



Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 98608
Las Vegas, NV 89193-8608
NOV 12 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

**VERIFICATION OF CORRECTIVE ACTIONS AND CLOSURE OF DR YM-96-D-081 AND
DR YM-96-D-082 RESULTING FROM OQA AUDIT YM-ARC-96-18 OF SANDIA
NATIONAL LABORATORIES**

The Office of Quality Assurance staff has verified the corrective actions to Deficiency Reports (DR) YM-96-D-081 and YM-96-D-082 and determined the results to be satisfactory. As a result, the DRs are considered closed.

If you have any questions, please contact either Mario R. Diaz at (702) 794-1489 or Stephen D. Harris at (702) 794-5522.

Richard E. Spence
Office of Quality Assurance

OQA:MRD-0289

Enclosure:
DRs YM-96-D-081 and
YM-96-D-082

cc w/encl:
T. A. Wood, DOE/HQ (RW-55) FORS
J. G. Spraul, NRC, Washington, DC
S. W. Zimmerman, NWPO, Carson City, NV
B. R. Justice, M&O, Las Vegas, NV
Records Processing Center

cc w/o encl:
W. L. Belke, NRC, Las Vegas, NV
S. D. Harris, OQA/QATSS, Las Vegas, NV
D. G. Sult, OQA/QATSS, Las Vegas, NV
D. G. Horton, DOE/OQA, Las Vegas, NV

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

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THIS IS A PARENT STAMP
☒ Deficiency Report
NO. YM-96-D081
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PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:

QARD, Revision 5

2 Related Report No.

YM-ARC-96-18

3 Responsible Organization:

SNL

4 Discussed With:

R. Richards and T. Ehrhorn

5 Requirement/Measurement Criteria:

Section 5.2.2 C. states in part, "A sequential description of the work to be performed including controls for altering the sequence of required inspections, tests, and other operations...."

Section 5.2.2 G. states "Methods for demonstrating that work was performed as required (such as provisions for recording inspection and test results, check off lists, or sign off blocks.)"

6 Description of Condition:

- Contrary to the above requirement for sequential description of work to be performed, QAIP 5-1, Revision 05 is not clear about the sequential activities followed to initiate a new procedure and to change a procedure. In discussions with QA representatives, it was stated that the process followed was verbal and information was transferred electronically. This process was not described in the procedure.
- "Revision History" is included in procedures but not in QAIP 5-1 as being part of the format to explain the rationale for changes.

7 Initiator

for *Richard L. White*
Stephen D. Harris

Date 8/1/96

9 Is condition an isolated occurrence?

☐ Yes ☒ No ☐ Unknown; Must be Yes if PR

10 Recommended Action: (Not required for PR)

- Revise QAIP 5-1 to reflect the actual process followed to initiate or revise a new procedure. Assure the process used has appropriate objective evidence generated to show compliance to the process.
- Revise QAIP 5-1 to require the "Revision History" to be included in procedures.

11 QA Review:

for *Richard L. White*
QAR Stephen D. Harris

Date 8/1/96

12 Response Due Date

20 working days from issuance

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

Printed Name R.E. SPENCE

Signature

Robert B. Constance

Date 8.7.96

22 Corrective Action Verified

QAR *Stephen Harris*

Date 10-31-96

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

AOQAM *R. Spence*

Date 11/7/96

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PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:

See Continuation Page

15 Extent of Condition: (Not required for PR)

See Continuation Page

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:

October 21, 1996

19 Response by: For R. A. Richards

☒ Initial

☐ Amended

Date 9/4/96

Phone 818-0641

20 Response Accepted

QAR

S. D. Harris

Date

9-20-96

21 Response Accepted (N/A for PR):

AOQAM

Robert B. Conable

Date

9-23-96

9/5/96 Bridget Spencer

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BLOCK 14 - REMEDIAL ACTIONS:

QAIP 5-1 is clear when describing the process for formally requesting a new procedure or change to an existing procedure which is the process that would normally be followed by personnel outside of the QA organization. However, as the evaluator pointed out, QAIP 5-1 does not describe the informal interaction that is normally used to initiate procedure changes. Since most procedures are initiated or revised by personnel in the QA Department at the direction of the QA Department Manager, the Procedure Action Request form is rarely used. QAIP 5-1 will be modified to reflect that informal process and to ensure that the actual decision to generate or revise a procedure is documented (memo, E-mail, etc.) and that documentation is maintained in the non-processed procedure file. Appendix B of QAIP 5-1, "Procedure Format and Content", will also be corrected to describe the "Revision History" which is to be included in all procedures.

