89 Signed [Signature] Date 3/23/89 Signed [Signature]  
 Reviewer Branch Chief

Resolution Disagree. item IV: need to verify exemption with Dept. of Engineers prior to removal. Current a ruling has been requested. item VIII: plan to avoid use of toxics, however if they are used TACH applies - item IX: ~~plan to avoid~~ use of any pesticides shall comply w/ FIFRA.

Date 2/23/89 Signed [Signature] Date 2/21/89 Signed [Signature]  
 Reviewer Branch Chief

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Page/Paragraph

6.0-16, MM

Comments and Rationale

The MOU between the DOE and the appropriate <sup>agency</sup> specifies more clearly DOE's MSHA responsibilities.

Proposed Revision

Cite MOU and clarify text.

Date 2/21/89 Signed [Signature] Date 3/23/89 Signed [Signature]  
Reviewer Branch Chief

*Disagree.*

Resolution

1) Statement "MM" is a direct quote from 10 CFR 60.131(b)(9). The MOU between DOE and the Dept. of Labor identifies management and operational requirements and protocol, Not

Date 2/1/89 Signed [Signature] Date 2/1/89 Signed [Signature]  
Reviewer Branch Chief

design requirements, criteria, or constraints. Statement requested belongs in Project Management Plan etc.

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Page/Paragraph

p.6.3.1-2, 1e and p.6.7.11-1

Comments and Rationale

Definition of "noxious gases" is inconsistent in these two references;  
monitoring requirements are also inconsistent.

Proposed Revision

Make all references to "noxious gases" consistent; make all monitoring requirements the same, where appropriate.

Date 2/21/89 Signed [Signature]  
Reviewer

Date 3/23/89 Signed [Signature]  
Branch Chief

Resolution PC 1e ON PAGE 6.3.1-2 WILL BE REVISED TO  
DELETE THE FOLLOWING: "CONTINUOUSLY MONITORED FOR  
NOXIOUS GASES, OXYGEN DEFICIENCY,". THIS REVISION WILL  
RESULT IN PC 1e (6.3.1-2) AND FR 1 (6.7.11-1) BEING  
CONSISTENT.

Date 2/21/89 Signed [Signature]  
Reviewer

Date 2/21/89 Signed [Signature]  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

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Page/Paragraph

6.0.-2, The Sixth Paragraph

Comments and Rationale

The proposal indicates that it is the responsibility of the H/E to identify the specific regulations that apply to the design. This is in violation of DOE OIG 10-0400 (Pg 28, 5.3.3 #2). These must be in the design. Proposed Revision

Add the listing of specific regulations that apply to the design. (eg. which, MSHA, OSHA, NRC, etc. Mine/Tunnel design apply)

Date 2/22 Signed Dean Stude Date 3/9/89  
Reviewer Branch Chief

Resolution

Agree?  
~~Disagree:~~  
See SDRD Appendix E and the "Applicable Regulations, Codes, and Specifications" listing in each SDRD Section. Such listings, however, do not absolve the AEs of responsibility to use the proper regulations, etc. See Attached ~~rather~~

Date 7/12/89 Signed [Signature] Date 7/1/89 Signed [Signature]  
Reviewer Branch Chief

~~DOCR/87 should be revised to allow SDRD to be represented by documents.~~  
ds. 7-12-89

"BEST AVAILABLE COPY"

Dean Stucker comment 1 of 18

Resolution:

The YMP interprets that section 5.3.3 of the OGR/B-7 allows a multiple suite of documents at the Project level and below to satisfy the requirement of an S&RD.

The specific sections etc for the codes, regulations etc will be listed in the design basis documents of the AE's (DBD & VFD) which are approved by the Project Office.

AS 7-52-89  
D 4/12/89

Date 2/22/89

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Page/Paragraph

6.0-3 1c & 1d

Comments and Rationale

a) 1c specifies that the uncertainty allowance shall be specified in the SDRD 1d identifies that they are to be determined after the start of Title II design.

b) Title I, and SEP indicate 100% flexibility, 1d indicates Proposed Revision 35%.

a.) add all uncertainty allowance to SDRD before Title II start

b.) change 35% to 100% 3/17/89  
Date 2/22/89 Signed [Signature] Reviewer Date 3/17/89 Signed [Signature] Branch Chief

Resolution

Disagree. 1c. can and is interpreted to mean the AEs Design Basis Document (d.b.) which is final after Title II start. The 35% values shown are only indications of the value used during Title II. 100% is misleading and not reflective of the originally intended purpose of uncertainty allowance. Also, 100% has no

Date 7/12/89 Signed [Signature] Reviewer Date 7/21/89 Signed [Signature] Branch Chief

qualified backup or origin. 35% will be deleted from SDRD Rev. 1. TBD will be

added to 1.2.6.0 PC 1d M 7-12-89

(TBD & ETBVA relevant to a design package will be resolved prior to release of design package) "BEST AVAILABLE COPY"

Date 2/22/89

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Organization Office of Facilities Siting and Development

Page/Paragraph

6.0-3, 1; (as example)

Comments and Rationale

There are numerous 10 CFR 60 requirements that are applicable only to important to safety items (Q list) The SDRD apparently does not identify this list therefore how does the A/R know how to apply Proposed Revision This requirement

A/R list of important to safety items or indicate there are no important to safety items

Date 2/22/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

Disagree. Q-list items developed through the application of Project procedure AP-6.9Q, -6.8Q, and -6.10Q. See 1.2.6.0

PC Ifi.

