



**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

JUL 07 1993

Robert F. Pritchett  
 Technical Project Officer  
 for Yucca Mountain  
 Site Characterization Project  
 Reynolds Electrical &  
 Engineering Co., Inc.  
 P.O. Box 98521  
 Las Vegas, NV 89193-8521

ISSUANCE OF CORRECTIVE ACTION REQUEST (CAR) YM-93-055 THROUGH YM-93-061  
 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) AUDIT  
 YMP-93-12 OF REYNOLDS ELECTRICAL & ENGINEERING CO., INC. (SCP: N/A)

Enclosed are CARs YM-93-055 through YM-93-061 generated as a result of YMQAD  
 Audit YMP-93-12.

Please identify the corrective actions to be taken and implemented to correct  
 the deficiencies. CAR Continuation Sheets and instructions for completion  
 have been provided. Send the originals of your responses to Nita J. Brogan,  
 Quality Assurance Technical Support Services, 101 Convention Center Drive,  
 Suite 640, Las Vegas, Nevada 89109. Responses to the CARs are due 20 working  
 days from the date of this letter. Extensions to due dates must be requested  
 in writing, with appropriate justification, prior to the due dates.

If you have any questions, please contact either Robert B. Constable at  
 794-7945 or Amelia I. Arceo at 794-7737.

Richard E. Spence, Director  
 Yucca Mountain Quality Assurance Division

YMQAD:RBC-4921

Enclosure:  
 CARs YM-93-055 through YM-93-061

- cc w/encl:
- D. G. Horton, (RW-3), YMP, NV
  - K. R. Hooks, NRC, Washington, DC
  - S. W. Zimmerman, NWPO, Carson City, NV
  - T. L. Badredine, M&O/TRW, Las Vegas, NV
  - C. J. Henkel, EEI, Las Vegas, NV
  - C. P. Gertz, YMP, NV

- cc w/o encl:
- J. W. Gilray, NRC, Las Vegas, NV
  - N. J. Brogan, QATSS, Las Vegas, NV

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 WM-11  
 NHDZ //

ADD: Ken Hooks  
 Ltr. Encl.  
 1 1

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

8 CAR NO.: YM-93-055  
DATE: 07/02/93  
SHEET: 1 OF 2  
QA

**CORRECTIVE ACTION REQUEST**

1 Controlling Document QARD DOE/RW-0333P, Revision 0	2 Related Report No. YMP-93-12
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3 Responsible Organization REECo	4 Discussed With W. Glasser/W. Gratza
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5 Requirement:  
QARD DOE/RW-0333P, Section 7.0, Paragraph 7.2.12, Commercial Grade Items

Item B - Supplier evaluation and selection, when determined necessary by the purchaser based on the complexity and importance to safety, shall be in accordance with the requirements of the subsection entitled source evaluation and selection.

(Continued on next page)

6 Adverse Condition:  
Contrary to the cited requirements:

Item B - Supplier evaluation to qualify suppliers were not performed for procurement of commercial-grade materials used in work important to radiological safety or waste isolation for Specification YMP-025-1-SP09, Section 02165, Rock Bolts and Accessories, Section 02310, Welded Steel Lattice Girder Ground Support System, and Section 03361, Shotcrete.

D-3 - Testing was not performed on the commercial-grade material to verify the validity of CMTRs furnished by the suppliers (unqualified) of commercial-grade items used in work important to radiological safety or waste isolation for Specification YMP-025-1-SP09, Sections 02165, 02310, and 03361 and tied back to the Technical Inspection Report for traceability.

(Continued on next page)

9 Does a significant condition adverse to quality exist? Yes <u>X</u> No ___ If Yes, Circle One: A B <u>C</u>	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
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12 Required Actions:  Remedial  Extent of Deficiency  Preclude Recurrence  Root Cause Determination

13 Recommended Actions:

1. Qualify suppliers of commercial-grade items contained in specifications or drawings.
2. Identify items with confirmatory testing and provide to A&E.
3. Identify those items not tested and provide to A&E.

