

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

SEP 06 1995

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

EVALUATION OF RESPONSES TO DEFICIENCY REPORTS (DR) YMQAD-95-D-004
THROUGH YMQAD-95-D-006 RESULTING FROM YUCCA MOUNTAIN QUALITY
ASSURANCE DIVISION'S (YMQAD) AUDIT YM-ARP-95-16 OF THE CIVILIAN
RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING
CONTRACTOR (SCPB: N/A)

The YMQAD staff has evaluated the responses to DRs YMQAD-95-D-004
through YMQAD-95-D-006. The responses have been determined to be
satisfactory. Verification of completion of the remedial actions
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 Stephen R. Maslar at 794-7762.

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-4478

Enclosure:
CARS YMQAD-95-D-004
through YMQAD-95-D-006

cc w/encl:

~~U. G. Spraul, NRC, Washington, DC~~
S. W. Zimmerman, NWPO, Carson City, NV
T. A. Wood, HQ (RW-14) FORS
R. L. Robertson, M&O, Vienna, VA
Richard Jiu, M&O, Las Vegas, NV
R. P. Ruth, M&O, Las Vegas, NV

cc w/o encl:

W. L. Belke, NRC, Las Vegas, NV
D. G. Sult, YMQAD/QATSS, Las Vegas, NV

YMP-5

9509120239 950906
PDR WASTE
WM-11 PDR

NH03 1/1
102.7
WM-11

SEP 06 1995

L. Dale Foust

-2-

bcc w/encl:

J. W. Estella, M&O, Las Vegas, NV

S. R. Maslar, YMQAD/QATSS, Las Vegas, NV

J. R. Matras, YMQAD/QATSS, Las Vegas, NV

R. L. Craun, YMSCO, NV

J. M. Replogle, YMSCO, NV

B. J. Verna, YMSCO, NV

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

8 ☐ Performance Report
☒ Deficiency Report
NO: YMQAD-95-D-004
PAGE 1 OF 2
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QARD and QAP 2-0, "Control of Activities."

2 Related Report No.
YM-ARP-95-16

3 Responsible Organization:
CRWMS M&O

4 Discussed With:
Hugh Benton, Tom Doering

5 Requirement/Measurement Criteria:

1. QARD Para. 2.2.3.F "...quality assurance controls (grading) shall be applied to the degree commensurate with the 1) function or end use of the item, 2) consequence of failure..."
2. QARD Para. 3.1 "This section provides requirements to ensure that designs (from conceptual through final) are defined, controlled, and verified."
3. QAP-2-0 Para. 5.2.A.2 "If the activity must proceed prior to the item being evaluated in accordance with QAP-2-3, assume the item will be subject to QARD requirements."

6 Description of Condition:

1. None of the design analysis that will be resulting from waste package Advanced Conceptual Design activities will be subject to QARD requirements based on CRWMS M&O QAP-2-0 Evaluation forms. The rationale for this determination is contained on QAP-2-0 Evaluation forms and does not reflect consideration of the requirements of QARD Paras. 2.2.3.F and 3.1. The same Evaluation forms are being used for the next phase of Waste Package design activities, Preliminary Design.
2. Shielding analyses have been completed for the waste package transporter. The QAP-2-0 Evaluation form (BB0000000-01717-2200-00026) indicates the analyses are not subject to QARD controls because, in part, the transporter is not on the Q-List or otherwise subject to the QARD. A QAP-2-3 Evaluation has not yet been completed for the transporter.

7 Initiator

Marc J. Meyer

9 QA Review

QAR

11 QA Issuance Approval

QAR (PRI)/AOQAM (DRI)

