



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

WBS 1.2.9.3

AUG 26 1992

Willis L. Clarke  
Technical Project Officer  
for Yucca Mountain  
Site Characterization Project  
University of California  
Lawrence Livermore National Laboratory  
P.O. Box 5514, L-217  
Livermore, CA 94551

ISSUANCE OF CORRECTIVE ACTION REQUESTS (CAR) YM-92-064 THROUGH YM-92-068  
RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) AUDIT  
YMP-92-21 OF LAWRENCE LIVERMORE NATIONAL LABORATORY

Enclosed are CARs YM-92-064 through YM-92-068 generated as a result of YMQAD  
Audit YMP-92-21.

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,  
Science Applications International Corporation, Las Vegas, Nevada. Responses  
to the CARs are due by 20 working days from 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 (702)  
794-7945 or Richard L. Maudlin at (702) 794-7290.

Richard E. Spence, Director  
Yucca Mountain Quality Assurance Division

YMQAD:RBC-5222

Enclosures: ~~YMQAD:RBC-5222~~  
CARs YM-92-064 through YM-92-068

cc w/encl:  
K. R. Hooks, NRC, Washington, DC  
S. W. Zimmerman, NWPO, Carson City, NV  
D. W. Wolfe, LLNL, Livermore, CA  
J. A. Blink, LLNL, Las Vegas, NV  
J. H. Rusk, MACTEC, Las Vegas, NV  
J. D. Verden, M&O/TRW, Las Vegas, NV  
N. J. Brogan, SAIC, Las Vegas, NV, 517/T-12  
W. B. Simecka, YMP, NV

cc w/o encl:  
J. W. Gilray, NRC, Las Vegas, NV

9209030108 920826  
PDR WASTE PDR  
WM-11

010066

4. Encl  
Add: K.R. Hooks  
102.7  
WH03  
11  
WM-11

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

8 CAR NO.: YM-92-064  
DATE: 8/21/92  
SHEET: 1 OF 1  
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document 033-YMP-QP-12.0		2 Related Report No. Audit 92-21	
3 Responsible Organization LLNL		4 Discussed With R. Hamati	
5 Requirement: 033-YMP-QP 12.0, Rev 2, CN 12.0-2-1 para 12.0.4 states in part "The Calibration Coordinator will enter M&TE on the Master Status Listing upon receipt of the required calibration records. The calibration certificate will provide a record of: as found, as left, unique M&TE identifier. The accuracy of standards used for calibration will be equal to or better than the instrumentation calibrated".  033-YMP-R-12, Rev 0, Para 2.6 states in part "calibration records identify, the calibration procedure (including revision) utilized to perform the calibration".			
6 Adverse Condition: Measuring and Test Equipment (M&TE) have been entered in the Master Status List without documented evidence of the calibration record. Additionally some M&TE calibration records do not contain information detailed in item 5 above.  Examples are:  o Omega/Type J Thermocouple ID# 8261-40-2 in shown as Master Status list dated Sept 23, 1991 as being calibrated on March 16, 1989. however, the pertinent certificate of calibration is missing from the QA Records package.  o Stout Test Weights ID# 4935825, Stout Multimeter ID# 5067303, Stout Power Meter/Head ID# 4913045. Their certificates do not contain information described in item 5 above.			
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. For the conditions noted in block 6, assure calibration package contains required documentation and that calibration records reflect all required information.  2. Take action to: determine extent of condition, take action to preclude recurrence, and identify root cause.			
7 Initiator M. R. Diaz <i>Mario Diaz</i> Date 8-14-92		14 Issuance Approved by: QADD <i>R. Hamati</i> Date 8/25/92	
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:

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

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

<sup>6</sup> CAR NO. \_\_\_\_\_  
DATE: \_\_\_\_\_  
PAGE: \_\_\_\_\_ OF \_\_\_\_\_  
QA

CORRECTIVE ACTION REQUEST (Continuation Page)

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

8 CAR NO.: YM-92-065  
DATE: 8/21/92  
SHEET: 1 OF 2  
QA

**CORRECTIVE ACTION REQUEST**

1 Controlling Document 033-YMP-QP-12.0		2 Related Report No. Audit 92-21	
3 Responsible Organization LLNL		4 Discussed With R. Hamati	
5 Requirement: 033-YMP-QP-12.0, Rev 2, CN 12:0-2-1, Para 12.0.4 states in part "Calibration frequency will be established consistent with the manufacturer's or designer's recommendations".			
6 Adverse Condition: Several M&TE were not calibrated as required by the manufacturer's or designer's recommendations. Examples are:  <div style="margin-left: 20px;"> <p>o Omega/Type J Thermocouple ID# 8261-40-2 was due for calibration on March 16, 1990. However, several waivers were issued extending the due date until March 16, 1991 based on the instrument being used in an ongoing experiment but requiring to be recalibrated at the end of the experiment. The instrument was used until Feb 22, 1991 and no recalibration has been performed yet.</p> <p>o Thermocouple ID#s 3979271, 3979325 and 4004538 has a due date for calibration of Nov 25, 1990. They were used until Jan 9, 1992 without being recalibrated since the above due date.</p> </div>			
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. Perform the necessary calibration on the instruments reference in block 6. If any of the instruments are found out of calibration, note all uses of the instrument since last calibrations and require work to be redone using instruments that are in calibration.  2. Take action to determine: Extent of condition, action to preclude			
7 Initiator M. R. Diaz <i>Mario Diaz</i> Date <u>8-14-92</u>		14 Issuance Approved by: QADD <i>R. Hamati</i> Date <u>8/25/92</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	