Date 7/12/89 Signed [Signature] Date 2/21/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/22/89

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Organization Office of Facilities Siting and Development

Page/Paragraph 6.0-5, iv

Comments and Rationale

iv indicates 15 year design life. This is in violation of the GRD appendix E. A BCP has been submitted in 6/88, but apparently HQ Proposed Revision management does not want to implement

change to be in compliance with GRD

Date 2/22/89 Signed Dean Stecher Date 3/17/89 Signed R. Blaholi  
Reviewer Branch Chief

Resolution Accept, will change statement to comply with GR App. E.

Date 7/12/89 Signed Dean Stecher Date 7/14/89 Signed R. Blaholi  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.0-5 (39 - example)

Comments and Rationale

The applicable 10 CFR 60 Requirements are identified as criteria in the SDRD. Each and every 10 CFR 60 Requirement should be listed as a requirement and the appropriate criteria, constraint and assumption. ~~Parent Requirement~~ should be listed for each 10 CFR 60 requirement, and controlled by DOE, the way the SDRD is currently written leaves open to the AR to determine what these Requirements mean to the design.

Date 2/22/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

Agree. Will insert EST applicable 10 CFR 60 requirements in SDRD Rev. 1

Date 7/12/89 Signed [Signature] Date 7/21/89 Signed [Signature]  
Reviewer Branch Chief

Date 2/22/89

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Page/Paragraph

6.0-8 6g.

Comments and Rationale

This 10 CFR 60 requirement is listed as criteria 6g. How is this going to be implemented by the H.E.? (Controlled blasting water controls...)

Proposed Revision

All the 10 CFR 60 requirements should be listed as Functional Requirements not Performance Criteria and additional guidance provided to the H.E.

Date 2/22/89 Signed [Signature] Reviewer Date 3/12/89 Signed [Signature] Branch Chief

Resolution Agree. Appropriate ESF applicable 10 CFR 60 quotes will be added to the SDRS

Date 7/12/89 Signed [Signature] Reviewer Date 7/21/89 Signed [Signature] Branch Chief

"BEST AVAILABLE COPY"

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.0-12, X

Comments and Rationale

constant X reference the Quality Assurance List (QAL). This list is not available as of 2/22/89, this list should be included as part of SDRD NOT referenced, as per baseline change control procedures

add QAL list as part of SDRD

Date 2/22/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

Disagree. QAL will be referenced in separate baseline document.

Date 7/12/89 Signed [Signature] Date 7/21/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/27/89

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Page/Paragraph

6.0 - 13

BB & CC

Comments and Rationale

The constraints BB and CC identify that the AR will determine the design basis events and design basis accidents and to add them to these BFD documents.

Proposed Revision

- 1) The AR should not develop these events. It should.
  - 2.) Since the BFD are change controlled by the A/E, NOT DOE, the BFD should be added to the SOR/D.
- Date 2/27/89 Signed [Signature] Reviewer Date 3/17/89 Signed [Signature] Branch Chief

Resolution

1) Agree. Responsibility List, TBD, will make proper assignments for solution of require-  
 - no constraint. 2) AP-5.180 has been revised to require Project review & approval of the BFD.  
 Disagree - DO office is participant in control.

Date 4/12/89 Signed [Signature] Reviewer Date 2/21/89 Signed [Signature] Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date \_\_\_\_\_

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Page/Paragraph

6.1-4 interface control Requirements

Comments and Rationale

The new repository designers in the M&O Contractor, and they should be added by name to interface control requirements

Proposed Revision

Date 2/27/89 Signed [Signature] Date 3/12/89 Signed [Signature]  
Reviewer Branch Chief

Resolution REJECTED - THE M&O CONTRACTORS HAVE NOT BEEN SELECTED AT THIS TIME. WHEN THE M&O IS SELECTED AND IDENTIFIED BY THE PROJECT, THEY CAN THEN BE IDENTIFIED IN THE SORO.

Date 2/17/89 Signed [Signature] Date 2/21/89 Signed [Signature]  
Reviewer Branch Chief

statement changed to "...Repository requirement developers and designers..."

of 7-12-89

Date 2/22/89

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Page/Paragraph

6.1-4 A.

Comments and Rationale

Constraint A in 10 CFR 60.15 (d)(1),  
how in the A.R. to accomplish this constraint,  
additional guidance such as with control, location,  
Proposed Revision must be provided to the A.R.s and  
not left up to their discretion.

add additional guidance for 10 CFR 60.15 (d)(1)

Date 2/22/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
Reviewer Branch Chief

Resolution ACCEPT. ~~REJECTED~~ - SPECIFIC DESIGN AND OPERATIONAL ASPECTS  
TO LIMIT THE POTENTIAL FOR ADVERSE IMPACTS ON LONG-TERM  
PERFORMANCE OF THE REPOSITORY HAVE BEEN IDENTIFIED AS TBD (B)  
A RESPONSIBILITY MATRIX REFERENCED BY THE SDRD WILL IDENTIFY  
THE PARTICIPANTS RESPONSIBLE FOR IDENTIFYING SPECIFIC  
GUIDANCE AND PARTICIPANTS RESPONSIBLE FOR CONSULTING WITH THIS  
GUIDANCE.

