



DEPARTMENT OF ENERGY
Office of Civilian Radioactive Waste Management
Office of Geologic Disposal
Yucca Mountain Site Characterization Project Office
P.O. Box 98608
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WBS 1.2.11
QA: N/A

MAR 2 1994

L. Dale 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 SURVEILLANCE RECORD YMP-SR-94-026 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) SURVEILLANCE OF THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING (CRWMS M&O) CONTRACTOR (SCP: N/A)

Enclosed is the record of Surveillance YMP-SR-94-026 conducted by the YMQAD at the CRWMS M&O facilities in Las Vegas, Nevada, January 25 through 31, 1994.

The purpose of the surveillance was to verify that actions necessary to close Corrective Action Request (CAR) YM-93-040 are complete.

No CARs were issued as a result of this surveillance.

This surveillance is considered completed and closed as of the date of this letter. A response to this surveillance record and any documented recommendations are not required.

If you have any questions, please contact either Robert B. Constable at 794-7945 or Robert L. Howard at 794-7820.

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-2209

Enclosure:
Surveillance Record YMP-SR-94-026

08:185

9403100291 940302
PDR WASTE PDR
WM-11

ADD: Ken Hooks Mr. Encl.

102.7
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NH03

MAR 2 1994

cc w/encl:

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

PAGE 1 OF B
Surveillance No. YMP-SR-94-026

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

¹ ORGANIZATION/LOCATION: M&O Design/LV

² SUBJECT: CAR YM-93-040 Closure

³ DATE: 1/25/94

⁴ SURVEILLANCE OBJECTIVE: Verify that actions necessary to close CAR YM-93-040 are complete.

⁵ SURVEILLANCE SCOPE: The Surveillance will verify:

- 1) Procedures have been developed to address the preparation, review, and approval of Basis for Design documents,
- 2) Procedures address the selection of design verification methods,
- 3) Procedures control design information transmitted across internal design interfaces,
- 4) An adequate impact analysis has been performed to evaluate the effect of deficiencies reported by CAR YM-93-040.

⁶ SURVEILLANCE TEAM:
Team Leader:

Robert L. Howard

Additional Team Members:

N/A

N/A

⁷ PREPARED BY:

Robert L. Howard

Surveillance Team Leader

1/25/94

Date

⁸ CONCURRENCE:

RC [Signature]

QA Division Director

1/25/94

Date

SURVEILLANCE RESULTS

⁹ BASIS OF EVALUATION / DESCRIPTION OF OBSERVATIONS:

SEE PAGES 2 THROUGH 7.

¹⁰ SURVEILLANCE CONCLUSIONS:

SEE PAGE 8.

¹¹ COMPLETED BY:

Robert L. Howard

Surveillance Team Leader

2/17/94

Date

¹² APPROVED BY:

RC [Signature]

QA Division Director

2/28/94

Date

BASIS OF EVALUATION/ DESCRIPTION OF OBSERVATIONS

A: Documents Reviewed:

**Basis For Design Document, Volume 2 BAB000000-01717-6300-00002, Revision 01
Mining Drawings:**

**BABBAF000-0717-21000-22154-00
BABBAF000-0717-21000-24150-00
BABBAF000-0717-21000-22158-00**

**Management and Operating (M&O) Contractor Interoffice Correspondence
LV.ESSD.RDC.8/93-243 dated August 12, 1993 from Roy Clark to Peter Hastings.
M&O Interoffice Correspondence LV.ESSB.EFF.1/94-531 dated January 26, 1994 from Roy
Clark to Peter Hastings.**

B: Procedures Reviewed:

**M&O Quality Assurance Procedure (QAP)-3-0, Revision 1, Design Process
M&O QAP-3-2, Revision 0, Design Verification
M&O QAP-3-8, Revision 3, Specifications
M&O QAP-3-9, Revision 3, Analyses
M&O QAP-3-10, Revision 3, Drawings
M&O Nuclear Line Procedure (NLP)-3-10, Revision 0, Preparation of Field Change
Request Against Engineering Drawings
M&O NLP-3-13, Revision 0, Revisions to Basis for Design Document Issued by
Raytheon Services Nevada
M&O NLP-3-14, Revision 0, Discipline and Inter-discipline Checking of Engineering
Drawings and Specifications
M&O NLP-3-15, Revision 0, To Be Verified (TBV) and To Be Determined (TBD)
Monitoring System
M&O NLP-3-20, Revision 0, Development of Basis For Design Documents**

C: Personnel Contacted:

**Jerry Heaney, M&O Engineer
William L. Petrie M&O Quality Assurance (QA) Specialist
Edward Fitch, M&O Engineer
Peter Hastings, M&O Determination of Importance Group Supervisor
Jerry Naaf, M&O Subsurface Design Supervisor
Robert Justice, M&O Quality Engineering Manager
William Kennedy, M&O Engineer
John Peters, M&O Engineer**

Adverse Condition Part A:

Procedures do not provide criteria for determining the method of design verification.

