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WBS 1.2.11
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 Site Characterization Project
 Reynolds Electrical &
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 P.O. Box 98521
 Las Vegas, NV 89193-8521

APR 0 1 1993

EVALUATION OF RESPONSE TO CORRECTIVE ACTION REQUEST (CAR) YM-93-033 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) AUDIT YMP-93-06 OF REYNOLDS ELECTRICAL & ENGINEERING CO., INC.

The YMQAD staff has evaluated the response to CAR YM-93-033. The response has been determined to be satisfactory. Verification of completion of the corrective action will be performed after the effective date provided. Any extension to this date must be requested in writing, with appropriate justification, prior to the date. Please send a copy of extension requests to Nita J. Brogan, Science Applications International Corporation, Las Vegas, Nevada.

If you have any questions, please contact either Robert B. Constable at 794-7945 or John S. Martin at 794-7881.

Richard E. Spence, Director
 Yucca Mountain Quality Assurance Division

YMQAD:RBC-3531

Enclosure:
 CAR YM-93-033

- cc w/encl:
- K. R. Hooks, NRC, Washington, DC
 - S. W. Zimmerman, NWPO, Carson City, NV
 - C. J. Henkel, EEI, Las Vegas, NV
 - W. J. Glasser, REECO, Las Vegas, NV
 - R. L. Maudlin, MACTEC, Las Vegas, NV

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

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ADD: Ken Hooks

Wr. Encl.
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WASHINGTON, D.C.**

8 CAR NO.: YM-93-033
DATE: 2/12/93
SHEET: 1 OF 2
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document REECo QAPP	2 Related Report No. Audit YMP-93-06
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3 Responsible Organization REECo	4 Discussed With R. Pritchett & W. Glasser
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5 Requirement:

Reynolds Electric & Engineering Co. (REECo), Quality Assurance Program Plan (QAPP), Revision 8, Section V, Paragraph 1.0 states in part:
"Activities affecting quality shall be prescribed by and performed in accordance with documented instructions, procedures, plans or drawings, of a type appropriate to the circumstances. These documents shall also include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished."

6 Adverse Condition:

In reviewing REECo's Physical Standards and Calibration Laboratory (PSCL) calibration reports, numerous instances were identified in which; (1) calibrations were not performed in accordance with procedures, and (2) procedures were not revised or new procedures generated when the ones in effect were not appropriate to the work accomplished.

EXAMPLES:

Procedure MQA-IP-CP-PRESS-1, Revision 2, Paragraph 6.3.3, requires that during calibration the instrument (Pressure Gauge) be checked at seven checkpoints: five increasing pressures at 20, 40, 50, 80 and 100 percent of full scale, and two decreasing pressures at approximately 70 and 30 percent. In review of calibration report dated 1/22/92, for instrument No. Y 10065, it was found that the decreasing pressures were not verified. In addition, in review of calibration report dated 6/3/92, for

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

13 Recommended Actions:

- 1) Identify the remedial actions to be taken to correct the deficiencies noted in Block 6.
- 2) Investigation:
 - a. Review calibration reports to determine like instances and

7 Initiator <i>J. S. Martin</i> Date <u>2-19-93</u>	14 Issuance Approved by: QADD <i>[Signature]</i> Date <u>2/23/93</u>
15 Response Accepted QAR <i>[Signature]</i> Date <u>3-25-93</u>	16 Response Accepted QADD <i>[Signature]</i> Date <u>4/1/93</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

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CORRECTIVE ACTION REQUEST (Continuation Page)

6 Adverse Condition (continued)

instrument No. Y 10249, it was found that the instrument was not tested to full scale nor was it tested with decreasing pressures.

In reviewing calibration report dated 2/4/91, for PSCL Lab Standard No. 102, (Scanning Digital Thermocouple) it was noted that the calibration was performed in accordance with procedure MQA-IP-CP-TEMP-4, Revision 1. In reviewing the procedure it was found that the procedure did not describe the calibration of the digital thermometer via a volt meter which is required for calibration of the standard referenced.

