



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

QA: L

AUG 23 1994

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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

EVALUATION OF RESPONSE TO CORRECTIVE ACTION REQUEST (CAR)
YM-94-057 RESULTING FROM U.S. DEPARTMENT OF ENERGY/HEADQUARTERS
QUALITY ASSURANCE DIVISION'S AUDIT HQ-94-02 OF THE CIVILIAN
RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING
CONTRACTOR (SCPB: N/A)

The Yucca Mountain Quality Assurance Division staff has evaluated the response to CAR YM-94-057. 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 Deborah Sult, YMQAD/QATSS, 101 Convention Center Drive, Suite 640, Las Vegas, Nevada 89109.

If you have any questions, please contact either Robert B. Constable at 794-7945 or John R. Matras at 794-7197.

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-4779

Enclosure:
CAR YM-94-057

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L. Dale Foust

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cc w/encl:

T. A. Wood, HQ (RW-14) FORS

~~R. E. Johnson~~, NRC, Washington, DC

S. W. Zimmerman, NWPO, Carson City, NV

R. L. Robertson, M&O/TRW, Vienna, VA

R. P. Ruth, M&O/Duke, Las Vegas, NV

Richard Jiu, M&O/TRW, Las Vegas, NV

D. G. Horton, OQA (RW-3) NV

R. M. Nelson, Jr., YMSCO, NV

cc w/o encl:

W. L. Belke, NRC, Las Vegas, NV

D. G. Sult, YMQAD/QATSS, Las Vegas, NV

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

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CORRECTIVE ACTION REQUEST

¹ Controlling Document <u>DOE/RW-0333P - Supplement I, Software</u>		² Related Report No. <u>HQ-94-02</u>
³ Responsible Organization <u>CRWMS M&O</u>	⁴ Discussed With <u>N. Hodgson, R. Bahney</u>	
⁵ Requirement: Paragraph 1.2.8.A states: "The defect reporting and resolution system shall be integrated with the software configuration management system to assure formal processing of defect resolution."		
⁶ Adverse Condition: Problem reports received from the vendor of ANSYS 5.0A were maintained by the user with no intention of integrating these problem reports into the configuration management system.		
⁹ Does a significant condition adverse to quality exist? Yes <u>x</u> No ___ If Yes, Circle One: A <u>(B)</u> C D E	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	¹³ Response Due Date: 20 working days from issuance
¹¹ Required Actions: <input checked="" type="checkbox"/> Remedial <input checked="" type="checkbox"/> Extent of Deficiency <input checked="" type="checkbox"/> Preclude Recurrence <input checked="" type="checkbox"/> Root Cause Determination		
¹² Recommended Actions: 1. Obtain, if available from the vendor, all problem reports on all qualified software. 2. Process all problem reports through the configuration management system.		
⁷ Initiator <u>John R Matras</u> John Matras Date <u>6/23/94</u>	¹⁴ Issuance Approved by: QADD <u>RC Bahney</u> Date <u>7/12/94</u>	
¹⁵ Response Accepted QAR <u>John R Matras</u> Date <u>8/15/94</u>	¹⁶ Response Accepted QADD <u>RC Bahney</u> Date <u>8/23/94</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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THIS IS A RED STAMP

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WASHINGTON, D.C.

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8-2-94

CORRECTIVE ACTION REQUEST

¹ Controlling Document: DOE/RW-0333P - Supplement I, Software ² Related Report No.: HO-84-02

³ Responsible Organization: CRWMS M&O ⁴ Discussed With: N. Hodgson, R. Bahney

⁵ Requirement:
Paragraph 1.2.6.A states: "The defect reporting and resolution system shall be integrated with the software configuration management system to assure formal processing of defect resolution."

⁶ Adverse Condition:
Problem reports received from the vendor of ANSYS 5.0A were maintained by the user with no intention of integrating these problem reports into the configuration management system.

⁷ Does a significant condition adverse to quality exist? Yes X No
If Yes, Circle One: A (B) C D E ⁸ Does a stop work condition exist? Yes No X; If Yes - Attach copy of BWO
If Yes, Circle One: A B C ⁹ Response Due Date: 20 working days from issuance

¹⁰ Required Actions: Remedial Extent of Deficiency Preclude Recurrence Root Cause Determination

¹¹ Recommended Actions:
1. Obtain, if available from the vendor, all problem reports on all qualified software.
2. Process all problem reports through the configuration management system.