Date 7/17/89 Signed [Signature] Date 7/21/89 Signed [Signature]  
Reviewer Branch Chief

Accept. See 1.2.6.1 CAI, [TBD] 7-12-B

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/22/89

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

6.1-6                      Q, R & S

Comments and Rationale

The constraints for limiting water usage construction should be listed, consistent with SEP numbers,

Proposed Revision

The maximum amount of water etc. can be used must be identified / quantified

Date 2/22/89 Signed Dean Stutz Date 3/12/89 Signed R. Blahut  
Reviewer Branch Chief

Accept 07-12-89

Resolution ~~RESOLVED~~ - SPECIFIC CONSTRAINTS FOR LIMITING WATER USAGE SHALL BE IDENTIFIED AS TWO ITEMS. A RESPONSIBILITY MATRIX REFERENCED BY THE SORO WILL IDENTIFY PARTICIPANTS RESPONSIBLE FOR IDENTIFYING SPECIFIC CONSTRAINTS AND PARTICIPANTS RESPONSIBLE FOR COMPLYING WITH THE CONSTRAINTS.

Date 7/12/89 Signed Dean Stutz Date 7/21/89 Signed R. Blahut  
Reviewer Branch Chief

See 1.2.6.1 CFC 07-12-89

Date 2/22/89

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Page/Paragraph

6.0-1 through 6.0-18 (General)

Comments and Rationale

The need for this requirement that the B&E design must accommodate both vertical and horizontal employment characteristics is not identified as in current plans.

Proposed Revision

add a functional Requirement specifying that both vertical / horizontal employment site characteristics be equally

Date 2/23/89

Signed

[Signature]  
Reviewer

Date

[Signature]

Signed 3/17/89  
Branch Chief

Resolution

Disagree. This concern is covered in general by the requirement 1 and associated criteria in 1.2.6.D, and in particular by the requirements in 1.2.6.B and in Appendix B.

Date 2/12/89

Signed

[Signature]  
Reviewer

Date

2/21/89

Signed

[Signature]  
Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

(6.4-7 - I) & (6.4-8 - V)

Comments and Rationale

Constraint I tells the AE The shafts must be 12' where as constraint V tells the AE to make a determination of what the shaft size should be.

Proposed Revision

delete one of the constraints

Date 2/22/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
Reviewer Branch Chief

Resolution AGRRR

THE DIAMETER HAS BEEN REMOVED FROM THE SORD AND USERS ARE REFERRED TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING EACH REQUIREMENT.

Date 7/12/89 Signed [Signature] Date 7/21/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/22/89

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Page/Paragraph

6.4-8-T

6.4-7

G & H

Comments and Rationale

Constraint T tells the AR that he is to pick the shaft location. This is not consistent with G & H.

Proposed Revision

assume consistency

Date 2/27/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
Reviewer Branch Chief

Resolution AGRBR

THE COORDINATES HAVE BEEN REMOVED FROM THE SORS AND USERS ARE REFERRED TO THE RIB. A SEPARATE RESPONSIBILITY MATRIX DOCUMENT WILL BE DEVELOPED TO IDENTIFY WHO IS RESPONSIBLE FOR IMPLEMENTING EACH REQUIREMENT.

Date 2/2/89 Signed [Signature] Date 2/21/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Page/Paragraph

6.4-12 - AL

Comments and Rationale

constraint AL does not identify the maximum amount that can be used, where on the ECP (page 8.4.3-18 second paragraph) estimated the amount for P11 to be approximately 0.02 m<sup>3</sup>/m<sup>2</sup> area.

Proposed Revision

add the quantities limited by PA and/or impact to text

Date 2/22/89 Signed [Signature] Date 3/17/89 Signed [Signature]  
 Reviewer Branch Chief

Resolution

THE AMOUNT OF WATER WILL BE ADDED TO THE TBO LIST

Date 2/12/89 Signed [Signature] Date 2/21/89 Signed [Signature]  
 Reviewer Branch Chief

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 2/22/89

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Organization Office of Facilities Siting and Development

Page/Paragraph

6.6-18 DR

Comments and Rationale

Comment DR specifies that water used in construction should be limited. The quantified amount to be limited should be stated and consistent with the SEP (pg. 8.4.3-18)  
Proposed Revision

The maximum amount of water to be used underground for construction and operation is listed at less than 3 million gallons in SEP. This is  
Date 2/22/89 Signed [Signature] Date 3/12/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

WATER USED IN CONSTRUCTION WILL BE ADDED TO THE TBO LIST.

Date 7/19/89 Signed [Signature] Date 7/24/89 Signed [Signature]  
Reviewer Branch Chief

TECHNICAL REVIEW COMMENT AND RESOLUTION (QIP 3.2)

Date 2/22/89

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Organization Office of Facilities Siting and Development

Page/Paragraph

*General,*

Comments and Rationale

*I could not find the number of people to be designed for surface and underground.*

Proposed Revision

*These numbers should be included in the SDRD*

Date 2/22/89 Signed [Signature] Date 3/10/89 Signed [Signature]  
Reviewer Branch Chief

Resolution

~~Change~~. Number to be developed as a part of ESF design task. Add to 1.2.6.0 of SDRD "ESF population study will be performed by the AE and ~~accepted~~ <sup>approved</sup> ~~accepted~~ <sup>approved</sup>"  
Date 7/17/89 Signed [Signature] Date 7/21/89 Signed [Signature]  
Reviewer Branch Chief

*by the Project Office. 7-12-89*

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph

6, 5 - 6 I

Comments and Rationale

Proposed Revision  
The last part of the contract I allow excavation of the long shaft before shafts are connected. This is in constant with William P. and appendix K.

