



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

OCT 04 1996

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

**ISSUANCE OF DR YM-96-D-105 THROUGH YM-96-D-108 RESULTING FROM YMQA
 AUDIT YM-ARP-96-014 OF LOS ALAMOS NATIONAL LABORATORY**

Enclosed are Deficiency Reports (DR) YM-96-D-105 through YM-96-D-108 generated as a result of Yucca Mountain Quality Assurance (YMQA) Audit YM-ARP-96-014.

Please identify the corrective actions to be taken and implemented to correct the deficiencies. Send the originals of your responses to Deborah G. Sult, YMQA/QATSS, P.O. Box 98608, Mail Stop 455, Las Vegas, Nevada 89193-8608. Responses to the DRs 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 Mario R. Diaz at 794-1489 or Stephen R. Dana at 794-1496.

Richard E. Spence
 Yucca Mountain Quality Assurance

YMQA:MRD-0019

Enclosure:
 DRs YM-96-D-105 through
 YM-96-D-108

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Recip: NMSS/HLUR

cc w/encl:

T. A. Wood, DOE/HQ (RW-14) FORS
J. G. Spraul, NRC, Washington, DC
S. W. Zimmerman, NWPO, Carson City, NV
R. L. Strickler, M&O, Vienna, VA
B. R. Justice, M&O, Las Vegas, NV
J. A. Canepa, M&O/LANL, Los Alamos, NM
M. J. Clevenger, M&O/LANL, Los Alamos, NM
Records Processing Center

cc w/o encl:

W. L. Belke, NRC, Las Vegas, NV
S. R. Dana, YMQA/QATSS, Las Vegas, NV
M. G. McDaniel, YMQA/QATSS, Las Vegas, NV
D. G. Sult, YMQA/QATSS, Las Vegas, NV
D.G. Horton, DOE/OQA, Las Vegas, NV

020095

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ORIGINAL
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Performance Report
 Deficiency Report
NO. YM-96-D-105
PAGE 1 OF 2
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document: Los Alamos National Laboratory (LANL), Yucca Mountain Site Characterization Project (YMP) Quality Procedure (QP), Revision 5, Yucca Mountain Site Characterization Project Administrative Procedure (YAP)	2 Related Report No. YM-ARP-96-014
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3 Responsible Organization: LANL	4 Discussed With: Mike Clevenger, John Friend
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5 Requirement/Measurement Criteria:
LANL-YMP-QP-17.6, Paragraph 6.7.8: "Forwards a copy of the records package, unbound or loose-leaf, if possible, to the RPC within 20 working days after the date in Subsection 6.7.7."
Paragraph 6.7.7: "Authentication should be within 20 working days of completion of the last record in the records package."
YAP-17.1Q, Paragraph 5.3.1.b): "ensure that any YMP records contained in working files are submitted to the RPC when an individual is leaving the YMP or changing jobs."

6 Description of Condition:
Scientific notebooks (listed below) were identified with dates that would indicate they are complete, however, they have not been submitted to the Records Processing Center (RPC). Also, the investigators identified below are no longer working on the YMP.

1. TWS-INC 11-92-02
Investigator: Mike Murrell
Last Entry Date by Investigator: 12/21/94
Note: The completed package should include documentation of the calculations and results of the weighted average.
2. TWS-INC 7-09-91-07
Investigator: Jane Poths
Last Entry Date by Investigator: 11/29/91
3. TWS-INC 7-2-88-2
Investigator: Jane Poths
Last Entry Date by Investigator: 3/27/92
4. TWS-INC 7-2/88-3
Investigator: Mike Murrell
This notebook has been submitted and received by the RPC, however, the associated binder which contains copies of weighing data made in the RC-45 clean rooms has not been submitted to the RPC.

7 Initiator: <i>Stephen R. Dana</i> Stephen R. Dana Date 9/30/96	9 Is condition an isolated occurrence? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown; Must be Yes if PR
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10 Recommended Actions: (Not required for PR)
Identify those LANL scientific notebooks that are complete for studies 8.3.1.8.1.1, 8.3.1.8.1.2, and 8.3.1.8.5.1 and submit them to the RPC in accordance with LANL-YMP-QP-17.6.