7 Initiator <u>Donald J. Harris</u> Donald J. Harris Date <u>6/29/93</u>	14 Issuance Approved by: <u>[Signature]</u> QADD <u>[Signature]</u> for Date <u>07-07-93</u>
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15 Response Accepted QAR Date	16 Response Accepted QADD Date
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17 Amended Response Accepted QAR Date	18 Amended Response Accepted QADD Date
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19 Corrective Actions Verified QAR Date	20 Closure Approved by: QADD Date
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OFFICE OF CIVILIAN  
RADIOACTIVE WASTE MANAGEMENT  
U.S. DEPARTMENT OF ENERGY  
WASHINGTON, D.C.

8 CAR NO.: YM-93-055  
DATE: 07/02/93  
SHEET: 2 OF 2  
QA

**CORRECTIVE ACTION REQUEST (Continuation Page)**

**5 Requirements (continued)**

Item D - After receipt of a commercial-grade item, the purchaser shall ensure that:

3. Inspection or testing is accomplished, to the extent determined by the purchaser to ensure conformance with the manufacturers published requirements.
4. Documentation, as applicable to the item, was received and is acceptable.

**6 Adverse Condition (continued)**

D-4 - The documentation to the item was not reviewed for acceptance by the purchaser, the documentation was reviewed for accountability and submitted subsequently to the A&E for acceptance on Purchase Orders (POs) 00037YP, 00093, and 01527.

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

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DATE:	_____
PAGE:	_____ OF _____
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**CORRECTIVE ACTION REQUEST (Continuation Page)**

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U.S. DEPARTMENT OF ENERGY  
WASHINGTON, D.C.

8 CAR NO.: YM-93-056  
DATE: 07/02/93  
SHEET: 1 OF 1  
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document TC-581-TP-0002, Revision 0		2 Related Report No. YMP-93-12	
3 Responsible Organization REECo		4 Discussed With Jon Redlund	
5 Requirement:  TC-581-TP-0002, Revision 0, Paragraph 6.5.3, states in part, "If a bolt passes the pull test, paint the bolt plate green. If a bolt fails the pull test, paint the bolt plate red."  MC-09.1, Revision 2, Paragraph 6.3 states in part, "Each required verifiable characteristic shall become an attribute to be inspected."			
6 Adverse Condition: CONSTRUCTION:  1) The bolt plates inside the starter tunnel are not being painted to indicate test status.  INSPECTION:  2) QC did not verify procedural requirements regarding rock bolts and their test status indicators.			
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 checked="" type="checkbox"/> Preclude Recurrence <input checked="" type="checkbox"/> Root Cause Determination			
13 Recommended Actions: Implement procedural requirements.			
7 Initiator Fred E. Lofftus <i>Fred Lofftus</i> Date <u>6/30/93</u>		14 Issuance Approved by: <i>[Signature]</i> Date <u>7/07/93</u>	
15 Response Accepted QAR _____ Date _____		16 Response Accepted QADD _____ Date _____	
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 08/91

Format for Corrective Action Response

The CAR response shall include the following information:

1. Corrective Action Response for CAR # \_\_\_\_\_
  - A. Remedial Action - Actions taken to correct specific deficiencies noted.  
(Required for all CARs)
  - B. Investigative Action - Actions taken to determine the extent of the condition.  
(Required for all significant conditions adverse to quality or any Condition Adverse to Quality if requested by OQA)
  - C. Root Cause Determination - Identification of the root cause of the condition.  
(Required for all significant conditions adverse to quality or any Condition Adverse to Quality if requested by OQA)
  - D. Corrective Action to Preclude Recurrence - Actions taken to address the root cause and preclude recurrence of the condition.  
(Required for all significant conditions adverse to quality or any Condition Adverse to Quality if requested by OQA)
2. For each action above, identify the name of the individual assigned responsibility for completion and the anticipated (or actual, if complete) completion date.
3. Response Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
Responsible Manager

**Format for Corrective Action Response**

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Responsible Manager

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

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**CORRECTIVE ACTION REQUEST (Continuation Page)**

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U.S. DEPARTMENT OF ENERGY  
WASHINGTON, D.C.