Drop last part of this contract because of the worker safety requirement to ensure by record excavation  
Date 2/22/89 Signed Dean Stute Date 3/17/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution ACCEPTED

THIS STATEMENT WAS DELETED FROM 6.4 AND 6.5 AS A RESULT OF OTHER COMMENTS THE REVISED STATEMENT NOW IN 6.6 REQUIRES <sup>AS ALLOWABLE</sup> EXCAVATION ON THE MAIN TEST LEVEL PRIOR TO CONNECTING THE SHAFTS TO BE DETERMINED BY A SAFETY ANALYSIS.

Date 7/12/89 Signed Dean Stute Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

## TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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APPENDIX B: INTRODUCTION

Comments and Rationale

AN INTRODUCTION SHOULD BE ADDED THAT "ROLLS UP" THE MAJOR SPICE CONSIDERATIONS (SUCH AS FLEXIBILITY, ACCEPTABILITY CONDITIONS, PROJECTED INTERFERENCE RADIUS, PERFORMANCE CONFIRMATION CANDIDACY, ETC.) SO THE ESF DESIGN TEAM COULD QUICKLY UNDERSTAND THE ANTICIPATED SPATIAL REQUIREMENTS.

Proposed Revision

ADD AN INTRODUCTION WITH SUMMARY TABLES COVERING THE SPATIAL REQUIREMENTS.

Date 2/23/89 Signed V. Montemayor Date 3/22/89 Signed R. B. [Signature]  
Reviewer Branch Chief

Resolution Reject

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemayor Date 7/21/89 Signed R. B. [Signature]  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft Facility  
SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 1

RESOLUTION: I have chosen not to include an "introduction" to Appendix B as I believe the purpose of this document is to instruct the designers regarding testing requirements for the ESF design.

Other documents (such as the Design Acceptability Analysis, the SCP, the Test Descriptions Document, etc.) serve the purpose of "education".

However, where a requirement exists for an exclusion radius to avoid interference with other testing, these have been called out for each test.

Signatures:

Resolved by: T. J. Merson Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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APPENDIX B: INTRODUCTION

Comments and <sup>RATIONALE</sup>~~Rationale~~

WHETHER THE TESTS PROPOSED ARE RELATED TO ITEMS IMPORTANT TO SAFETY, ITEMS IMPORTANT TO WASTE ISOLATION/QUALITY ACTIVITIES IS NOT STATED.

Proposed Revision

SUGGEST ADDING A TABLE TO THE INTRODUCTION SUMMARIZING THE SAFETY CLASSES AND THE QA LEVELS NOMINATED.

Date 2/23/89 Signed V. Montemphl Date 3/22/89 Signed RBL  
Reviewer Branch Chief

Resolution REJECT.

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemphl Date 7/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 2

RESOLUTION: The issue of IITS/IITWI is handled through a separate QALA procedure set and an associated set of controlled documents. I agree that the "QA levels" are important to the design but the Project has chosen to supply those to the designer as a separate source.

Signatures:

Resolved by: T. J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

## TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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APPENDIX B: INTRODUCTION

Comments and Rationale

It is difficult to design the EST for test operations without having ① a complete list of tests including the real tests and any proposed by the NRC and ② a schedule for such testing similar to Figure 7.5-14 in the SCP.

Proposed Revision

Add or reference a schedule in the introduction to Appendix B.

Date 2/27/89 Signed V. Martynuk Date 3/22/89 Signed RBC  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/15/89 Signed V. Martynuk Date 7/21/89 Signed RBC  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 3

RESOLUTION: We do not yet know what tests will be proposed or required by others (including the NRC) and therefore we assume that the list of tests in the table of contents for Appendix B represents the complete set as we know it. The seal test is included (although as you point out without detail) as is the MPBH (actually a surface based test). There is no need to repeat the schedule in figure 8.5-14 of the SCP as schedules are maintained in separate baselines. Besides, as can be seen from a review of figure 8.5-14 of the SCP, a schedule usually is obsolete before it can get published!!

Signatures:

Resolved by: T. J. Marom Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

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APPENDIX B: ALL  
RATIONALE  
Comments and Rationale

Mention of halon fire suppression systems should only be stipulated for unoccupied enclosures according to MSHA.

Proposed Revision

Suggest reviewing the underground enclosures and deleting the mention of halon for occupied structures.

Date 2/23/89 Signed V. Montuypal Date 3/22/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuypal Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 4

RESOLUTION: NNWSI/ESF Special Study #6A Rev. 2 Section 7.1.2.2.4  
cites DOE/EP-0108 Appendix E, page 10 as the standard  
electronic computer/data processing system to allow  
Halon 1301. We intend to follow MSHA regulations with  
respect to Halon.

Signatures:

Resolved by: T.J. Merom Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 22 FEBRUARY 1989

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Organization Office of Facilities Siting and Development

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APPENDIX B : ALL PAGES

Comments and Rationale

THE P.I. SHOULD PROVIDE ESTIMATES OF WATER USAGE AND TRAZER USAGE. IF WATER OR TRAZER RECOVERY IS REQUIRED FOR A REGION TO BE ELIGIBLE FOR TRANSITORY EMPLACEMENT, IT SHOULD BE MENTIONED.

