



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

WBS 1.2.11
QA: N/A

AUG 18 1993

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

EVALUATION OF RESPONSES TO CORRECTIVE ACTION REQUEST (CAR) YM-93-064 AND
YM-93-065 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD)
AUDIT YMP-93-12 OF REYNOLDS ELECTRICAL & ENGINEERING COMPANY, INC.
(SCP: N/A)

The YMQAD staff has evaluated the responses to CARs YM-93-064 and YM-93-065.
The responses have been determined to be satisfactory. Verification of
completion of the corrective actions will be performed after the effective
dates provided. Any extension to these dates must be requested in writing,
with appropriate justification, prior to the date. Please send a copy of
extension requests to Nita J. Brogan, YMQAD/QATSS, 101 Convention Center
Drive, Suite 640, Las Vegas, Nevada 89109.

If you have any questions, please contact either Robert B. Constable at
794-7945 or Gerard Heaney at 794-7826.

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-5651

Enclosure:
CARs YM-93-064 and YM-93-065

cc w/encl:

K. R. Hooks, NRC, Washington, DC
S. W. Zimmerman, NWPO, Carson City, NV
Trudy Wood, HQ (RW-52) FORS
R. J. Brackett, M&O/Duke, Vienna, VA
R. L. Robertson, M&O/TRW, Vienna, VA
J. A. Jackson, M&O/TRW, Las Vegas, NV
Richard Jiu, M&O/TRW, Las Vegas, NV
J. C. de la Garza, YMP, NV

cc w/o encl:

J. W. Gilray, NRC, Las Vegas, NV
N. J. Brogan, YMQAD/QATSS, Las Vegas, NV

9309090350 930818
PDR WASTE
WM-11

PDR



YMP-5

ADD: Ken Hooks

Ltr. Encl.

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N4403

THIS IS A RED STAMP

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

8 CAR NO.: YM-93-064
DATE: 07/02/93
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document QARD DOE/RW-0333P, Revision 0		2 Related Report No. YMP-93-12	
3 Responsible Organization CRWMS M&O-Nevada		4 Discussed With A. Watkins	
5 Requirement: QARD DOE/RW-0333P, Section 15.0, "Nonconformances" Revision 0, Paragraph 15.2.1.A, states, "Nonconformance documentation shall clearly identify and describe the characteristics that do not conform to specified criteria."			
6 Adverse Condition: Contrary to the above, Specification YMP-025-1-SP09, Revision 1, Section 03361, Paragraph 3.10.B.3.D, "Shotcrete" does not require an NCR to be generated when shotcrete test results do not meet specification compressive strength requirements. The specification currently states, "When shotcrete does not meet the specified requirements and was taken from a test panel, additional samples shall be taken from the area of work in place represented by the test panel and tested for conformance to the specifications. Shotcrete not meeting the specified requirements shall be removed and replaced with new shotcrete."			
9 Does a significant condition adverse to quality exist? Yes <u>X</u> No <u> </u> If Yes, Circle One: A B <u>C</u>		10 Does a stop work condition exist? Yes <u> </u> No <u>X</u> ; If Yes - Attach copy of SWO If Yes, Circle One: A B C D	
11 Response Due Date: 20 Working Days from Issuance			
12 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			
13 Recommended Actions: 1) Revise specification requirements to meet QARD DOE/RW-0333P requirements. 2) Disposition failing test results on a case-by-case basis.			
7 Initiator Gerard Heaney <i>Gerard Heaney</i> Date <u>7-1-93</u>		14 Issuance Approved by: QADD <i>[Signature]</i> Date <u>07.07.93</u>	
15 Response Accepted QAR <i>Gerard Heaney</i> Date <u>8-10-93</u>		16 Response Accepted QADD <i>[Signature]</i> Date <u>8/15/93</u>	
17 Amended Response Accepted QAR _____ Date _____		18 Amended Response Accepted QADD _____ Date _____	
19 Corrective Actions Verified QAR _____ Date _____		20 Closure Approved by: QADD _____ Date _____	

ENCLOSURE

REV 0804

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

CAR NO. YMP-93-064

DATE: 8/4/93

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QA

CORRECTIVE ACTION REQUEST (Continuation Page)

1. Corrective Action Response for CAR #YMP 93-064

- A) Remedial Action - Will generate FCR to revise specification to be in compliance with QARD to read:

"When shotcrete does not meet the specified requirements and was taken from a test panel, additional samples shall be taken from the area of work in place represented by the test panel and tested for conformance to the specifications."

- B) Investigative Action - From a general review of specifications this would appear to be an isolated instance.
- C) Root Cause Determination - It would appear that upon initial review of specifications and comment resolution this escaped observation.
- D) Corrective Action to Preclude Recurrence - With knowledge gained from this CAR by the engineers, such inclusion in the future to the specifications should not occur.