BLOCK 15 - EXTENT OF CONDITION:

The other two procedures that govern the initiation and revision of internal implementing documents were reviewed. QAIP 1-5 which governs Work Agreements states clearly how Work Agreements are initiated and revised. And, it states that a revision history will be included in the Work Agreement. QAIP 20-1 which governs Technical Procedures also clearly specifies the process and the need for a revision history. There are no further actions required other than the remedial action mentioned above and, since the scope of the deficiency is clear and limited, there is no requirement for root cause determination.

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Verification of Corrective Action:

QAIP 5-1, revision 06, has been issued to address the remedial actions discussed in block 14. The informal method of memo, E-mail, etc., is permitted to request a new or change to a procedure. In addition, the Appendix B of QAIP 5-1 describes the "Revision History" which is to be included in all procedures.

S.D. Harris 10/31/96

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PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QAIP 19-1, Revision 02

2 Related Report No.
YM-ARC-96-18

3 Responsible Organization:
SNL

4 Discussed With:
Tom Ehrhorn

5 Requirement/Measurement Criteria:

Section 5.5 Step 5(b), 1., states, "Complete the form by indicating approval and identifying all affected baseline elements...."

6 Description of Condition:

Contrary to the above requirement, the following change request forms for Reg CM2 had no indication of affected baseline elements:

- 1) MOD #122 indicated at top of page, QA Verification 2/27/95
- 2) MOD #123 indicated at top of page, QA Verification 2/27/95
- 3) Tracking #110,179,001, 11/11/94, QA Verification 3/7/95
- 4) Tracking #110,179,002, 11/11/94, QA Verification 3/7/95

7 Initiator: *Richard R. White*
for Stephen D. Harris Date 8/1/96

09 Is condition an isolated occurrence?
☐ Yes ☒ No ☐ Unknown; Must be Yes if PR

10 Recommended Action: (Not required for PR)

Evaluate and document what, if any, baseline elements are affected by the changes. Modify the Change Request Forms, following change procedures, and reference the documented evaluation and any affected baseline elements. If baseline elements are affected, complete the required actions for them as described in QAIP 19-1.

11 QA Review: *Richard R. White*
QAR Stephen D. Harris Date 8/1/96

12 Response Due Date
20 working days from issuance

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

Printed Name R.E. SPENCE Signature *Robert B. Constatte* Date 8.7.96

22 Corrective Action Verified

QAR *Stephen Harris* Date 10-31-96

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

AOQAM *R. E. Spence* Date 11/7/96

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PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:

The code sponsor (Starley Thompson, NCAR) was contacted and provided the missing information for the two Change Requests (identified by Tracking Numbers 110.179.001 and 110.179.002) by letters to the SNL Contract Monitor (Joe Schelling) dated 26 July 1996. These letters, which have been attached to the Change Request Forms, indicate that for Tracking Number 110.179.001, which referred to code improvements, the baseline element for the software item itself was affected, and for Tracking Number 110.179.002, installing the code on a different platform, no baseline elements were affected. These letters have been filed with, and noted as attachments to the appropriate Change Request Forms. These corrected records have been submitted for processing as Project records. No additional QAIP 19-1 actions are needed. As a second remedial action, the Change Request Form itself has been modified (see attached example) to prompt the Code Sponsor to clearly indicate whether or not any baseline elements are affected by a proposed change.

15 Extent of Condition: (Not required for PR)

What appear as 4 separate deviations is really a single instance. The original Change Requests, one incorporating code changes and one to port the code to another platform, were initiated 11/14/94, approved 1/12/95, and verified 2/27/95. The second set is a 2/24/96 fax of the code sponsor's copy to SNL, signed by Software QA 3/7/95. It is not clear why the faxed copies were signed on a later date, other than to note that the Software Use Form, authorizing the complete code release for 110.179.001, was also issued on 3/7/95, indicating perhaps an intention of ensuring documentation completeness for the released code. Because this is a one-time occurrence, for which it appears to have been unclear to the Code Sponsor of the need to identify any affected baseline elements, including the subject code, a root cause determination is unnecessary. The revised Change Request Form (See Block 14), should suffice to preclude recurrence.

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 Date:

Completed

19 Response by:

☒ Initial

☐ Amended

F Joseph Schelling

Date 8/27/96 Phone 505 848 0643

20 Response Accepted

QAR

S.D. Harris

Date 9-20-96

21 Response Accepted (N/A for PR):

AOQAM

Robert B. Constable

Date 9.23.96

Exhibit AP-16.1Q.2

Rev. 07/15/95

9/5/96 Brady & Spencer

ENCLOSURE 1

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**National Center for Atmospheric Research
Climate Change Research Section (CCR)
Climate and Global Dynamics Division
P.O. Box 3000, Boulder, Colorado 80307-3000
Telephone: (303) 497-1624 Fax: (303) 497-1348**

26 July 1996

Joe Schelling
Sandia National Laboratories
Dept. 6853, M/S 1333
P.O. Box 5800
Albuquerque, NM 87185-1333

Dear Joe:

Per your request this letter certifies that the baseline element for the software item itself is affected by Change Request Form 110.179.001.