Proposed Revision

1. ADD ESTIMATES OF WATER AND TRAZER USAGE.
2. ADD WATER RECOVERY REQUIREMENTS.

Date 2/23/89 Signed V. Montuypal Date 3/22/89 Signed RBL  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 2/23/89 Signed V. Montuypal Date 2/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 5

RESOLUTION: Water useage for testing is monitored as specified in Section B-IS-5. The problem has further been addressed by inclusion of performance assessment controls in Volume 1 of the ESF SDRD as appropriate.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date \_\_\_\_\_

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 22 FEBRUARY 1989

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APPENDIX B : ALL

Comments and <sup>RATIONALE</sup> Rationale

The manpower estimates should be provided by the PIs, and linked to a schedule. Without such estimates, it will be difficult to design the ventilation.

Proposed Revision

Add manpower estimates with respect to a schedule.

Date 2/23/89 Signed V. Montemayor Date 3/22/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemayor Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 6

RESOLUTION: Scientific manpower estimates have been provided to the designers in Section B-IS-2. The manpower scheduling has been done as a separate study.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

## TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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APPENDIX B: PAGE TS-CEO-1(1) / FIGURE

Comments and Rationale

The stereo cameras appear to employ lenses with different focal lengths. Such an arrangement would not allow proper control of scale.

Proposed Revision

Suggest modifying the diagram to show two lenses of identical focal length.

Date 2/23/89 Signed V. Montemph Date 3/22/89 Signed R. B. Schick  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemph Date 7/21/89 Signed R. B. Schick  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 7

RESOLUTION: The PI indicates that both cameras have the same focal length. There is no problem. Points to consider are 1) The "cartoon" is just that, and the focal lengths are not defined. 2) The PI will specify the camera and except for the mounting interface the cameras are not a part of the facility design.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

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Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B : PAGE B-MECH-1-1 / PC 1

Comments and Rationale

The type of borehole deformation gauge to be used is not mentioned. Suggest naming the type or referencing the prototype test that would lead to a decision.

Proposed Revision

See above.

Date 2/23/89 Signed V. Mantung Date 3/22/89 Signed RBL  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Mantung Date 2/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 8

RESOLUTION: It is not the purpose of the facility design to specify the instrumentation. This should be done by the PI in a study plan or implementation procedures.

Signatures:

Resolved by: Thomas J. Merom Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: PAGES B-MECH-1-(3) AND B-MECH-4-(2) / FIGURE  
Comments and Rationale

The brand name sulfacet is given in each figure for a type of grout. It is not clear whether this type of grout contains sulfur and would prove acceptable for long-term use.

Proposed Revision

Delete mention of sulfacet until its use has been approved by a materials review board.

Date 2/23/89 Signed V. Montague Date 3/2/89 Signed RBL  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 2/15/89 Signed V. Montague Date 2/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 9

RESOLUTION: "Sulfaset" has been removed from the figures and the generic word "grout" retained. This information was not required for the facility design. As a point of clarification on the issue of "acceptable for long term use" and the "materials review board", sulfaset is included as item #55 in Table A-1 of LA-11398-MS Nevada Nuclear Waste Storage Investigations Exploratory Shaft Facility Fluids and Materials Evaluation".

Signatures:

Resolved by: Thomas J. Merson Date 7/13/81

Agreed by: V. Montenyohl Date 7/13/81

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-MECH-2-1/C1

Comments and Rationale

" .... to study ... a typical repository sized drift."  
It is not clear whether an emplacement drift or haulage drift is referred to.

Proposed Revision

Suggest specifying a haulage drift.

Date 2/23/89 Signed V. Montuono Date 3/22/89 Signed RBL  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuono Date 7/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 10

RESOLUTION: Add the words "Tuff Main" as a modifier to make the  
definition read "... typical repository sized Tuff  
Main drift".

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-MECH-2-2  
Comments and Rationale

There is no constraint 4.

Proposed Revision

All a constraint or reminder.

Date 2/27/89 Signed V. Montenegro Date 3/21/89 Signed RBL  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/17/89 Signed V. Montenegro Date 7/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 11

RESOLUTION: This has been corrected in going to Benchmark #5.

Signatures:

Resolved by: Thomas J. Meram Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-MECH-4-1 AND B-MECH-5-1/C2

Comments and Rationale

A concrete plug alone would not effectively contain radon.  
Suggest describing the additional component necessary to  
provide an efficient plug.

Proposed Revision

See above.

Date 2/23/89 Signed V. Mantung Date 3/22/89 Signed R. Blabater  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Mantung Date 7/21/89 Signed R. Blabater  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 12

RESOLUTION: The word "concrete" will be removed from constraint #2  
in B-MECH-4 and constraint #1 in B-MECH-5.

Signatures:

Resolved by: Thomas J Meran Date 7/13/89  
Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-MECH-4-4/5 / Figure  
Comments and Rationale

No provision for moisture collection or logging is depicted. Since the DOE is stating that heat dries out the rock above a certain temperature, it appears appropriate to detect the degree of drying.

Proposed Revision

Add moisture detection boreholes.

Date 2/23/89 Signed V. Montemayor Date 3/21/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution WITHDRAW

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemayor Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 13

RESOLUTION: Moisture holes are indicated on figure B-MECH-4-(3).

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: [Signature] Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 February 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-MECH-15-3 / A1 and A4

Comments and Rationale

Monitoring of radon and subsurface physical conditions are mentioned.

Proposed Revision

Suggest adding mention or reference to the monitoring of gases for mine safety purposes (carbon monoxide, methane, etc).