In addition to the above, numerous deficiencies were noted which indicate an overall lack of attention to detail and are:

Calibration report dated 3/14/92, Instrument No. Y 10106, (Chart Recorder) indicates that PSCL Lab Standard No. 40 was utilized during calibration. In review of documentation, it was found that during the date that the calibration was performed, Standard No. 40 did not have a calibration record to indicate that it had a valid calibration.

Calibration report dated 7/2/92, Instrument No. Y 10320, (Balance) references the incorrect procedure revision. The revision noted is Revision 2, when the revision in effect at the time of calibration was Revision 1.

Calibration report dated 12/14/92, Instrument No. Y 20000, (Three Channel Recorder) indicates within the item description that the instrument has a temperature range of 0-150 degrees Fahrenheit. However, in examination of the calibration information it was found that the instrument was calibrated to 300 degrees Fahrenheit. In addition, the calibration report indicated that the allowable tolerance for the instrument to be +/-5% of the full scale. In examination of the procedure MQA-IP-CP-REC-1, Revision 1, it was found that the procedure called for a tolerance of +/-2% of the full scale.

Calibration report dated 11/12/91, references procedure MQA-IP-CP-TEMP-4, Revision 2. In review of referenced procedure, paragraph 6.3.8 states that calibration stickers would be applied in accordance with MQA-IP-CP-GEN-1, Revision 0, Paragraph 6.6. However, no reference is made within Paragraph 6.6 as to how calibration stickers would be applied.

DISCUSSION:

During the course of the audit REECo issued Memorandum 93-001343, which details actions to be accomplished and documented prior to performing calibrations or releasing instrumentation which has been calibrated to the user organizations. Based upon the issuance of this Memorandum, discussions with REECo and separate discussions with the YMOAD Director, it was determined that a Stop Work Order was not warranted at this time.

13 Recommended Action(s) (continued)

- provide results thereof.
 - b. Determine impact and report results (i.e., Is calibration voided since procedures referenced do not describe calibration?)
 - c. Generate NCRs if required and notify users.
 - d. Identify measures to correct these deficiencies.
- 3) Identify Root Cause of the deficiencies.
- 4) Identify method to preclude recurrence.

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CORRECTIVE ACTION REQUEST (Continuation Page)

CORRECTIVE ACTION RESPONSE for CAR # YM-93-033

A. Remedial Actions: (All Actions To Be Completed By June 1, 1993)

1. The PSCL is presently revising all calibration procedures. Only 18 of the present 71 MQA-IP Calibration Procedures are currently applicable to the supported YMP Measuring & Test Equipment (M&TE) inventory. To date, 11 of the 18 procedures have been prepared and are in the review cycle. Action has been taken to complete the revision process for all 18 procedures and have them approved as YMP Technical Control (TC) Procedures.

Estimated completion date: June 1, 1993

2. The remaining 53 procedures are not used to support the YMP workload and will be canceled.

Estimated completion date: May 1, 1993

3. The subject audit identified four different procedures that were in question or were not accurately followed. All four procedures have been written and are in the review cycle. These procedures are included as part of the 18 procedures noted in A.1 above.

Estimated completion date: June 1, 1993

4. All PSCL employees will receive indoctrination and training to the requirements of the PSCL Calibration Program prescribed in TC-515-CP-GEN-1, "Measuring and Test Equipment." The requirements of following details regarding calibration methods and accurately reporting calibration information shall be specifically addressed.

Estimated completion date: April 1, 1993

5. PTL Y10065: This instrument is a Digital Pressure Gauge that is usually not verified in a down scale direction. The revision to the calibration procedure was submitted for typing on January 15, 1993, which clearly defines down scale (Hysteresis) checks. The quality of this calibration is not in question. Future pressure calibrations shall be in accordance with the revised procedure, which is 1 of the 18 procedures previously noted in A.1.

Response Approved: _____

R. F. Pritchett
Responsible Manager

3-24-93
Date

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WASHINGTON, D.C.

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CORRECTIVE ACTION REQUEST (Continuation Page)

CORRECTIVE ACTION RESPONSE for CAR # YM-93-033 - Continued

A. Remedial Actions: - Continued

Estimated completion date: June 1, 1993

6. PTL Y10249: This instrument is a Barometer/Altimeter that was calibrated to the function, use, and altitude of the geographic area and full range would apply to below sea level. The quality of this calibration is not in question. The Report of Calibration shall be amended to describe the limitation. Further, all employees have been instructed to perform full range calibrations unless limitations are approved and clearly defined.

