



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

WBS 1.2.9.3

JUL 06 1992

Richard L. Bullock
 Technical Project Officer
 for Yucca Mountain
 Site Characterization Project
 Raytheon Services Nevada
 101 Convention Center Drive
 Phase II, Suite P-250
 Las Vegas, NV 89109

ISSUANCE OF CORRECTIVE ACTION REQUESTS (CARs) YM-92-050 THROUGH YM-92-054
 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) AUDIT
 YMP-92-18 OF RAYTHEON SERVICES NEVADA

Enclosed are CARs YM-92-050 through YM-92-054 generated as a result of YMQAD
 Audit YMP-92-18.

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 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 Robert B. Constable at
 794-7945 or Kenneth T. McFall at 794-7280.

R. E. Spence

Richard E. Spence, Director
 Yucca Mountain Quality Assurance Division

YMQAD:RBC-4339

Enclosure:
 CARs YM-92-050 through YM-92-054

cc w/encl:
 K. R. Hooks, NRC, Washington, DC
 S. W. Zimmerman, NWPO, Carson City, NV
 C. L. Sellards, SAIC, Las Vegas, NV, 517/T-02
 M. J. Regenda, RSN, Las Vegas, NV

cc w/o encl:
 J. W. Gilray, NRC, Las Vegas, NV
 N. J. Brogan, SAIC, Las Vegas, NV, 517/T-12

9207130033 920706
 PDR WASTE
 WM-11 PDR

YMP-5

ADD: Ken Hooks
 1 1
 Ltr. Encl.

102-7
 WM-11
 NHB3

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

8 CAR NO.: YM-92-050
DATE: 6/26/92
SHEET: 1 OF 2
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document QAPD-002, Rev 0, Change Notice B; PP-03-03, Rev 0 PIC 1, 2, & 3	2 Related Report No. Audit YMP-92-18
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3 Responsible Organization RSN	4 Discussed With B. Stanley, A. Ali
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5 Requirement:

- QAPD Section 3, Paragraph 3.2.3-b, states in part; "Includes the following features; b- Sufficient detail as to purpose, method, assumptions, design input, references and units to enable an individual technically qualified in the subject to review and understand the analysis and verify adequacy of the results without recourse to the Originator."

PP-03-3, Rev. 0, PIC 1, 2 & 3 Analysis and Studies

- PP-03-03, Para, 6.5.5. states: "Assumptions - In order to complete the analysis, the Originator may have to make assumptions which are not clearly identified or controlled by the design inputs or other sources of information. These assumptions, along with the basis for the assumptions, must be clearly stated within the analysis. Those assumptions which require verification as the design proceeds must be identified. The assumptions used must be listed in

6 Adverse Condition:

Contrary to the stated requirements, inadequate justification was provided for how some design input rock mechanics properties were assumed. The Originator of Design Analysis ST-MN-209 (Highwall Stability Analysis) justified the selection of certain rock mechanics properties by stating their selection was based on "engineering experience."

Example of inadequately justified assumptions are as follows:

Design Analysis ST-MN-209, Rev. A, p. 8
 Rock Mass Tensile Strength = 10 MPa.
 Joint Cohesion = 1 MPa
 Joint Friction Angle = 30.96
 Joint Tensile Strength = 0.5 MPa
 Joint Angle = 80

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 days from issuance.
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12 Required Actions: Remedial Extent of Deficiency Preclude Recurrence Root Cause Determination

13 Recommended Actions:

7 Initiator D. Harris <i>D. Harris</i> Date <u>7-1-92</u>	14 Issuance Approved by: QADD <i>[Signature]</i> Date <u>7/6/92</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

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8 CAR NO.: YM-92-050
DATE: 6/26/92
SHEET: 2 OF 2
QA

CORRECTIVE ACTION REQUEST (Continuation Page)

5 Requirements (continued)

this section and the pages or paragraphs where the assumptions are located shall be annotated in this section."

6 Adverse Condition (continued)

Design Analysis ST-MN-217, Rev A, p. 2

Tensile Strength of the rock mass = 10 MPa

By simply stating that "engineering experience" was used to make design input assumptions does not provide a clear description of the basis for the assumption selection as described in EP-03-03, Section 6.5.5.