Date 2/23/89 Signed V. Montenegro Date 3/22/89 Signed R. B. [Signature]  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montenegro Date 7/21/89 Signed R. B. [Signature]  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 14

RESOLUTION: Modification to Interface Requirement #3 will be made  
to reference back to the Monitoring and Warning  
Systems section in Volume 1 of the ESF SDRD.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89  
Agreed by: L. M. Taylor Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B / PAGE B-SEAL-1-1

Comments and Rationale

The Functional Requirements, Performance Criteria, Constraints, Interface Requirements, and Assumptions all read "To be developed."

Proposed Revision

Replace the TBDs with appropriate text.

Date 2/23/89 Signed V. Montuypal  
Reviewer

Date 3/22/89 Signed R. Blaisdell  
Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 2/23/89 Signed V. Montuypal  
Reviewer

Date 2/21/89 Signed R. Blaisdell  
Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 15

RESOLUTION: Some material will be provided by the PI and added through change control process in the near future (estimated to be a couple months). However, the SCP clearly states that the design of the In Situ seal testing in the ESF will follow the collection of certain site characterization data from early ESF testing. It is probably premature to provide many of the details of a rational seal test definition. Appendix A2 also illustrates conceptual seal information for design purposes and reference to such has been added to the description of the Seal Test.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: [Signature] Date 7-13-89

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1979

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: TB - HVD - 4-4 / FIGURE

Comments and Rationale

Suggest adding boreholes outside the existing configuration to allow HFEM sensing for saturation.

Proposed Revision

See above.

Date 2/23/79 Signed V. Montuypal Date 3/21/85 Signed R. Blakely  
Reviewer Branch Chief

Resolution WITHDRAW

SEE ATTACHED SHEET

Date 7/13/79 Signed V. Montuypal Date 7/21/85 Signed R. Blakely  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 16

RESOLUTION: The test is only an air permeability test.

Signatures:

Resolved by: Thomas J. Meam Date 7/13/89

Agreed by: [Signature] Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-HYD-5-5/2d. and Figures

Comments and Rationale

The long radial borehole testing should be done with associated acoustic emission sensing. Otherwise, the DOE would have a difficult time proving that fractures had not been extended by testing activities.

Proposed Revision

Add acoustic emission sensing to the text and the figures.

Date 2/23/89 Signed V. Montung  
Reviewer

Date 3/22/89 Signed R. Blakely  
Branch Chief

Resolution REJECT  
SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montung  
Reviewer

Date 7/21/89 Signed R. Blakely  
Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 17

RESOLUTION: This comment might well apply to other air permeability testing also. However, because the gas over pressures used are low, there is not expected to be rock movement caused by the permeability testing.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-HYD-7-1 / FR 1

Comments and Rationale

The term flexibility does not automatically translate into the capabilities necessary to operate in the Calico Hills strata.

Proposed Revision

Explicitly state any additions to hoist rope length, ventilation air, compressed air, and other utilities necessary to obtain the "flexibility."

Date 2/23/89 Signed V. Montoya Date 3/22/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/17/89 Signed V. Montoya Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 18

RESOLUTION: A constraint will be added "constraints cited for individual tests in PC 2 (above) will apply to the Calico Hills tests as appropriate".

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-HYD-7-2 / A 1

Comments and Rationale

"Refer to individual test reference sections for details."  
This section is apparently the section in question.

Proposed Revision

Replace the quoted sentence with a reference to  
SDP Section 8.3.1.2.24.6.

Date 2/27/89 Signed V. Montuypal Date 3/22/89 Signed R. Blahnik  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuypal Date 7/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 19

RESOLUTION: The SCP section for the Calico Hills Test is referenced in the test definition. Reading of that section of the SCP does not give the designer knowledge of which tests might be conducted in the Calico Hills and furthermore the SCP does not describe the facility design requirements of for example, Radial Borehole Testing or a Diffusion Test. These details are found in the ESF SDRD under the appropriate section for each test.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/09

Agreed by: V. Montenyohl Date 7/13/09

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-HYD-9-1 / FR 3

Comments and Rationale

Chemically trace all compressed air used in drilling and coring. " Unless time and distance are relatively short, this requirement would not necessarily prove productive.

Proposed Revision

Suggest deleting the FR quoted.

Date 2/23/89 Signed V. Montoya Date 3/23/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution REJECT  
SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montoya Date 7/21/89 Signed RBC  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 20

RESOLUTION: SF<sub>6</sub> has been successfully used for gaseous tracing during surface based drilling operations. We do not anticipate a problem with using this gaseous tracer in the mine plant air.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-HVD-10-2/A4

Comments and Rationale

No illustrations have been provided of the space required for drilling.

Proposed Revision

Suggest adding illustrations...

Date 2/23/89 Signed V. Montemayor Date 3/23/89 Signed R.B. Blanton  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/17/89 Signed V. Montemayor Date 7/21/89 Signed R.B. Blanton  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 21

RESOLUTION: Assumption A4 no longer appears in Benchmark #5.  
A sketch is not required for this test as PC 1 gives  
geometry requirements.

Signatures:

Resolved by: Thomas J Meron Date 7/13/89

Agreed by: V. Montenyohl Date \_\_\_\_\_

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-WP-1-3/P211

Comments and Rationale

"Provide tap water lines..." It is not clear whether this statement refers to potable water or could accept filtered mine water.

Proposed Revision

Add explanation.

Date 2/23/89 Signed V. Montuono Date 3/23/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuono Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 22

RESOLUTION: Changed this wording.

