



Department of Energy

Washington, DC 20585

MAR 11 1997

QA: L

L. D. Foust, Technical Project Officer
for Yucca Mountain
Site Characterization Project
TRW Environmental Safety Systems, Inc.
1180 Town Center Drive, M/S 423
Las Vegas, NV 89134

EVALUATION OF RESPONSE TO DEFICIENCY REPORT (DR) YM-97-D-025
RESULTING FROM OFFICE OF QUALITY ASSURANCE (OQA) SURVEILLANCE
YM-SR-97-002 OF THE TEST COORDINATION OFFICE

The OQA staff has evaluated the response to DR YM-97-D-025. 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 that date. Please send a copy of extension requests to Deborah G. Sult, OQA/QATSS, P.O. Box 30307, Mail Stop 455, North Las Vegas, Nevada 89036-0307.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or John S. Martin at (702) 794-5591.

James Blaylock
Donald G. Horton, Director
Office of Quality Assurance

OQA:JB-1114

Enclosure:
DR YM-97-D-025

cc w/encl:
T. A. Wood, DOE/HQ (RW-55) FORS
J. O. Thoma, NRC, Washington, DC
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B. R. Justice, M&O, Las Vegas, NV
R. A. Morgan, M&O, Las Vegas, NV
Records Processing Center

cc w/o encl:
W. L. Belke, NRC, Las Vegas, NV
J. S. Martin, OQA/QATSS, Las Vegas, NV
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R. W. Clark, DOE/OQA, Las Vegas, NV

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Recip: NMSS/HUW



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

8 Performance Report
 Deficiency Report
 NO. YM-97-D-025
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PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document: Quality Assurance Requirements and Description (QARD) DOE/RW/0333P, Revision 5	2 Related Report No. YM-SR-97-002
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3 Responsible Organization: Civilian Radioactive Waste Management Systems Management and Operations (CRWMS M&O) Test Coordination Office	4 Discussed With: Ned Elkins
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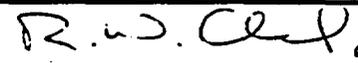
5 Requirement/Measurement Criteria:
 The following listed requirements and associated deficiencies were found during the course of Surveillance YM-SR-97-002. Subject surveillance evaluated a limited selection of Measuring and Test Equipment (M&TE) for the single heater test being conducted in Alcove 5. In the evaluation of the deficiencies listed below, other testing activities within the Exploratory Studies Facility (ESF) are required to be evaluated or an evaluation be given as to why other testing activities should be excluded.
 (See page 3)

6 Description of Condition:
 1) Roctest was evaluated and selected to supply calibration of rock mechanics instrumentation for which Roctest manufactures, specifically high temperature BOF-EX measurement modules. Based on this the Supplier Evaluation Report (SER) only identified QA program elements 1.0, 2.0, 5.0, 6.0, 12.0, 13.0, 15.0, 16.0, 17.0 and 18.0 are applicable. However, Roctest procured items (a module to be added to their instrumentation package) and calibration services from a company called RDP which would involve QA program elements 4.0 and 7.0. Roctest has not been evaluated and accepted to apply QA program elements 4.0 and 7.0. As a result, the acceptability of RDP for construction services is in question.
 (See page 3)

7 Initiator John Martin  Date <u>1-10-97</u>	9 Is condition an isolated occurrence? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown; Must be Yes if PR
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10 Recommended Action: (Not required for PR)
 * Identify remedial actions necessary to correct the deficiencies noted in Block 6 above.
 * Investigate to determine the extent of like conditions.
 * Identify those actions necessary to correct deficiencies found through investigation.
 * In addition to the above, provide an evaluation as to the validity of data obtained from M&TE which was not calibrated or not calibrated by an approved supplier of calibration services.
 (See page 3)

11 QA Review QAR  Date <u>1-10-97</u>	12 Response Due Date 20 working days from issuance
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13 Affected Organization QA Manager Issuance Approval: (QAR for PR) Printed Name <u>Donald G. Horton</u>	Signature  Date <u>1/16/97</u>
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22 Corrective Action Verified QAR _____ Date _____	23 Closure Approved by: (N/A for PR) AOQAM _____ Date _____
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PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:

See attached

15 Extent of Condition: (Not required for PR)

See attached.

16 Root Cause Determination: (Not required for PR)

Required Yes No

17 Action to Preclude Recurrence: (Not required for PR)

Required Yes No

See attached.