8 CAR NO.: YM-93-057  
DATE: 7/2/93  
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 REECo Construction		4 Discussed With J. Hedlund/T. Leonard	
5 Requirement: QARD DOE/RW-0333P, Section 12.0, "Control of Measuring and Test Equipment," Revision 0, Paragraph 12.2.2 states, "The use of M&TE shall be documented" and Paragraph 12.2.6.A states, "M&TE calibration documentation shall include identification of the M&TE calibrated."			
6 Adverse Condition: Contrary to the above, Shotcrete Placement Logs do not identify M&TE used to measure temperatures of placed shotcrete as required by specifications.			
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 checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input checked="" type="checkbox"/> Root Cause Determination			
13 Recommended Actions: 1) Revise Shotcrete Placement Logs to require M&TE serial numbers to be annotated when recording required temperature measurements.			
7 Initiator Gerard Heaney <i>Gerard Heaney</i> Date <u>7-6-93</u>		14 Issuance Approved by: QADD <i>[Signature]</i> for Date <u>07.07.93</u>	
15 Response Accepted QAR Date		16 Response Accepted QADD Date	
17 Amended Response Accepted QAR Date		18 Amended Response Accepted QADD Date	
19 Corrective Actions Verified QAR Date		20 Closure Approved by: QADD Date	

Format for Corrective Action Response

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Responsible Manager

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

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**CORRECTIVE ACTION REQUEST (Continuation Page)**



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

8 CAR NO.: YM-93-058  
DATE: 07/02/93  
SHEET: 1 OF 1  
QA

**CORRECTIVE ACTION REQUEST**

1 Controlling Document REECo QAPP, 568-DCO-115, Revision 8		2 Related Report No. YMP-93-12	
3 Responsible Organization REECo Construction		4 Discussed With T. Leonard/D. Koss	
5 Requirement: REECo QAPP, Section II, "Quality Assurance Program," Paragraph 1.2 states, "The Quality Assurance Program of REECo consists of the QAPP plus appropriate implementing procedures required to provide and implement control over activities affecting quality."			
6 Adverse Condition: Contrary to the above, survey activities of quality-affecting items are being performed in accordance with procedures that are not part of the REECo Yucca Mountain QA Program.			
9 Does a significant condition adverse to quality exist? Yes <u>X</u> No ___ If Yes, Circle One: A B <u>C</u>		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 checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input checked="" type="checkbox"/> Root Cause Determination			
13 Recommended Actions: 1) Bring present procedures for survey activities under the REECo QA Program.			
7 Initiator Gerard Heaney <i>Gerard Heaney</i> Date <u>7-1-93</u>		14 Issuance Approved by: <i>[Signature]</i> for Date <u>07-01-93</u>	
15 Response Accepted QAR Date		16 Response Accepted QADD Date	
17 Amended Response Accepted QAR Date		18 Amended Response Accepted QADD Date	
19 Corrective Actions Verified QAR Date		20 Closure Approved by: QADD Date	

Format for Corrective Action Response

The CAR response shall include the following information:

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3. Response Approved: \_\_\_\_\_ Date: \_\_\_\_\_  
Responsible Manager

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

CAR NO. \_\_\_\_\_  
DATE: \_\_\_\_\_  
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QA

**CORRECTIVE ACTION REQUEST (Continuation Page)**



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

8 CAR NO.: YM-93-059  
DATE: 7/2/93  
SHEET: 1 OF 1  
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document TC-581-SP-0007, Revision 0		2 Related Report No. YMP-93-12	
3 Responsible Organization REECo Construction		4 Discussed With J. Redlund	
5 Requirement: REECo procedure TC-581-SP-0007, Revision 0, "Starter Tunnel Shotcrete," Paragraph 6.3.1 states, "Testing of mix design will be done prior to actual placement of shotcrete in the field." Paragraph 6.3.1.2 states, "Results of samples tested at 7 days will be used for acceptance or rejection of mix design by the A/E."			
6 Adverse Condition: The test result documentation of Fibercrete samples tested at 7 days does not provide traceability that the mix design was for Fibercrete.			
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. Provide justification for use of present mix design for "Fibercrete."			
7 Initiator Gerard Agency <i>Gerard Heaney</i> Date <u>7-6-93</u>		14 Issuance Approved by: QADD <i>[Signature]</i> Date <u>07-07-93</u>	
15 Response Accepted QAR Date		16 Response Accepted QADD Date	
17 Amended Response Accepted QAR Date		18 Amended Response Accepted QADD Date	
19 Corrective Actions Verified QAR Date		20 Closure Approved by: QADD Date	