Signatures:

Resolved by: Thomas J. Meram Date 7/13/89

Agreed by: V. Montenyohl Date \_\_\_\_\_

Date 23 FEBRUARY 1989

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Document Title Yucca Mountain Project, Exploratory Shaft Facility Subsystem Design Requirements Document

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B - WP - 1 - 5 / PC 23

Comments and Rationale

This criteria is less concerned with location than with schedule.

Proposed Revision

Replace the PC with " Scheduling of the tests should prevent fly rock or vibration damage to instrumentation from mining activities

Date 2/23/89 Signed V. Montuono Date 3/23/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution ACCEPT

ALL ATTACHED SHEET

Date 7/17/89 Signed V. Montuono Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 23

RESOLUTION: The words "Scheduling and" were added ahead of the word  
"Location"

Signatures:

Resolved by: Thomas J. Meron Date 7/13/89

Agreed by: V. Montenyohl Date

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-MPBH-1-3/C8-9

Comments and Rationale

The total depth of the two MPBHs should be listed.

Proposed Revision

list the total depths.

Date 2/23/89 Signed V. Montroy Date 3/23/89 Signed RBL  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montroy Date 7/25/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 24

RESOLUTION: The depths of the MPBH holes are defined in Assumption  
#3.

Signatures:

Resolved by: Thomas J. Merom Date 7/13/89

Agreed by: V. Montenyohl Date

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX <sup>B</sup>: WP-1-7/C7  
Comments and RATIONALE

Some of the clearances listed do not appear to be possible.

Proposed Revision

Review the dimensions and modify as appropriate.

Date 2/23/89 Signed V. Montumpe Date 2/23/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution WITHDRAW

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montumpe Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 25

RESOLUTION: Upon review the dimensions appear to be satisfactory.

Signatures:

Resolved by: Thomas J. Meron Date 7/13/89  
Agreed by: V. Montenyohl Date 7/13/89

HEADQUARTERS - OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-ES-1-6 / FTR 26

Comments and Rationale

Unless occupied by people or microcomputers, it is not clear why the data collection units should have environmental control.

Proposed Revision

Add explanation.

Date 2/23/89 Signed V. Montumy Date 3/23/89 Signed RBL  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montumy Date 7/21/89 Signed RBL  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 26

RESOLUTION: The environmental control is made necessary by the  
electronic equipment in the DCU and the lack of  
air conditioning for shaft ventilation.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (OIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-ES-1-7/FR 3d-3g  
Comments and <sup>RATIONALE</sup> Rationale

These items appear to be subsidiary to 3c.

Proposed Revision

Suggest renumbering.

Date 2/27/89 Signed V. Montuypal Date 3/23/89 Signed R. Blahuta  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuypal Date 7/21/89 Signed R. Blahuta  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 27

RESOLUTION: This section will be restructured to make it easier to see which requirements are associated with which structure.

Signatures:

Resolved by: Thomas J. Meram Date 7/13/89

Agreed by: V. Montenyohl Date

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-IS-1-G/FR 2d-2f  
Comments and Rationale

These items do not appear to be compatible.

Proposed Revision

Review for consistency.

Date 2/23/89 Signed V. Montuono Date 3/23/89 Signed R. Blahota  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuono Date 7/21/89 Signed R. Blahota  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 28

RESOLUTION: The modification made going from Benchmark to #4 to  
Benchmark #5 clarified the issue. Benchmark #5  
is acceptable.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Document Title Yucca Mountain Project, Exploratory Shaft Facility Subsystem Design Requirements Document

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-IS-1-9/FR 4f.

Comments and Rationale

"... indicated on EG and G drawing YF-91050001."  
No illustration has been provided.

Proposed Revision

Add the illustration cited.

Date 2/23/89 Signed V. Montuono Date 3/23/89 Signed R. Blahuta  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuono Date 7/21/89 Signed R. Blahuta  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 29

RESOLUTION: The reference to the EG&G drawing will be removed  
and the sentence ended with "....components".

*Also a change was made to eliminate the other  
reference to the EG&G drawing. Tjm*

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-IS-1-10/FR 4u-4x  
Comments and Rationale

These items appear subsidiary to 4t.

Proposed Revision

Suggest renumbering.

Date 2/23/89 Signed V. Montuypal Date 3/23/89 Signed R. Blakely  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuypal Date 7/21/89 Signed R. Blakely  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 30

RESOLUTION: This section will be restructured to make it easier to see which requirements are associated with which structure.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: B-15-1-11/FR-4cc  
Comments and Rationale

Two of the buildings mentioned in 466 appear to be missing.

Proposed Revision

Suggest adding clarification on the use of the other two buildings.

Date 2/23/89 Signed V. Mantung Date 3/23/89 Signed R.P. Kalvick  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Mantung Date 7/21/89 Signed R.P. Kalvick  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4

Reviewer: Technical Review Group (V. Montenyohl)

Organization: DOE/HQ

COMMENT # 31

RESOLUTION: See comment #30 resolution.

Signatures:

Resolved by: Thomas J. Mason Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

Date 23 FEBRUARY 1989

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Organization Office of Facilities Siting and Development

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APPENDIX B: B-15-3-5 / FR 3d

Comments and Rationale

It is not clear whether the alcoves for the radial borehole data collection units would be space in addition to the drill alcoves for the long radial boreholes.

Proposed Revision

Add explanation on the total number of alcoves required.

Date 2/27/89 Signed V. Montuypal Date 3/23/89 Signed R. Blaboter  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuypal Date 7/21/89 Signed R. Blaboter  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 32

RESOLUTION: Wording will be added to PC 3d to specify that these  
alcoves are for the SRBs. No data alcoves are  
planned for the LRBs.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/09

Agreed by: V. Montenyohl Date 7/13/09

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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APPENDIX B: B-15-3-7 / ALL

Comments and Rationale

The numbering system for the performance criteria are not consistent with the individual tests mentioned.