Corrective Action Commitments:

- a) The adoption of the Quality Assurance Requirements and Description (QARD) and attendant QAP revisions will correct the adverse condition.
- b) The M&O will ensure through its requirements matrix that all applicable requirements of the QARD will be addressed in implementing procedures.
- c) The M&O will obtain inputs from design organizations to define the general design process and identify outputs. The identified design process will be proceduralized to provide the required QA controls for the outputs of the design process.

The Yucca Mountain Quality Assurance Division (YMQAD) staff reviewed Attachment IV of M&O QAP-2-3, Revision 4, dated October 30, 1993 and verified that the method for design verification must be justified.

YMQAD staff reviewed M&O QAP-3-0, Revision 1, Dated October 30, 1993. QAP-3-0, Paragraph 5.5.2.D allows for the use of peer reviews as an acceptable method of design verification. YMQAD staff also reviewed M&O QAP-3-2, Revision 4, dated October 30, 1994. QAP-3-2, Paragraph 5.1.2.4 also allows the use of peer reviews as a method of design verification. The Office of Civilian Radioactive Waste Management (OCRWM) QARD (DOE/RW-0333P) allows the use of Design Reviews, Alternate Calculations, and Qualification Testing as acceptable methods of design verification. The use of peer reviews is not an acceptable method of design verification. Therefore, the corrective action for Part A of the Corrective Action Request (CAR) is unsatisfactory.

Adverse Condition Part B, Item A:

The development, review, and approval of the Basis for Design Document is not described by a procedure.

Corrective Action Commitment:

Basis for Design Documents for Design Packages 1B and 2A will be handled as specifications in accordance with QAP-3-8. Future Basis for Design Documents will be handled in accordance with NLP-3-20, "Development of Basis For Design Documents."

YMQAD staff discussed this commitment with John Peters, the Basis for Design Document preparer. Mr. Peters clarified that there is only one M&O Basis For Design Document and that document gets updated as the Exploratory Studies Facility (ESF) design proceeds. The Basis for Design Document is currently being prepared in accordance with NLP-3-20. YMQAD staff reviewed NLP-3-20 Development of Basis For Design Documents. This procedure describes preparation, review, and approval requirements for Basis For Design Documents. However, the process for capturing new or revised output documents in the Basis for Design Document is not proceduralized. Four drawings were selected in Package 1B to determine if they were captured in the Basis for Design Document output traceability matrices. Three of the drawings were not captured. Corrective Action is therefore considered incomplete.

Adverse Condition Part B, Item B:

There is no procedure for revising the Raytheon Services Nevada (RSN) Basis for Design Document.

Remedial Action Commitment: All changes in the form of Field Change Requests (FCRs), to Package 1A have been reviewed against provisions of the RSN Basis for Design Document to determine impact on the RSN Basis for Design Document.

YMQAD staff reviewed M&O Interoffice Correspondence (IOC) LV.ESSD.RDC8/93-243 dated August 12, 1993. The IOC documented the Package 1A FCRs reviewed against the RSN Basis for Design Document. The IOC also stated that FCR 93/251 was contrary to the Basis for Design Document and that the Basis for Design Document would be revised accordingly. However, M&O IOC LV.ESSB.EFF.1/94-531 dated January 26, 1994 stated that (IOC) LV.ESSD.RDC8/93-243 dated August 12, 1993 incorrectly stated that FCR 93/251 contradicted the Basis for Design Document and that no revision to the Basis for Design Document is required. The remedial action commitment is therefore considered complete.

Corrective Action to Prevent Recurrence Commitment: An ILP will be issued. The procedure will include in the review criteria consideration of Determination of Importance Evaluations (DIEs), TBV logs, and FCRs that impact package 1A design.

YMQAD staff reviewed M&O NLP-3-13, Revision 0, "Revisions to Basis for Design Document issued by Raytheon Services Nevada." The procedure described the process for revising the RSN Basis for Design Document. The procedure requires that DIEs, TBV logs, and FCRs be considered as part of the review criteria for revising the Basis for Design Document. The corrective action to prevent recurrence commitment is considered satisfactorily complete.

Adverse Condition Part B, Item C:

The procedural process for verification of design changes (FCRs) is not addressed.

Remedial Action Commitment: An implementing line procedure (ILP) (NLP-3-10) for the preparation of FCRs has been implemented. This procedure addresses the evaluation of FCRs including the required verifications. This procedure also describes what information is included to present the change.

- b) The M&O will ensure through its requirements matrix that all applicable requirements of the QARD will be addressed in implementing procedures.

YMQAD reviewed NLP-3-10. The procedure addresses the evaluation of FCRs. QARD Section 3.2.8.A requires field changes be subject to design control measures commensurate with those applied to the original design. However, NLP-3-10 does not describe a review and approval process or review criteria consistent with M&O QAP-3-8 or M&O QAP-3-10. QARD Section 6.2.6 requires that changes to documents be reviewed by organizations affected by the change. There are no provisions in NLP-3-10 to ensure that all affected organizations review the FCR. Corrective action is considered unsatisfactory.