10 Response Due Date

20 Working Days From Issuance

12 Remedial Actions:

13 Remedial Action Response By:

SEE ATTACHED PAGES

Date

14 Remedial Action Due Date

SEE ATTACHED PAGES

Date

15 Remedial Action Response Acceptance

QAR SEE ATTACHED PAGES

Date

16 PR Verification/Closure

QAR SEE ATTACHED PAGES

Date

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

8
DR NO. YMQAD-95-D-004
PAGE 2 OF 2
QA: L

DEFICIENCY REPORT

17 Recommended Actions:
Update evaluation forms as appropriate.

18 Investigative Actions:

19 Root Cause Determination:

20 Action to Preclude Recurrence:

21 Response by:
26
8/31/95 See Attached Pages Date

22 Corrective Action Completion Due Date:
26
8/31/95 See Attached Pages

23 Response Accepted
26
8/31/95 QAR See Attached Pages Date

24 Response Accepted
26
8/31/95 AOQAM SEE ATTACHED PAGES Date

25 Amended Response Accepted
QAR Date

26 Amended Response Accepted
AOQAM Date

27 Corrective Actions Verified
QAR Date

28 Closure Approved by:
AOQAM Date

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

8 ☐ Performance Report
☒ Deficiency Report
NO.YMQAD-95-D-004
PAGE 1 OF 2
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QARD and QAP 2-0, "Control of Activities."

2 Related Report No.
YM-ARP-95-16

3 Responsible Organization:
CRWMS M&O

4 Discussed With:
Hugh Benton, Tom Doering

5 Requirement/Measurement Criteria:

1. QARD Para. 2.2.3.F "...quality assurance controls (grading) shall be applied to the degree commensurate with the 1) function or end use of the item, 2) consequence of failure..."
2. QARD Para. 3.1 "This section provides requirements to ensure that designs (from conceptual through final) are defined, controlled, and verified."
3. QAP-2-0 Para. 5.2.A.2 "If the activity must proceed prior to the item being evaluated in accordance with QAP-2-3, assume the item will be subject to QARD requirements."

6 Description of Condition:

1. None of the design analysis that will be resulting from waste package Advanced Conceptual Design activities will be subject to QARD requirements based on CRWMS M&O QAP-2-0 Evaluation forms. The rationale for this determination is contained on QAP-2-0 Evaluation forms and does not reflect consideration of the requirements of QARD Paras. 2.2.3.F and 3.1. The same Evaluation forms are being used for the next phase of Waste Package design activities, Preliminary Design.
2. Shielding analyses have been completed for the waste package transporter. The QAP-2-0 Evaluation form (BB0000000-01717-2200-00026) indicates the analyses are not subject to QARD controls because, in part, the transporter is not on the Q-List or otherwise subject to the QARD. A QAP-2-3 Evaluation has not yet been completed for the transporter.

7 Initiator

Marc J. Meyer

Date 8/2/95

9 QA Review

QAR

John R Matras

Date 8/2/95

10 Response Due Date

20 Working Days From Issuance

11 QA Issuance Approval

QAR (PRI)/AOQAM (DRI)

Date 8.2.95

12 Remedial Actions:

SEE RESPONSE ON P.3 OF 3

13 Remedial Action Response By:

Date 8/30/95

14 Remedial Action Due Date

OCTOBER 6, 1995

Date

15 Remedial Action Response Acceptance

QAR

Date 8/31/95

16 PR Verification/Closure

QAR

N/A

Date

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

8
DR NO. YMQAD-95-D-004
PAGE 2 OF 2
QA: L

DEFICIENCY REPORT

17 Recommended Actions:

Update evaluation forms as appropriate.

18 Investigative Actions:

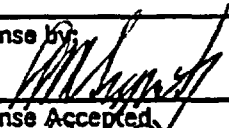
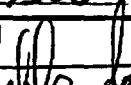
SEE RESPONSE ON P. 3 OF 3

19 Root Cause Determination:

SEE RESPONSE ON P. 3 OF 3

20 Action to Preclude Recurrence:

SEE RESPONSE ON P. 3 OF 3

21 Response by:  Date 8/30/95	22 Corrective Action Completion Due Date: OCTOBER 6, 1995
23 Response Accepted OAR John Matras Date 8/31/95	24 Response Accepted AOQAM  Date 9-5-95
25 Amended Response Accepted OAR Date	26 Amended Response Accepted AOQAM Date
27 Corrective Actions Verified OAR Date	28 Closure Approved by: AOQAM Date

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

8 ☐ Performance Report
☒ Deficiency Report

NO. LVMO-95-D-004

PAGE 3

OF 3

QA: LJB 50.95

PR/DR CONTINUATION PAGE

Continuation of Block 12 (Remedial Actions):

1. All Waste Package Development Department QAP-2-0 evaluations will be reviewed and revised as necessary, to insure that QARD control of activities related to MGDS Q-List items is applied properly.
2. Waste Package Development Department activities which include scoping analyses will be reevaluated to determine QARD applicability.