Proposed Revision

Suggest renumbering.

Date 2/23/89 Signed V. Montuono Date 3/23/89 Signed R. Blahuta  
Reviewer Branch Chief

Resolution ACCEPT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montuono Date 7/21/89 Signed R. Blahuta  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 33

RESOLUTION: Small letters associated with tests in the FR section  
will be changed to "bullets".

Signatures:

Resolved by: Thomas J. Merom Date 7/13/89

Agreed by: V. Montenyohl Date 7-13-89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX B: IDS EQUIPMENT DATA SHEETS

Comments and <sup>RATIONALE</sup> Rationale

The Engineered Barrier Design Test is one of the largest and most elaborate tests, but there are no IDS Equipment Data Sheets for this test.

Proposed Revision

Add IDS Equipment Data Sheets for the Engineered Barrier Design Test.

Date 2/23/89 Signed V. Montemphl Date 3/23/89 Signed R. Blahuta  
Reviewer Branch Chief

Resolution WITHDRAW

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemphl Date 7/21/89 Signed R. Blahuta  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 34

RESOLUTION: The Data Sheets for the Engineered Barrier Field Test  
are in Benchmark #5 as Sheets 19 and 20.

Signatures:

Resolved by: Thomas J. Meram Date 7/13/87

Agreed by: V. Montenyohl Date 7/13/87

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 23 FEBRUARY 1989

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

5 OF 9 APPENDIX 2 : SEAL TESTING  
Comments and Rationale

"HOLE REQUIREMENTS TO BE DETERMINED."

Proposed Revision

SUGGEST ADDING PLANS FOR THE TECHNICAL BOREHOLES FOR SEAL TESTING."

Date 2/23/89 Signed V. Montemphal  
Reviewer

Date 3/23/89 Signed R. Blalock  
Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montemphal  
Reviewer

Date 7/21/89 Signed R. Blalock  
Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 35

RESOLUTION: Reference resolution to comment #15. Any holes that  
are identified will be incorporated in Appendix C.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: V. Montenyohl Date 7/13/89

TECHNICAL REVIEW COMMENTS AND RESOLUTION (QIP 3.2)

Date 22 FEBRUARY 1989

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Document Title Yucca Mountain Project, Exploratory Shaft Facility Subsystem Design Requirements Document

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Reviewer Technical Review Group

Organization Office of Facilities Siting and Development

Page/Paragraph

APPENDIX C: ALL 9 PAGES

Comments and Rationale

There are no drainage holes listed for ~~water~~ evacuating water either before or after testing.

Proposed Revision

Suggest listing drainage holes, or referencing the measures taken to achieve ambient saturation in the E.S.F.

Date 2/23/89 Signed V. Montgomery Date 3/23/89 Signed R. Blalock  
Reviewer Branch Chief

Resolution REJECT

SEE ATTACHED SHEET

Date 7/13/89 Signed V. Montgomery Date 7/21/89 Signed R. Blalock  
Reviewer Branch Chief

COMMENT RESOLUTION SHEET ATTACHMENT

Document: Yucca Mountain Project Exploratory Shaft  
Facility SDRD - Appendix B & C Benchmark #4  
Reviewer: Technical Review Group (V. Montenyohl)  
Organization: DOE/HQ

COMMENT # 36

RESOLUTION: The Perched Water test holes in effect are drainage holes to be drilled during ESF construction. No need has been identified for further drawings of the ESF except as specified in Appendix A. Drainage holes, if required by DOE, prompted by possible decommissioning considerations and are not a part of the testing program.

Signatures:

Resolved by: Thomas J. Merson Date 7/13/89

Agreed by: V. Montenyohl Date -

# Sandia National Laboratories

Albuquerque, New Mexico 87185

July 19, 1989

WBS: 1.2.6

QA: N/A

John D. Waddell  
Science Applications International Corporation  
The Valley Bank Center, Suite 407  
101 Convention Center Drive  
Las Vegas, NV 89109

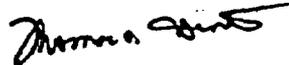
Dear John:

Subject: Change Request Package for Revision 1 of the ESF SDRD

John, please prepare a Change Request Package for submission to the Project Change Control Board. This package should be prepared in accordance with procedure described in AP3-3.Q, Change Control Process, and should contain the Change Requests necessary to authorize the incorporation of the DOE-HQ comments, the QMP-06-03 review comments, and the QMP-02-08 review comments, on Revision 0 of the ESF-SDRD into Revision 1 of the ESF SDRD. After preparation of the Change Request Package, please submit the package to my office for review prior to submission of the package to the Change Control Board.

Thank you for your assistance in this matter. If you have any questions regarding the preparation of this package, please call Al Dennis at FTS 844-7820.

Sincerely,



T. O. Hunter, Manager  
Nuclear Waste Repository Technology  
Department 6310

AWDennis:6311:11

Copy to:

YMPO L. E. Little  
YMPO E. H. Petrie  
YMPO A. L. Bacca  
TMSS S. C. Smith  
6310 T. O. Hunter  
6310 10/12611/COR/NQ  
6310 YMP CRF  
6311 A. L. Stevens  
6311 A. W. Dennis  
6311 A. R. Morales

ENCLOSURE 2