¹² Initiator: John R. Matras ¹³ Issuance Approved by: AC [Signature]
John Matras Date: 8/23/94 QADD Date: 7/12/94

¹⁴ Response Accepted ¹⁵ Response Accepted
QAR Date QADD Date

¹⁶ Amended Response Accepted ¹⁷ Amended Response Accepted
QAR Date QADD Date

¹⁸ Corrective Actions Verified ¹⁹ Closure Approved by:
QAR Date QADD Date

John R. Matras

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CORRECTIVE ACTION REQUEST (CONTINUATION PAGE)

A. Remedial Action

The ANSYS user has prepared and submitted to the Las Vegas Software Configuration Manager (LSCM) an IOC identifying by attachment, all vendor-supplied Class III problem reports received to date by the user for ANSYS 5.0A. This IOC includes an impact assessment of the problem reports that indicates that there is no impact on quality-affecting work.

This action has been completed by Robert Bahney in June 1994.

B. Extent of Deficiency

(1) I have discussed the facts of the adverse condition from this CAR with the M&O Software Configuration Managers for Vienna, Las Vegas, and Charlotte (Virginia Sauer, Nat Hodgson, and Mike Engineer, respectively) and have determined that no similar condition exists for any other software which has been baselined for use in work subject to QARD controls.

(2) ANSYS is a leased code for which the vendor (Swanson) maintains a proactive defect reporting process. Each lessee-of-record receives copies of all Class III problem reports from the vendor and there is no chance that a registered ANSYS user could be unaware of these problem reports. I have discussed the facts of the adverse condition from this CAR with Robert Bahney, the user-of-record and the recipient of the vendor problem reports for ANSYS. He described how his group reviews each problem report as soon as it has been received, specifically (a) determining whether any deficiency affects the use of ANSYS within its formal range of validation and (b) annotating the ANSYS Users Manual to ensure that all users of the software are aware of the specifics of the problem reports. He also told me that, to date, ANSYS had not been used in any work subject to QARD requirements.

(3) I conclude that the extent of the deficiency described in this CAR is very limited and that there is no chance that it affected work subject to QARD requirements.

C. Root Cause Determination

(1) ANSYS is a multipurpose code and includes many functions which the user group will not use to perform QARD-controlled work. The subject problem reports cover the entire spectrum of ANSYS functionality and a telephone interview with the ANSYS user-of-record indicated that he was acting under a good faith interpretation of the QAP-19-2 defect reporting requirements in that, had the vendor

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CORRECTIVE ACTION REQUEST (CONTINUATION PAGE)

problem reports contained deficiencies that were relevant to use of the code in his QAKD-controlled work, the user would have reported such defects under the formal defect-reporting system. This is supported by the user's knowledge that all lessees-of-record had received the same vendor problem reports, so there was no concern that other ANSYS users were unaware of the defects.

(2) Per QARD I.2.8.A, the current QAP-19-2 effectively integrates the software defect reporting and resolution system with the software configuration management system, so the cause of this condition is not a lack of procedure. QAP-19-2 provides M&O software users with detailed instructions for preparing and submitting Change Requests (the QAP form for reporting defects) to the various Software Configuration Control Boards (SCCBs).

(3) The root cause of this condition is defective human factors considerations in the existing QAPs. The decision to submit a formal defect report (Change Request) is left to the individual user and is, therefore, subject to the user's interpretation of technical and programmatic relevance.

D. Corrective Action to Preclude Recurrence

(1) It is not clear that it would be appropriate to revise the 19-series QAPs to include a level of detail sufficient to cover the range of explicit conditions under which users must prepare a Change Request. Certainly, it would be duplicative for several users to submit identical Change Requests in response to vendor-supplied information. An effective corrective action would be to ensure that all vendor-supplied problem reports are submitted directly to M&O Software Configuration Management for processing and dissemination to users. Therefore...

(2) A memorandum of understanding has been issued by M&O Purchasing to the M&O Quality Assurance, Purchasing, Information Resource Management, and Software Configuration Management organizations. The memorandum requires all preparers of Purchase Requisitions for acquired software to identify the M&O Software Configuration Manager (Virginia Sauers) as the technical point of contact, ensuring that SCM will receive all vendor-initiated problem reports. Under this memorandum, SCM has the responsibility for logging the vendor-supplied problem reports into the CM deficiency tracking system, then distributing the problem reports to all site Software Configuration Control Boards for local action, as appropriate. This corrective action effectively captures the auditor's recommended action from CAR item #12.

All actions are complete.

Responsible Manager: Warren Standley

John J. Myler for Warren Standley
8/10/94