11 QA Review: QAR <i>Stephen Dana</i> Date 10/1/96	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 *Richard E. Spence* Signature *[Signature]* Date 10/3/96

22 Corrective Action Verified QAR Date	23 Closure Approved By: (N/A for PR) AOQAM Date
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PR/DR NO. YM-96-D-105

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QA: L

PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:

15 Extent of Condition: (Not required for PR)

16 Root Cause Determination: (Not required for PR)

Required

Yes

No

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

Required

Yes

No

18 Corrective Action Completion Due Date:

19 Response by:

Initial

Amended

Date

Phone

20 Response Accepted

QAR

Date

21 Response Accepted (N/A for PR):

AOQAM

Date

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PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document: U.S. Department of Energy/RW-0333P, Quality Assurance Requirements and Description (QARD), Revision 5	2 Related Report No. YM-ARP-96-014
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3 Responsible Organization: Los Alamos National Laboratory (LANL)	4 Discussed With: Frank Perry/Greg Valentine/Mike Clevenger
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5 Requirement/Measurement Criteria:

QARD, Section III.2.4, Data Review, states: "A documented independent review of acquired and developed data shall be performed to confirm technical adequacy."

6 Description of Condition:

Contrary to the above, there is no objective evidence that an independent review of the following data was performed:

Xenolith Abundance Data reported in Table 1 of Valentine and Groves (1996, The Journal of Geology, Volume 104, Pages 71-90; "Entrainment of Country Rock During Basaltic Eruptions of the Lucero Volcanic Field, New Mexico"). These data were derived from field measurements recorded in notebook TWS-ESS-5-6-93-01.

³He age determination for Lathrop Wells Center reported in notebook TWS-INC-03-93-06, Page 129.

Interviews with the PIs for Study Plans 8.3.1.8.5.1 and 8.3.1.8.1.2 identified that the reviews of scientific notebooks conducted in accordance with LANL Quality Procedure-03.5 did not include verifying the accuracy of the calculations for LANL generated data.

7 Initiator: <i>Mary G. McDaniel</i> Mary G. McDaniel Date 9/25/96	9 Is condition an isolated occurrence? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown; Must be Yes if PR
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10 Recommended Actions: (Not required for PR)

Determine extent of condition. Perform and document independent review of data to confirm technical adequacy. Take necessary actions to ensure that such reviews are conducted for current and future scientific investigations.

11 QA Review: QAR <i>Mary G. McDaniel</i> Date 9/30/96	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 <i>Richard E. Spence</i> Signature <i>[Signature]</i> Date 10/31/96
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22 Corrective Action Verified QAR _____ Date _____	23 Closure Approved by: (N/A for PR) AOQAM _____ Date _____
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PR/DR NO. YM-95-D-106

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QA: L

PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:

15 Extent of Condition: (Not required for PR)

16 Root Cause Determination: (Not required for PR)

Required

Yes

No

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

Required

Yes

No

18 Corrective Action Completion Due Date:

19 Response by:

Initial

Amended

Date

Phone

20 Response Accepted

QAR

Date

21 Response Accepted (N/A for PR):

AOQAM

Date

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OPTIONAL
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NO. YM-96-D-107

PAGE 1 OF 2
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:

U.S. Department of Energy/RW-0333P, Quality Assurance Requirements and Description (QARD), Revision 5

2 Related Report No.

YM-ARP-96-014

3 Responsible Organization:

Los Alamos National Laboratory (LANL)

4 Discussed With:

Bruce Crowe/Andrew Burningham

5 Requirement/Measurement Criteria:

QARD, Section III.2.5.A, states: "Unqualified data may be used without qualification in scientific investigation and design activities. Traceability to its status as unqualified data shall be maintained."

6 Description of Condition:

Contrary to the above, the Volcanism Synthesis Report (1996 VSR), milestone 3781, Preface states that: "All of the data cited in Chapters 3, 4, and 6, and the revised sections of Chapter 2 are "Q" data, as defined by the Los Alamos Quality Assurance Program," however the following unqualified data sources were used for sensitivity calculations in Chapter 6.

- K-Ar ages from Fleck et al (1996)
- Structural controls and boundaries from Carr (1984) and Carr (1990).