2. The person responsible for this action will be Arthur Watkins (295-4068). The anticipated completion date will be September 17, 1993.

3. Response Approved:  Date: 8-4-93

Responsible Manager

Letter dated 8/4/93 - LV. QA. BRJ. 08/93-192

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT U.S. DEPARTMENT OF ENERGY WASHINGTON, D.C.		8 CAR NO.: <u>YM-93-065</u> DATE: <u>07/02/93</u> SHEET: <u>1</u> OF <u>1</u> QA
CORRECTIVE ACTION REQUEST		
1 Controlling Document ESF Specifications		2 Related Report No. YMP-93-12
3 Responsible Organization CRWMS M&O-Nevada	4 Discussed With A. Watkins	
5 Requirement: A) Specification YMP-025-1-SP09, Section 03361, "Shotcrete," Revision 1, Paragraph 2.02 requires the contractor to submit test results for a proposed mix design for shotcrete which will be approved by the A/E. B) Specification YMP-025-1-SP09, Section 02165, "Rock Bolts and Accessories," Revision 1, Paragraph 2.01.D requires the contractor to submit grout material mix designs and test results to the A/E.		
6 Adverse Condition: A) The test results for the proposed mix design for Fibercrete submitted by REECO was accepted by the A/E although the test results were not traceable to indicate that the material tested was Fibercrete. B) The mix design for grout used for cement grouted rockbolts was submitted by REECO and accepted by the A/E although Lithium Bromide was not listed on the design mix. Lithium Bromide is required to be used in all water used underground as a tracer material.		
9 Does a significant condition adverse to quality exist? Yes ___ No <u>X</u> If Yes, Circle One: A B C	10 Does a stop work condition exist? Yes ___ No <u>X</u> ; If Yes - Attach copy of SWO If Yes, Circle One: A B C D	11 Response Due Date: 20 Working Days from Issuance
12 Required Actions: <input checked="" type="checkbox"/> Remedial <input type="checkbox"/> Extent of Deficiency <input type="checkbox"/> Preclude Recurrence <input type="checkbox"/> Root Cause Determination		
13 Recommended Actions: 1) Revise grout mix designs to include Lithium Bromide. 2) Provide justification for present mix design for Fibercrete.		
7 Initiator Gerard Heaney <i>Gerard Heaney</i> Date <u>7-1-93</u>	14 Issuance Approved by: <i>[Signature]</i> for Date <u>7-07-93</u> QADD	
15 Response Accepted QAR <i>Gerard Heaney</i> Date <u>8-10-93</u>	16 Response Accepted QADD <i>[Signature]</i> Date <u>8/18/93</u>	
17 Amended Response Accepted QAR _____ Date _____	18 Amended Response Accepted QADD _____ Date _____	
19 Corrective Actions Verified QAR _____ Date _____	20 Closure Approved by: QADD _____ Date _____	

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

CAR NO. YMP-93-065
DATE: 8/4/93
PAGE: 1 OF 1
QA

CORRECTIVE ACTION REQUEST (Continuation Page)

1. Corrective Action Response for CAR # YMP-93-065

A) Remedial Action

The total submittal package transmitted by REECo specifically referenced shotcrete (Fibercrete).

While the four (4) test sheets did not specifically state Fibercrete they were not stand alone items but were part of a complete submittal package, in addition, a reviewer with an engineering background would be well aware that shotcrete with those tensile properties as shown on these sheets would have a fiber content. The A/E is of the opinion that this submittal met all the requirements for approval and that no further justification is necessary. However, to clarify matters, REECo will transmit a new submittal to the A/E for approval providing the Fibercrete test results from YMP. A statement that Lithium Bromide is present in the water will be included in the submittal.

While Lithium Bromide tracer was not specifically listed, the mix was accepted by the A/E based on discussion with Tracers Fluids Minerals. See letter dated April 9th from N. Elkins/LANL to L. D. Foust TWS-EES-13-LV-04-93-06.

Lithium Bromide does not actively participate in the chemistry of concrete. The purpose of Lithium Bromide is to act as a tracer. By intent, dry process shotcrete produces a zero slump concrete and does not result in free water escaping (evaporation only). The presence or absence of Lithium Bromide has no measurable effect (detrimental or beneficial) on the material properties of shotcrete.

All submittal packages to the A/E are reviewed in their entirety as a collective package.

2. The person responsible for completion of the above items is Arthur Watkins (295-4068). Anticipated completion date is September 17, 1993.

3. Response Approved: _____

Responsible Manager

Date: 8-4-93

Sty dtd 8/4/93 - LV. QA. BRJ/93-192