Estimated completion date: April 1, 1993

7. PTL 102: This instrument was calibrated by a procedure that did not have "Digital Thermometer" in the title, thus it appears as not applicable. This procedure was revised November 6, 1992, to include all situations and is presently in the review cycle. The quality of this calibration is not in question. Future calibrations shall be in accordance with the revised procedure, which is 1 of the 18 procedures previously noted in A.1.

Estimated completion date: June 1, 1993

8. PTL Y10106: Although this standard was used after it had exceeded the date due for calibration, the standard was found to be in tolerance, thus no impact to the quality of the calibrated instrument. All employees shall attend training to TC-515-CP-GEN-1, "Measuring & Test Equipment," which specifically addresses this issue.

Estimated completion date: April 1, 1993

9. PTL 10320: The incorrect revision number of the calibration procedure stated on the Report of Calibration was amended prior to the conclusion of the audit. The error does not impact the quality of the calibrated instrument. Remedial action includes training to TC-515-CP-GEN-1, "Measuring & Test Equipment."

Estimated completion date: April 1, 1993

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CORRECTIVE ACTION RESPONSE for CAR # YM-93-033 - Continued

A. Remedial Actions: - Continued

10. PTL Y20000: A revised calibration procedure for Chart Recorders was prepared March 11, 1993, and is in the review cycle. This procedure is 1 of the 18 procedures previously noted in A.1. This revision more clearly defines requirements regarding various types of recorders, installed transducers, chart paper accompanying the recorder, and corresponding accuracies. Further, the requirements of accurately depicting calibrated parameters will be specifically addressed in TC-515-CP-GEN-1, "Measuring & Test Equipment," training. The instrument will be recalibrated to verify the timing function. If the timing is determined to be out of tolerance, a Nonconformance Report will be initiated.

Estimated completion date: April 1, 1993

11. All PSCL calibration procedures are undergoing revision, beginning with the 18 procedures applicable to the YMP inventory. The specific paragraph of referenced documents shall not be included in future procedures.

Estimated completion date: June 1, 1993

Responsible Individual: G. A. Erickson (Items A.1 through A.11)

B. Investigative Action: (All Actions To Be Completed By June 1, 1993)

1. A Calibration Checklist will be used to investigate all calibrations by reviewing the Reports of Calibration completed since January 1992. A summary of findings will be utilized to determine impact to calibrations, to correct the corresponding documentation, and to provide additional indoctrination and training to PSCL employees.

The Calibration Checklist will review parameters such as: procedure adequacy, functions, ranges, check points, hysteresis, appropriate standards, standard traceability to NIST, limitations, and adequacy of the Report of Calibration.

Estimated completion date: June 1, 1993

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CORRECTIVE ACTION RESPONSE for CAR # YM-93-033 - Continued

B. Investigative Action: - Continued

2. If the investigation indicates suspect calibrations, the instrument will be recalled and verified. Any noted deficiencies that adversely affect the quality of the instrument will require a Nonconformance Report in accordance with MC-11.2, "Nonconformance Control."

Estimated completion date: May 1, 1993

Responsible Individual: G. A. Erickson (Items B.1 and B.2)

C. Root Cause Determination:

The cause of the deficiencies identified was (1) failure to follow current approved procedures, and (2) procedures were not revised commensurate with the technical change in workload.

D. Corrective Action to Prevent Recurrence: (All Actions To Be Completed By June 1, 1993)

1. All employees will receive indoctrination and training to the requirements of following the details of procedures and the importance of providing accurate calibration documentation. Further comprehensive TC calibration procedures shall be developed that accurately describe the calibration process.

Estimated completion date: June 1, 1993

2. All future calibrations shall require the use of a Calibration Checklist (see B.1) until such time that all specific models of instruments in the YMP inventory have received this investigation.
3. If a request is received to perform a YMP calibration that requires a TC Procedure, the TC will be developed and approved prior to performing the calibration.

Responsible Individual: G. A. Erickson (Items D.1 through D.3)