



Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 98608
Las Vegas, NV 89193-8608

JAN 26 1995

L. Dale Foust
Technical Project Officer
for Yucca Mountain
Site Characterization Project
TRW Environmental Safety Systems, Inc.
Bank of America Center, Suite P-110
101 Convention Center Drive
Las Vegas, NV 89109

EVALUATION OF AMENDED RESPONSE, VERIFICATION OF CORRECTIVE ACTION, AND CLOSURE OF CORRECTIVE ACTION REQUEST (CAR) YM-94-067 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION'S (YMQAD) AUDIT YMP-94-01 OF THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING CONTRACTOR (SCPB: N/A)

The YMQAD staff reviewed the amended response and verified the corrective action to CAR YM-94-067 and determined the results to be satisfactory. As a result, the CAR is considered closed.

If you have any questions, please contact either Robert B. Constable at 794-7945 or Robert L. Howard at 794-7820.

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-1884

Enclosure:
CAR YM-94-067

cc w/encl:
T. A. Wood, HQ (RW-14) FORS
~~D. G. Spraul~~, NRC, Washington, DC
S. W. Zimmerman, NWPO, Carson City, NV
R. L. Robertson, M&O/TRW, Vienna, VA
Richard Jiu, M&O/Duke, Las Vegas, NV
R. P. Ruth, M&O/Duke, Las Vegas, NV
D. G. Horton, OQA (RW-3) NV
W. E. Barnes, YMSCO, NV

cc w/o encl:
W. L. Belke, NRC, Las Vegas, NV
D. G. Sult, YMQAD/QATSS, Las Vegas, NV

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PDR WASTE
WM-11 PDR

**OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.**

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CORRECTIVE ACTION REQUEST

1 Controlling Document OCRWM QARD, DOE/RW-0333P, Revision 01		2 Related Report No. YMP-94-01	
3 Responsible Organization MEO		4 Discussed With R. Saunders/P. Hastings	
5 Requirement: The QARD, Sections 2.2.3.A.1 and 2.2.3.A.5, requires the QA Program to apply to the following items which shall be included on the Q-List maintained by OCRWM: 1. Items important to radiological safety as described in 10CFR60, 71, and 72. (Continued on next page)			
6 Adverse Condition: Determination of Importance Evaluation for Package 2C DI#BAB000000-01717-2200-00005 identifies permanent function transition zone ground support between alcoves and TS North Ramp as QA-1 and QA-5 (Important to Radiological Safety and Important to Potential Interaction). "TS North Ramp Alcove Ground Support Analysis," DI#BABEAB000-01717-0200-00006, approved 7/7/94, identifies all alcove ground support as QA-1 and QA-5. Refuge Chamber Specification, Section 13046, DI#BAREACA000-01717-6300-13046, dated 7/7/94, is not identified as a Q-specification, but contains requirements for alcove ground support.			
9 Does a Significant Condition Adverse to Quality exist? Yes <u>X</u> No <u> </u> If Yes, Check One: <input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E		10 Does a stop work condition exist? Yes <u> </u> No <u>X</u> ; If Yes - Attach copy of SWO If Yes, Check One: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C	
8 Response Due Date: 20 Working Days From Issuance			
11 Required Actions: <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input checked="" type="checkbox"/> Root Cause Determination			
12 Recommended Actions:			
7 Initiator Robert L. Howard <i>Robert L. Howard</i> 8/3/94		14 Issuance Approved by: QADD <i>R. Saunders</i> Date 8/5/94	
15 Response Accepted QAR Date		16 Response Accepted QADD Date	
17 Amended Response Accepted QAR <i>Robert L. Howard</i> 12/1/94 Date 9/19/94		18 Amended Response Accepted QADD <i>Robert L. Howard</i> Date 9/21/94	
19 Corrective Actions Verified QAR <i>Robert L. Howard</i> Date 1/24/95		20 Closure Approved by QADD <i>Robert L. Howard</i> Date 1/25/95	

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CORRECTIVE ACTION REQUEST (CONTINUATION PAGE)

5 Requirements (continued)

2. Items not intended to perform a safety function but whose failure could impair the capability of other items to perform their intended safety or waste isolation function.

Remedial Action

- ✓ Refuge chamber specification #/BABECA000-01717-6300-13046 will be revised to delete the reference to "ground support".
- ✓ The scope of the revised refuge chamber specification will specifically include requirements for floor, fire resistant door and wall, ventilation, utilities and furnishings. All ground support (permanent) requirements are contained within specification #'s 02165, 03362, and 03363.

Responsible Individual: Bob Saunders
Date of Completion: 10-01-94

The DIE for Design Package 2C will be revised to agree with the "TS North Ramp Alcove Ground Support Analysis" BABEAB000-01717-0200-0006 that all alcove ground support (permanent) is Q.