Continuation of Block 18 (Investigative Actions):

1. All Waste Package Development Department QAP-2-0 evaluations have been reviewed and revised as necessary to insure proper QARD control of activities related to MGDS Q-List items.
2. Waste Package Development Department activities which include scoping analyses have been reevaluated to determine QARD applicability.
3. A review of QAP-2-0, Control of Activities, REV 02, reveals that further clarification of what constitutes being "related" to an item on the WAST/MGDS Q-List would be helpful to the user of QAP-2-0. The scope of QAP-2-0 shall meet QARD requirements addressing scoping analyses. A Procedure Action Request for QAP-2-0 will be submitted which will expand on these recommendations.
4. The shielding analysis in question will be evaluated to determine whether its validity is impacted by the revised QAP-2-0 evaluation.

Continuation of Block 19 (Root Cause Determination):

No root cause determination based on investigative actions.

Continuation of Block 20 (Action to Preclude Recurrence):

1. All applicable QAP-2-0 evaluations have been revised to reflect that activities which include scoping analyses will be subject to QARD control. This action will preclude the recurrence of this deficiency.

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

8 ☐ Performance Report
☒ Deficiency Report
NO. YMQAD-95-D-005
PAGE 1 OF 3
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QAP 3-9, Revision 5

2 Related Report No.
YM-ARP-95-16

3 Responsible Organization:
CRWMS M&O

4 Discussed With:
Hugh Benton

5 Requirement/Measurement Criteria:
QAP 3-9, Revision 5, Attachment I, Item 7

Design Analysis - requires the complete presentation of the analysis, including all calculations, are to be included such that any qualified individual could review the analysis without recourse to the originator.

6 Description of Condition:

Contrary to the above requirement, examination of "Analysis of Degradation due to Water and Gases in MPC," Document Identifier BB00000000-01717-0200-00005, Revision 00, "Initial Waste Package Probabilistic Criticality Analysis: Multi-Purpose Canister with Disposal Container (TBV-060-WPD)" Document Identifier B000000000-01717-2200-00080, Revision 00, and "Initial Waste Package Probabilistic Criticality Analysis: Uncanistered Fuel (TBV-069-WPD," Document Identifier B000000000-01717-2200-00079, Revision 00 showed that this requirement was not complied with. These documents do provide the basic data and do describe how the calculations were performed, but do not include an actual copy of these calculations. For example, on page 6 of "Analysis of Degradation due to Water and Gases in MPC" the statement is included that the vapor pressure of water at 295K was calculated by linear interpolation. However, the vapor pressure actually used, as cited from the reference are not given, nor the conversion factors from Fahrenheit to Celsius, nor from psia to Pa. The temperatures used, 71 and 72 F, the corresponding pressures, 0.37549 and 0.38844 psia, the conversion of 295K to $F(295-273.15) \times 9/5 + 32 = 71.33$, the interpolation, $0.33 \times (0.3884 - 0.37519) + 0.37549 = 0.383064$ psia, and the conversion to Pa should all have been shown. Similarly, the details of the interpolation for density of saturated liquid water at 295K and the enthalpy of vaporization for water at 295K should have

7 Initiator
S. R. Maslow
Stephen R. Maslow

Date *8/2/95*

9 QA Review
S. R. Maslow
QAR

Date *8/2/95*

10 Response Due Date

20 Working Days from Issuance

11 QA Issuance Approval

QAR (PR)/AOQAM (DR) *[Signature]* Date *8.2.95*

12 Remedial Actions:

13 Remedial Action Response By:

SEE ATTACHED PAGES Date

14 Remedial Action Due Date

SEE ATTACHED PAGES Date

15 Remedial Action Response Acceptance
SEE ATTACHED PAGES
QAR Date

16 PR Verification/Closure
QAR *N/A* Date

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

⁸
DR NO. YMQAD-95-D-005
PAGE 2 OF 3
QA: L

DEFICIENCY REPORT

17 Recommended Actions:

Review extent of problem and establish corrective action.