18 Corrective Action Completion Due Date:

8/30/97

19 Response by:

Initial Larry Hayes 2/14/97 5-5152
 Amended Date Phone

20 Response Accepted

QAR

Date 2/22/97

21 Response Accepted (N/A for PR):

AOQAM

Date

3/10/97

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5 Requirement/Measurement Criteria: (Continued)

- 1) QARD Section 7.0 Control of Purchased Items and Services paragraph 7.2.2 (A) states "Supplier selection shall be based on an evaluation, performed before the contract is awarded, of the supplier's capacity to provide items or services in accordance with procurement document requirements."
- 2) QARD Section 12.0 Control of Measuring and Test Equipment paragraph 12.2.1 A states in part "Measuring and Test Equipment including equipment that contains software or programmable hardware, shall be calibrated, ...prior to use, ..."
- 3) QARD Section 12.0 paragraph 12.2.7 states "Measuring and test equipment calibration documentation shall include the following information:
 - E. Identification of the date of calibration and the recalibration due date or interval, as appropriate.
 - H. Identification of the implementing document (including revision level) used in performing the calibration.
- 4) QARD Section 12.0 paragraph 12.2.1 E states "Calibrated measuring and test equipment shall be labeled, tagged or otherwise suitably marked or documented to indicate due date or interval of the next calibration."

6 Description of Condition: (Continued)

The evaluation of Roctest has failed to identify the need for Roctest to go outside their company for the acquisition of items and services not directly supplied by them. No evaluation exists at this time to indicate that Roctest has performed an evaluation of RDP to provide these services. As such, the modules calibrated by RDP are in question.

Modules supplied by RDP are identified by serial numbers 138, 139, 140, 141, 142, 143, 144,

- 2) Two thermocouple probes designated TMA-TC-2A and TMA-TC-2B located in single heater test borehole designated ESF-TMA-TC-2 were installed prior to being calibrated or checked throughout the expected range of use.
- 3) The calibration certificate supplied by Roctest for seven high temperature BOF-EX measurement modules dated 96/07/10 does not contain:

- 1 Recalibration due date or interval.
- 2 Identification of the implementing document used in performing the calibration.

The serial numbers for the seven high temperature BOF-EX measurement modules are 055D-9622, 055D-9623, 055D-9624, 055D-9625, 055-9626, 055D-9627 and 055D-9628.

- 4) The following instruments have not been labeled, tagged, marked, or indicted on documents as to the due date or interval of the next calibration:
 - * High Temperature BOF-EX measurement modules 055D-9622 through 055D-9628
 - * Thermocouple probes TMA-TC-2A and TMA-TC-2B

10 Recommended Action: (Not required for PR) (Continued)

- * Determine those actions necessary to preclude recurrence.

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8 Performance Report
 Deficiency Report

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14 REMEDIAL ACTION Cont.

- 1 The PI states that Rocktest calibrated the LVDTs after installing the modules from RDP. This provides assurances that the LVDT are adequate as a unit. The PI will document this determination in a scientific notebook. This fact came to light after the surveillance.
- 2 The thermocouples were checked in an ice bath prior to installation by the PI. This combined with the large number of thermocouples installed in the Single Heater Test provides a level of redundancy adequate to make instrument failures readily apparent. The PI has already documented the ice bath in the scientific notebook and will add a statement regarding the adequacy of data due to redundant systems. A post-calibration cannot be done as the process of removing the grouted in thermocouples will destroy them.
- 3 The re-calibration due date/interval will be added to the LVDT calibration certificates by the TCO Manager. The implementing document used to perform the calibrations will be identified and added to the calibration certificates.
- 4 As the thermocouples are grouted into boreholes it is not practical to re-calibrate them. The PI will document the commitment to re-calibrate the LVDT instruments upon completion of the test in the scientific notebook.
- 5 The PI will evaluate and document the impact these deficiencies have on the data being collected.

15 EXTENT OF CONDITION Cont.

- 1 This condition applies to all 7 LVDTs procured for the Single Heater Test.
- 2 This condition applies to 113 thermocouples installed in the Single Heater Test.
- 3 This condition applies to all 7 LVDTs procured for the Single Heater Test.
- 4 This condition applies to all 6 LVDTs and 113 thermocouples installed in the Single Heater Test.
- 5 The TCO manager will examine calibration documentation on the remaining instrumentation installed in the Single Heater Test to determine if additional deficiencies exist with calibration documentation.

17 ACTION TO PRECLUDE RECURRENCE Cont.

- 1 The TCO Manager will ensure Rocktest's qualifications are modified to allow them to accept other vendor's calibrations or that a separate vendor will be identified who can complete all tasks in-house.
- 2 The TCO Manager will ensure all future thermocouple calibration procurements require the units to be calibrated across a range of expected conditions. This is a Q procurement.
- 3 The TCO Manager will ensure future Q calibration procurements will be processed in accordance with Q procedures to ensure all elements required on calibration documentation are included.
- 4 The PI will ensure instruments installed in the future will be traceable to calibration documentation that specify calibration due dates/intervals.
- 5 The Thermal Test Lead, and TCO Manager will be trained/retrained to QAP-7-6 and QAP-12-1. PIs who receive equipment at their locations will be trained to QAP-7-6.

All above actions will be completed by the PIs or TCO Manager by the date in block 18.