Responsible Individual: Peter Hastings
Date of Completion: 9/30/94

A review will be performed to ensure that the Starter Tunnel Test Alcove ground support (permanent) is appropriately classified. Appropriate actions will be implemented upon results of the investigation.

Responsible Individual: Bob Saunders
Date of Completion: 10-30-94

Investigation Action

As a result of a QAP-3-2 design verification comment, the resolution to that comment was to revise Design Package 2C ground support drawings and specifications to address the DIE requirement to identify the "transition zone" between sections of tunnel and/or test alcove where the ground support is considered to be changed from "Q" to non "Q".

In response to the comment, the A/E concluded that such a determination could only be made on the basis of analyses which require site specific geotechnical data and information and the use of instrumentation to verify the analyses. At this time the A/E is unable to complete such an analysis and therefore has taken the conservative position that all ground support (permanent) to be installed in the Design Package 2C alcoves and refuge chambers will be considered "Q".

8/17/94 LV. ESSB.GH. 8/94-734

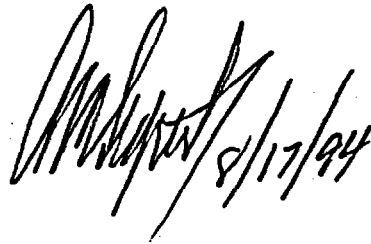
Root Cause

While implementing the resolution of the design verification comment, an oversight of not deleting the reference to ground support within Specification 13046 occurred. Investigative conversations with the designers involved has determined that human error was the root cause for the oversight and that the deficiency cited is an isolated case.

Corrective Action

None required since this is an isolated case. As stated above, all ground support requirements are contained within certain specifications. Referring to ground support within the Refuge Chamber Specification was an isolated error.

Responsible Individual: Alden Segrest
Date of Completion: 11-01-94

 11/1/94

Remedial Action

Item A

* Refuge chamber specification #/BABECA000-01717-6300-13046 will be revised to delete the reference to "ground support".

† All ground support (permanent) requirements are contained within specification #'s 02165, 03362, and 03363.

Responsible Individual: Bob Saunders
Date of Completion: 10-01-94

* A revision to the Q-List for clarity will be recommended to the Project Office. The Q-List indicates that ground support in alcove transition zones is QA-1 and QA-5. The recommended revision will indicate that the extent of the transition zones will be further defined by A/E analysis.

Responsible individual: Peter Hastings
Date of completion: 12/31/94

Item B

Appropriate drawings indicating TBM tunnel line and grade will be revised to include Q-controls on the drawing. Drawings for the early release of Package 2C have been revised to indicate line and grade as a Q-control.

Responsible individual: Bob Saunders
Date of Completion: 9/30/94

Investigation Action

Item A

As a result of a QAP-3-2 design verification comment, the resolution to that comment was to revise Design Package 2C ground support drawings and specifications to address the DIE requirement to identify the "transition zone" between sections of tunnel and/or test alcove where the ground support is considered to change from "Q" to non "Q".

In response to the comment, the A/E concluded that such a determination could only be made on the basis of analyses which require site specific geotechnical data. At this time the A/E is unable to complete such an analysis and therefore has taken the conservative position that all ground support (permanent) to be installed in the Design Package 2C alcoves and refuge chambers will be considered "Q".

Item B

Investigation of other classification items indicates that design drawings indicating line and grade of the TBM tunnel should have been classified as Q-related to be in compliance with NLP-3-18 revision 1, para. 5.2.1.B. The total number of drawings revised will be determined and documented when design package 2C is completed.

9/12/94 LV.ESSB.GH.9/94-758

Responsible Individual: Bob Saunders
Date of Completion: 9/30/94

Root Cause

Item A

While implementing the resolution of the design verification comment, an oversight of not deleting the reference to ground support within Specification 13046 occurred. Investigative conversations with the designers involved has determined that human error was the root cause for the oversight and that the deficiency cited is an isolated case.

Item B

The A/E assumed that indicating that TBM line and grade as Q-control in specification 01501 was sufficient since all work in the field is subject to 01501 requirements. Full procedural compliance was not adhered to.

Corrective Action

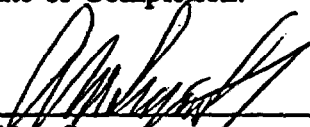
Item A

None required since this is an isolated case. As stated above, all ground support requirements are contained within certain specifications. Referring to ground support within the Refuge Chamber Specification was an isolated error.

Item B

Design engineers who develop drawings and specifications will be retrained that although specification requirements delineate Q requirements, other procedural requirements must be adhered to. The requirements of NLP-3-18 will be included. The training will be documented in accordance with M&O training procedural requirements.