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6 CAR NO. _____
DATE: _____
PAGE: _____ OF _____
QA

CORRECTIVE ACTION REQUEST (Continuation Page)

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)
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(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

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8 CAR NO.: YM-92-051
DATE: 6/26/92
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document AP 3.5Q		2 Related Report No. Audit 92-18	
3 Responsible Organization RSN		4 Discussed With H. Booth	
5 Requirement: AP 3.5Q "Field Change Control Process" Rev 1, Para. 5.0, Step 7 states "Sign Section II (of the FCR), and attach the evaluation, sketches, or other appropriate supporting documentation to complete the FCR."			
6 Adverse Condition: RSN procedure PP-03-23 "Field Change Control Process," Rev. 0, does not address the fact that internal participant evaluation checklists used for evaluation of FCRs must be attached to FCRs and submitted to the FCCB. RSN internal evaluation checklists have not been submitted to the FCCB to date.			
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 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 type="checkbox"/> Root Cause Determination			
13 Recommended Actions:			
7 Initiator G. Heaney <i>G. Heaney</i> Date <u>7-1-92</u>		14 Issuance Approved by: QADD <i>MC. Spence</i> Date <u>7/6/92</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	

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CORRECTIVE ACTION REQUEST (Continuation Page)

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Responsible Manager

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8 CAR NO.: YM-90-052
DATE: 6/26/92
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document PP-06-01, Rev. 0		2 Related Report No. Audit 92-18	
3 Responsible Organization RSN System Eng.		4 Discussed With J. Rue, G. Braum, J. Dumas, K. Kirwan, M. Regenda	
5 Requirement: PP-06-01, Rev 0, Section 3, Titled DISTRIBUTION, Para 6.3.3 states in part: "Recipients of a controlled document are responsible for maintaining the document."			
6 Adverse Condition: Contrary to the above, six controlled PP manuals were reviewed (i.e., 20, 38, 45, 62, 69 and 90), and five of the six were found to be missing controlled procedures/PICS or contained obsolete procedures/PICS which were not so identified.			
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 days from issuance.			
12 Required Actions: <input type="checkbox"/> Remedial <input checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input type="checkbox"/> Root Cause Determination			
13 Recommended Actions: 1. Perform an assessment of ALL controlled documents to determine the extent of the condition. Document this assessment. 2. Determine and document actions to preclude recurrence.			
7 Initiator R. Maudlin <i>R. Maudlin</i> Date <u>07/02/92</u>		14 Issuance Approved by: QADD <i>R.C. Spence</i> Date <u>7/6/92</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	

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Responsible Manager

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8 CAR NO.: YM-92-053
DATE: 6/26/92
SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document RSN PP-19-01, Rev. 0		2 Related Report No. Audit YMP-92-18	
3 Responsible Organization Raytheon Services Nevada		4 Discussed With Russ Hilsinger	
5 Requirement: Paragraph 6.15: "A status report of certified hardware and software shall be prepared by the Configuration Management on a monthly basis and provided to users."			
6 Adverse Condition: Contrary to the above requirement, monthly status reports were suspended by management directive from Nov. 15, 1991, to the week of June 26, 1992. The manager responsible was new to the job and did not recognize a conflict with QA Requirements.			
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 Days from issuance.	
12 Required Actions: <input type="checkbox"/> Remedial <input checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input type="checkbox"/> Root Cause Determination			
13 Recommended Actions:			
7 Initiator N. Cox <i>Neil A. Cox</i>		14 Issuance Approved by: QADD <i>RC Hilsinger</i>	
Date <u>7/1/92</u>		Date <u>7/6/92</u>	
15 Response Accepted QAR _____ Date _____		16 Response Accepted QADD _____ Date _____	
17 Amended Response Accepted QAR _____ Date _____		18 Amended Response Accepted QADD _____ Date _____	
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SHEET: 1 OF 1
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document RSN Procedure PP-19-04, Rev. 0		2 Related Report No. YMP-92-18	
3 Responsible Organization RSN		4 Discussed With Jo Ann Leveque	
5 Requirement: Para. 6.14.1 states in part that the TPO shall approve by signature the configuration items Software Producer Form (SPF), Test Document Review Report (TDRR), the Software Design Description Review Report (SDDRR), the Software Verification and Validation Plan (SVVP) and the Software Verification and Validation Plan Review Report (SVVPRR).			
6 Adverse Condition: Contrary to the requirement, there are no lines on the forms for the TPO's signature and there is no evidence that he approved those in the Software Configuration Management Log (SCML) as of 6/23/92.			
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 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 type="checkbox"/> Root Cause Determination			
13 Recommended Actions: Obtain TPO signature approval on all reports currently in the SCML. Modify forms to have a place for TPO approval or delete the requirement for TPO signature.			
7 Initiator N. Cox <i>Neil D. Cox</i> Date <u>7/1/92</u>		14 Issuance Approved by: QADD <i>RC Spence</i> Date <u>7/6/92</u>	
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WASHINGTON, D.C.**

CAR NO.	_____
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CORRECTIVE ACTION REQUEST (Continuation Page)

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Responsible Manager