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

8 CAR NO.: YM-92-065  
DATE: 8/21/92  
SHEET: 2 OF 2  
QA

**CORRECTIVE ACTION REQUEST (Continuation Page)**

13 Recommended Action(s) (continued)  
recurrence and root cause.

## 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

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

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

CORRECTIVE ACTION REQUEST (Continuation Page)



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

8 CAR NO.: YM-92-066  
DATE: 8-21-92  
SHEET: 1 OF 1  
QA

**CORRECTIVE ACTION REQUEST**

1 Controlling Document 033-YMP-QP-18.0/033-YMP-QP-17.0		2 Related Report No. Audit Report YMP-92-21	
3 Responsible Organization LLNL		4 Discussed With Dean Wolfe	
5 Requirement:  033-YMP-QP-18.0, Revision 3, Para. 18.0.5.4 states in part, "The audit plan includes the QAPP requirements."  033-YMP-QP-17.0, Revision 4, Para. 17.0.5.2 states in part, "The records must be transmitted to the LRC by the record source no later than 10 working days after the records are completed."			
6 Adverse Condition: Audit reports have been issued without following procedural requirements.  Examples are:  Audit Report No. YMP-92-03 was issued on March 19, 1992 but it was transmitted to the LRC on May 11, 1992.  Audit YMP-92-05. The audit plan does not contain any QAPP elements. Additionally, the audit report was issued on June 9, 1992, but was not transmitted to the LRC until June 26, 1992.			
9 Does a significant condition adverse to quality exist? Yes <u>  </u> No <u>X</u> If Yes, Circle One: A B C		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 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. Randomly select a sample of completed audit reports and determine if this is a repetitive condition.  2. Identify measures to preclude recurrence.  3. Investigate to determine what caused the problem.			
7 Initiator Mario R. Diaz <i>Mario Diaz</i> Date <u>8-14-92</u>		14 Issuance Approved by: QADD <i>P.C. Spencer</i> Date <u>8/25/92</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:

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

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

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

CORRECTIVE ACTION REQUEST (Continuation Page)

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

8 CAR NO.: YM-92-067  
DATE: 8-21-92  
SHEET: 1 OF 1  
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document 033-YMP-QP-17.0		2 Related Report No. Audit Report YMP-92-21	
3 Responsible Organization LLNL		4 Discussed With D. Wolfe/R. Hamati	
5 Requirement: 033-YMP-QP-17.0, Revision 4, Para. 17.0.5.2 states in part, "Record segments, such as calibration information, are not required to be submitted to the LRC until the package is complete, which occurs when the equipment is no longer used."			
6 Adverse Condition: QA Records of several Measuring and Test Equipment (M&TE) have not been transmitted to the LRC after they have been declared no longer in use.  Calibration information of the following M&TE, ID Nos. 999GM07, 3763795, 4778699, 4260941, 5067198, 3642427, 5015199, 4935825, and 5015205, were not found as QA records in the LRC. Some of these equipment have been declared no longer in use as of October 1, 1991.			
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. Take the necessary action to transmit the calibration records noted in Block 6 to the LRC. 2. Take actions to: Determine extent of deficiency, action to preclude recurrence, and determine root cause.			
7 Initiator Mario R. Diaz <i>Mario Diaz</i> Date 8-14-92		14 Issuance Approved by: QADD <i>R.C. Spruce</i> Date 8/25/92	
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:

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

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

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

CORRECTIVE ACTION REQUEST (Continuation Page)

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

8 CAR NO.: YM-92-068  
DATE: 8-21-92  
SHEET: 1 OF 1  
QA

**CORRECTIVE ACTION REQUEST**

1 Controlling Document LLNL Quality Procedure 033-YMP-QP 17.0		2 Related Report No. YMP-92-21	
3 Responsible Organization LLNL		4 Discussed With D. Wolfe/B. Bryan	
5 Requirement:  Paragraph 17.0.5.3 states the following: "Record transmittals received by the LRC are inspected to assure they are legible...."			
6 Adverse Condition:  Contrary to this requirement, there was no objective evidence that the LRC inspected and accepted Records Package for Scientific Notebook 00142 as legible (i.e., approximately 30% of the Notebook pages had signature blocks partially or completely cut off on both hardcopy and film at the LRC).  Also, one Certificate of Calibration for multimeter ID 5067303, dated September 6, 1991, was found to contain illegible information.			
9 Does a significant condition adverse to quality exist? Yes <u>  </u> No <u>XX</u> If Yes, Circle One: A B C		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: Correct LRC and CRF (if required) copies of Scientific Notebook 00142. Determine cause of condition. Determine if other inspected/accepted Scientific Notebooks indicate similar problems. Take appropriate action to preclude recurrence.  Verify that Certificates of Calibration for M&TE maintained by the LRC are legible. Take appropriate action to correct any potential deficiency and preclude recurrence.			
7 Initiator C. C. Warren <i>for</i> <i>Warren</i> Date <u>08/19/92</u>		14 Issuance Approved by: QADD <i>RC Palmer</i> Date <u>8/25/92</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:

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



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

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

**CORRECTIVE ACTION REQUEST (Continuation Page)**