Interview with PI for Study Plan 8.3.1.8.1.1 indicated that K-Ar ages from Fleck et al, served as input to the age values presented in Chapter 3, Table 1 and that the volume estimates presented in Chapter 3, Table 1 was unqualified data. In addition Fleck et al were cited in the revised sections of Chapter 2, for example Pages 2-19 through 2-21.

7 Initiator

Mary G. McDaniel

Date 9/25/96

9 Is condition an isolated occurrence?

Yes No Unknown; Must be Yes if PR

10 Recommended Actions: (Not required for PR)

Determine and identify correct qualification status for various data reported in the 1996 VSR. Confirm that the correct qualification status has been identified for any data reported in the 1995 "Status of Volcanism Studies for the Yucca Mountain Site Characterization Project," LA-12908-MS, that have not be superseded by the 1996 VSR.

11 QA Review:

QAR

Mary G. McDaniel Date 9/30/96

12 Response Due Date

20 working days from issuance

13 Affected Organization QA manager Issuance Approval: (QAR for PR)

Printed Name

Richard E. Spence Signature

Date 10/3/96

22 Corrective Action Verified

QAR

Date

23 Closure Approved By: (N/A for PR)

AOQAM

Date

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QA: L

PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:

15 Extent of Condition: (Not required for PR)

16 Root Cause Determination: (Not required for PR)

Required

Yes

No

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

Required

Yes

No

18 Corrective Action Completion Due Date:

19 Response by:

Initial

Amended

Date

Phone

20 Response Accepted

QAR

Date

21 Response Accepted (N/A for PR):

AOQAM

Date

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

Report
 Deficiency Report
NO. YM-96-D-108
PAGE 1 OF 2
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document: Los Alamos National Laboratory (LANL) Quality Procedures (QP)-03.23, Revision 4	2 Related Report No. YM-ARP-96-014
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3 Responsible Organization: LANL	4 Discussed With: Frank Perry/Mike Clevenger
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5 Requirement/Measurement Criteria:

LANL QP-03.23, Revision 4, Attachment 4 identifies the following reviewer instructions:

1. Review the document for applicability, correctness, technical adequacy, and completeness.
2. For TIPs, data presented are suitable for the intended use as presented in this report."

6 Description of Condition:

Contrary to the above, the LANL technical review was completed for the Volcanism Synthesis Report (1996 VSR), milestone 3781, and forwarded to the project office without identifying and correcting the following problem areas:

1. Discrepancies between Chapter 2, Section IV, Pages 49 and 52, Table 2.4 and Table 2.6 for the ³He data. (The Status of Volcanism Studies for the Yucca Mountain Site Characterization Project (1995) also included these discrepancies.)
2. Chapter 2, Table 2.6, Thermoluminescence (TL) data which had been superseded by TL data reported in Milestone 4049, "Progress Report on Geochronology Studies," Attachment 3, Table 7.
3. ⁴⁰Ar/³⁹Ar data for samples SB-90-8-21BMC and RC-1 in Chapter 2, Table 2.C which were different than those reported in Milestone 4049.

7 Initiator <i>Mary G. McDaniel</i> Mary G. McDaniel Date 9/25/96	9 Is condition an isolated occurrence? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown; Must be Yes if PR
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10 Recommended Actions: (Not required for PR)

Perform detailed technical review of the 1996 VSR to identify additional data discrepancies. Correct identified problems in the 1996 VSR. Critically assess review process to determine why such errors were not identified. Take necessary action based on results of assessment.

11 QA Review: QAR <i>Mary G. McDaniel</i> Date 9/30/96	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 *Richard E. Spence* Signature *[Signature]* Date 10/3/96

22 Corrective Action Verified QAR Date	23 Closure Approved by: (N/A for PR) AOQAM Date
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PR/DR NO. YM-96-D-108

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QA: L

PERFORMANCE/DEFICIENCY REPORT RESPONSE

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15 Extent of Condition: (Not required for PR)

16 Root Cause Determination: (Not required for PR)

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Date

Phone

20 Response Accepted

QAR

Date

21 Response Accepted (N/A for PR):

AOQAM

Date