Format for Corrective Action Response

The CAR response shall include the following information:

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Responsible Manager

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

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DATE: \_\_\_\_\_  
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CORRECTIVE ACTION REQUEST (Continuation Page)



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

8 CAR NO.: YM-93-060  
DATE: 07/02/93  
SHEET: 1 OF 1  
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document  
REECO QAPP, 568-DCO-115, Revision 8

2 Related Report No.  
YMP-93-12

3 Responsible Organization  
REECO Construction

4 Discussed With  
T. Leonard/J. Hedlund

5 Requirement:  
REECO QAPP, Section XVII, "Quality Assurance Records," Paragraph 2.1.1 states in part, "Documents that are designated to become records shall be legible, identifiable, accurate, complete...."

6 Adverse Condition:  
Contrary to the above, review of Shotcrete Placement Logs indicated the following for several records:

- a. Sample identification numbers are not accurate.
- b. The transfer of batch numbers is not accurate.
- c. Drawing numbers are not always listed.
- d. Corrections are not being lined out and initialed and dated.

9 Does a significant condition adverse to quality exist? Yes \_\_\_ No X  
If Yes, Circle One: A B C

10 Does a stop work condition exist? Yes \_\_\_ No X; 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:  Remedial  Extent of Deficiency  Preclude Recurrence  Root Cause Determination

13 Recommended Actions:  
1) Provide reinstruction to record management and procedural requirements.

7 Initiator  
Gerard Heaney *Gerard Heaney* Date 7-1-93

14 Issuance Approved by: *[Signature]* Date 07-07-93  
QADD *[Signature]*

15 Response Accepted  
QAR Date

16 Response Accepted  
QADD Date

17 Amended Response Accepted  
QAR Date

18 Amended Response Accepted  
QADD Date

19 Corrective Actions Verified  
QAR Date

20 Closure Approved by:  
QADD Date

Format for Corrective Action Response

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Responsible Manager

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

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DATE: \_\_\_\_\_  
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U.S. DEPARTMENT OF ENERGY  
WASHINGTON, D.C.

8 CAR NO.: YM-93-061  
DATE: 07/02/93  
SHEET: 1 OF 1  
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document  
Specification YMP-025-1-SP09

2 Related Report No.  
YMP-93-12

3 Responsible Organization  
REEC Co QC

4 Discussed With  
P. Bryant

5 Requirement:  
Specification YMP-025-1-SP09, Section 03361, "Shotcrete," Revision 1, Paragraph 3.10.B.3.d states in part, "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."

6 Adverse Condition:  
Contrary to the above, Field Quality Control did not notify construction to take additional samples when two test panel 28-day compressive strength tests failed.  
  
Refer to test results for shotcrete placed on 4/23/93 and on 5/10/93.

9 Does a significant condition adverse to quality exist? Yes \_\_\_ No X  
If Yes, Circle One: A B C

10 Does a stop work condition exist? Yes \_\_\_ No X; 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:  Remedial  Extent of Deficiency  Preclude Recurrence  Root Cause Determination

13 Recommended Actions:  
1) Ensure the two failed test results are appropriately documented.

7 Initiator  
Gerard Heaney *Gerard Heaney* Date 7-1-93

14 Issuance Approved by: *(Signature)*  
QADD *(Signature)* Date 07/01/93

15 Response Accepted  
QAR \_\_\_\_\_ Date \_\_\_\_\_

16 Response Accepted  
QADD \_\_\_\_\_ Date \_\_\_\_\_

17 Amended Response Accepted  
QAR \_\_\_\_\_ Date \_\_\_\_\_

18 Amended Response Accepted  
QADD \_\_\_\_\_ Date \_\_\_\_\_

19 Corrective Actions Verified  
QAR \_\_\_\_\_ Date \_\_\_\_\_

20 Closure Approved by:  
QADD \_\_\_\_\_ Date \_\_\_\_\_

Format for Corrective Action Response

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CAR NO. \_\_\_\_\_  
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**CORRECTIVE ACTION REQUEST (Continuation Page)**

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