Sincerely,



Starley L. Thompson

cc: QA File

SCCS 1.0

Tracking Number: 110.179.001

MOD #122

CHANGE REQUEST FORM

From Requester/Orgn.	C. D'Ambra, NCAR	Date	11/11/94
Name of Code	RegCM2	Version Number	1.0
Operating System	IRIX 6.0	Platform	SGI Power Challenge
Modification Type	<input checked="" type="checkbox"/> Defect Correction	<input checked="" type="checkbox"/> Enhancement	
	<input type="checkbox"/> Retirement	<input type="checkbox"/> Rerelease	

R E Q U E S T E R	Description of and Rationale for Proposed Change	
	1. Incorporate improved lake model routine, which includes correction for units conversion problem previously identified.	
	2. replace CUP subroutine with version containing bug fixes and enhancements	
	3. change planetary boundary layer from 300 to 700 millibars.	
	Rationale is to correct known bugs and incorporate enhancements developed independently of YMP.	
	Requester's Signature	Attachment

S P O N S O R	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected	
	Proposed Resolution or Rationale for Rejection	
	Affected Baseline Elements	
	Code Sponsor's Signature	
	Date	Attachment

Q A	Verification of Completed Modifications to Affected Baseline Elements	
	Software QA	Date

MODIFICATIONS WERE REVIEWED 8/27/96 OF F ELL

**National Center for Atmospheric Research
Climate Change Research Section (CCR)
Climate and Global Dynamics Division
P.O. Box 3000, Boulder, Colorado 80307-3000
Telephone: (303) 497-1624 Fax: (303) 497-1348**

26 July 1996

Joe Schelling
Sandia National Laboratories
Dept. 6853, M/S 1333
P.O. Box 5800
Albuquerque, NM 87185-1333

Dear Joe:

Per your request this letter certifies that no baseline elements are affected by Change Request Form 110.179.002.

Sincerely,



Starley L. Thompson

cc: QA File

SCCS 1.3

Tracking Number: 110.179.002
MOD #123

CHANGE REQUEST FORM

From Requester/Orgn.	C. D'Ambra	Date	11/11/94
Name of Code	RegCM2	Version Number	1.0
Operating System	IRIX 5.2	Platform	Sgi Challenge
Modification Type	<input type="checkbox"/> Defect Correction <input checked="" type="checkbox"/> Enhancement <input type="checkbox"/> Retirement <input type="checkbox"/> Rerelease		

R E Q U E S T E R	Description of and Rationale for Proposed Change	
	Port model to SGI Power Challenge running IRIX 6.0:	
	1. with 32 bit compilers and identical options as used in baselining the model	
	2. with 64 bit compilers and options that will optimize performance, including Power Fortran (parallelizing), without adversely affecting quality.	
	Rationale is to enhance performance, enabling longer simulations to be conducted in the same amount of time.	
	Requester's Signature	Attachment

Charles A. D'Ambra

S P O N S O R	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Rejected	
	Proposed Resolution or Rationale for Rejection	
	Affected Baseline Elements	
	Code Sponsor's Signature	Date
	Attachment	

See attached
[Signature] 1/12/95 1p

Q A	Verification of Completed Modifications to Affected Baseline Elements	
	Software QA	Date

Claudette Jaramila 02/27/95

MODIFICATIONS WERE REVIEWED 8/27/96 OF F ELL

APPENDIX B

CIVILIAN RADIOACTIVE WASTE MANAGEMENT Sandia National Laboratories	<h2 style="margin: 0;">Change Request Form</h2>
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From Requester/Orgn. _____	Date: _____
Name of Program: _____	Version Number: _____
Operating System _____	Platform _____
Modification Type: <input type="checkbox"/> Defect Correction	<input type="checkbox"/> Enhancement
<input type="checkbox"/> Retirement	<input type="checkbox"/> Rerelease

REQUESTER	
Description of and Rationale for Proposed Change	
Requester's Signature: _____	Attachments: _____

SPONSOR	
<input type="checkbox"/> Rejected Proposed Resolution or Rationale for Rejection	
<input type="checkbox"/> Approved List Baseline Elements Affected by This Change	
Code Sponsor's Signature: _____	Attachments: _____
Date: _____	

QUALITY ASSURANCE	
Verification of Completed Modifications to Affected Baseline Elements	
Software QA Signature: _____	Date: _____

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Verification of Corrective Action:

The Change Request forms for Reg CM2 have been modified to reference an attached memo from the Code Sponsor that indicates the affected baseline elements. In addition, the Change Request forms have an added statement to prompt the code sponsor to list baseline elements affected. This should assist in clarifying the issue in the future.

S. D. Harris 10/31/96