Responsible Individual: Bob Saunders
Date of Completion: 9/30/94

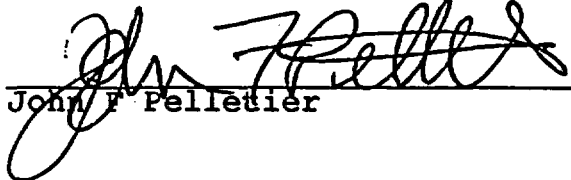

Alden Segrest
MGDS Development


Date

VERIFICATION OF CORRECTIVE ACTION FOR CAR YM-94-067

The YMQAD Staff reviewed the corrective action for CAR YM-94-067. The Remedial Action commitment for this CAR states that the Refuge specification DI# BABECA000-01717-6300-13046 will be revised to delete the reference to "ground support" with a completion date of 10-01-94.

Contrary to this commitment the remedial action has not been completed. Therefore the corrective action verification for this CAR has been determined to be unsatisfactory.


John F. Pelletier

12/22/94
Date

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WASHINGTON, D.C.

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CORRECTIVE ACTION REQUEST (CONTINUATION PAGE)

Amended Response

Refuge Specification DI# BABECA000-01717-6300-13046 Revision 1 has been baselined as of January 9, 1995. This revision deletes reference to "ground support". The specification is ready for review at the M&O EDC.

11/1/95 LV.MG.PGJ. 1/95-004

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8.
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CORRECTIVE ACTION REQUEST (CONTINUATION PAGE)

Amended Response

Refuge Specification DI# BABECA000-01717-6300-13046 Revision 1 has been baselined as of January 9, 1995. This revision deletes reference to "ground support". The specification is ready for review at the M&O EDC.

1/11/95 LV.MG.PGT 1195-004

VERIFICATION OF CORRECTIVE ACTION FOR CAR YM-94-067

The YMQAD staff has reviewed the corrective action for CAR-YM-067. Objective evidence reviewed during verification is listed below.

A. Remedial Action

Verified Refuge chamber specification DI# BABECA000-01717-6300-13046 Rev 01 deleted references to ground support.

Reviewed letter (LV.SED.PSH.12/94-161) From Peter Hastings to Dyer dated 12/20/94 on a recommendation to the Project Office to revise the Q-List for clarity.

Reviewed and verified the following Drawings indicating TBM tunnel line grade include Q controls:

- BABEAD000-01717-2100-40110, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 1 of 7
- BABEAD000-01717-2100-40111, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 2 of 7
- BABEAD000-01717-2100-40112, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 3 of 7
- BABEAD000-01717-2100-40113, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 4 of 7
- BABEAD000-01717-2100-40114, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 5 of 7
- BABEAD000-01717-2100-40115, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 6 of 7
- BABEAD000-01717-2100-40116, Rev. 01 TS North Ramp Excavation Layout Profile
- Sheet 7 of 7
- BABEAD000-01717-2100-40120, Rev. 01 TS North Ramp Excavation Layout Plan -
Sheet 1 of 10
- BABEAD000-01717-2100-40121, Rev. 01 TS North Ramp Excavation Layout Plan -
Sheet 2 of 10

- BABEAD000-01717-2100-40122, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 3 of 10
- BABEAD000-01717-2100-40123, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 4 of 10
- BABEAD000-01717-2100-40124, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 5 of 10
- BABEAD000-01717-2100-40125, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 6 of 10
- BABEAD000-01717-2100-40126, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 7 of 10
- BABEAD000-01717-2100-40127, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 8 of 10
- BABEAD000-01717-2100-40128, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 9 of 10
- BABEAD000-01717-2100-40129, Rev. 01 TS North Ramp Excavation Layout Plan - Sheet 10 of 10

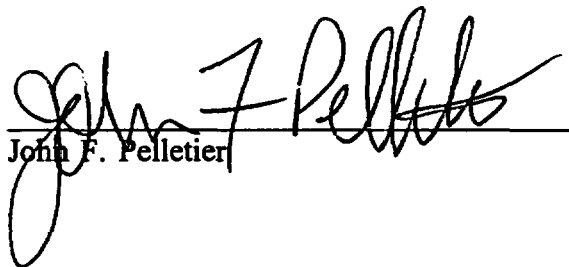
Investigated Action

Reviewed Determination of Importance Evaluation for ESF Package 2C DI# BAB000000-01717-2200-0005 Rev 03 Classifying all (permanent) ground support including alcove ground support in the transition zone as "Q".

Action to Preclude Recurrence

Reviewed and verified the following Design Engineers received training. See letter (LV.TRN.ATB.9/94.044) and attached copies of signed attendance records.

This action completes the corrective action verification for CAR YM-94-067.


John F. Pelletier

1/24/95
Date