Adverse Condition Part B, Item D:

The process of identifying and maintaining "To be Verified" information on design drawings is not addressed.

Remedial Action Commitment: An ILP will be developed to address this issue. The procedure will require the development and maintenance of a "TBV" log to track TBVs from their inception through final closure.

YMQAD staff reviewed NLP-3-15. The procedure does provide a process for tracking TBVs and is being implemented. Corrective action for the identified condition is therefore considered complete and satisfactory.

Adverse Condition Part B, Item E:

The review/approval and use of sketches is not addressed by procedures.

Corrective Action Commitments: a) An ILP (NLP-3-10) for the preparation of field change requests has been implemented. This procedure addresses the review/approval of sketches as part of the supporting information to present the change.

b) The M&O will ensure through its requirements matrix that all applicable requirements of the QARD will be addressed in implementing procedures.

YMQAD staff reviewed NLP-3-10. NLP-3-10 mentions the use of sketches but does not provide any level of control consistent with the controls in NLP-3-14 "Discipline and Inter-Discipline Checking of Engineering Drawings." QARD Section 3.2.8.A requires field changes be subject to design control measures commensurate with those applied to the original design. The corrective action for the identified conditions is therefore considered unsatisfactory.

Adverse Condition Part C:

Contrary to the requirements of NQA-1, Supplement 3S-1, 'Supplementary Requirements for Design Control,' second paragraph, second sentence, procedures do not address the selection and review of design methods.

Commitment: Wording will be added to QAP-3-9 to require that the justification for method selection be documented.

YMQAD staff reviewed QAP-3-9, Revision 2 and verified that the methods must be explicitly documented in the analyses. Additionally, QAP-3-9 requires that the analysis originator identify computer programs used to support the analyses and to document the basis for the use of the computer program. Corrective action for the identified condition is therefore considered complete and satisfactory.

Adverse Condition Part D:

Contrary to the requirements of NQA-1, Supplement 3S-1, 'Supplementary Requirements for Design Control,' Section 6, 'Interface Control,' second paragraph, first sentence, procedures do not address the control of design information transmitted across internal design interfaces.

Corrective Action Commitments: NLP-3-14 addresses the documentation and control of design information across discipline design interfaces through the use of the interdisciplinary check.

- b) The M&O will ensure through its requirements matrix that all applicable requirements of the QARD will be addressed in implementing procedures.

YMQAD staff reviewed NLP-3-14 and verified that the procedure provides for the control of discipline and interdiscipline reviews of drawings and specifications. Additionally, QAP-3-10 requires the use of design input lists, which are transmitted with the drawings during interdisciplinary review; these list control additional design information transmitted internal to the design organization. The corrective action is considered satisfactory.

Adverse Condition Part E:

Contrary to the requirements of NQA-1, Supplement 3s-1, 'Supplementary Requirements for Design Control,' Section 7, 'Documentation and Records,' first sentence, procedures do not require documentation of reviews (intra/inter discipline) for drawings, calculations, design specifications, and technical documents.

Remedial Action Commitment: Intra and inter discipline reviews of drawings, calculations, design specifications, and technical documents are accomplished and are documented on the review record/print review copy as applicable. QAPs in the 3 series will be revised and will be supplemented by ILPs as necessary to adequately prescribe/describe the existing review system, including the requirement and method of objective evidence documentation of these reviews.

YMQAD staff reviewed QAP-3-8, QAP-3-9, QAP-3-10 and NLP-3-14. These procedures require the documentation of reviews. Additionally, NLP-3-14 requires check prints to be captured as QA records. YMQAD staff also reviewed the design records package for the ESF Starter Tunnel Test Alcove dated October 8, 1993 and verified that the interdiscipline reviews and check prints are maintained as QA records. This is considered satisfactory.

Perform an impact analysis to evaluate the effect of the deficiencies reported by CAR YM-93-040 on previous design activities.

The M&O has prepared an impact analysis. However, YMQAD will not review the impact analysis until after the M&O has completed all other corrective action on CAR YM-93-040. The M&O may revise the impact analysis based on the actions necessary to complete all corrective action.

SURVEILLANCE CONCLUSIONS:

YMQAD staff verified that corrective action for the following items on CAR YM-93-040 are satisfactory:

- Adverse Condition Part B, Item B
- Adverse Condition Part B, Item D
- Adverse Condition Part C
- Adverse Condition Part D
- Adverse Condition Part E

YMQAD Staff were unable to verify corrective action for the following items on CAR YM-93-040:

- Adverse Condition Part A
- Adverse Condition Part B, Item A
- Adverse Condition Part B, Item C
- Adverse Condition Part B, Item E

No CARs were issued as a result of this surveillance. However, CAR YM-93-040 will remain open until all corrective action is complete. A letter to the M&O identifying those items that were not satisfactory was issued in accordance with OCRWM QAP 16.1.