18 Investigative Actions:

19 Root Cause Determination:

20 Action to Preclude Recurrence:

21 Response by:

OS 8/31/95 See Attached Pages Date

22 Corrective Action Completion Due Date:

OS 8/31/95 See Attached Pages

23 Response Accepted

OS 8/31/95 See Attached Pages Date

24 Response Accepted

OS 8/31/95 SEE ATTACHED PAGES Date

25 Amended Response Accepted

QAR Date

26 Amended Response Accepted

AOQAM Date

27 Corrective Actions Verified

QAR Date

28 Closure Approved by:

AOQAM Date

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

8 ☐ Performance Report
☒ Deficiency Report

NO.YMQAD-95-D-005
PAGE 3 OF 3
QA: L

PR/DR CONTINUATION PAGE

Block 6 (Continued)

been provided. It is noted that one of these values was calculated incorrectly. Identification of, or perhaps avoidance of, the error would have been assisted by having the details of the calculation at hand during the review by the document checker.

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

8 ☐ Performance Report
☒ Deficiency Report
NO. YMQAD-95-D-005
PAGE 1 OF 3
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QAP 3-9, Revision 5

2 Related Report No.
YM-ARP-95-16

3 Responsible Organization:
CRWMS M&O

4 Discussed With:
Hugh Benton

5 Requirement/Measurement Criteria:
QAP 3-9, Revision 5, Attachment I, Item 7

Design Analysis - requires the complete presentation of the analysis, including all calculations, are to be included such that any qualified individual could review the analysis without recourse to the originator.

6 Description of Condition:

Contrary to the above requirement, examination of "Analysis of Degradation due to Water and Gases in MPC," Document Identifier BB00000000-01717-0200-00005, Revision 00, "Initial Waste Package Probabilistic Criticality Analysis: Multi-Purpose Canister with Disposal Container (TBV-060-WPD)" Document Identifier B000000000-01717-2200-00080, Revision 00, and "Initial Waste Package Probabilistic Criticality Analysis: Uncanistered Fuel (TBV-069-WPD)," Document Identifier B000000000-01717-2200-00079, Revision 00 showed that this requirement was not complied with. These documents do provide the basic data and do describe how the calculations were performed, but do not include an actual copy of these calculations. For example, on page 6 of "Analysis of Degradation due to Water and Gases in MPC" the statement is included that the vapor pressure of water at 295K was calculated by linear interpolation. However, the vapor pressure actually used, as cited from the reference are not given, nor the conversion factors from Fahrenheit to Celsius, nor from psia to Pa. The temperatures used, 71 and 72 F, the corresponding pressures, 0.37549 and 0.38844 psia, the conversion of 295K to $F(295-273.15) \times 9/5 + 32 = 71.33$, the interpolation, $0.33 \times (0.3884 - 0.37519) + 0.37549 = 0.383064$ psia, and the conversion to Pa should all have been shown. Similarly, the details of the interpolation for density of saturated liquid water at 295K and the enthalpy of vaporization for water at 295K should have

7 Initiator
Stephen R. Maslar

Date 8/2/95

9 QA Review
QAR S. R. Maslar

Date 8/2/95

10 Response Due Date

20 Working Days from Issuance

11 QA Issuance Approval

QAR (PR)/AOQAM (DR) [Signature] Date 8.2.95

12 Remedial Actions:

SEE RESPONSE ON P. 3 OF 3

13 Remedial Action Response By:

Date 8/30/95

14 Remedial Action Due Date

OCTOBER 6, 1995 Date

15 Remedial Action Response Acceptance

QAR S. R. Maslar Date 9/1/95

16 PR Verification/Closure

QAR N/A Date

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

8
DR NO. YMQAD-95-D-005
PAGE 2 OF 3
QA: L

DEFICIENCY REPORT

17 Recommended Actions:

Review extent of problem and establish corrective action.

18 Investigative Actions:

SEE RESPONSE ON P. 3 OF 3

19 Root Cause Determination:

SEE RESPONSE ON P. 3 OF 3

20 Action to Preclude Recurrence:

SEE RESPONSE ON P. 3 OF 3

21 Response by:

Date *8/30/95*

22 Corrective Action Completion Due Date:

OCTOBER 6, 1995

23 Response Accepted

QAR

Date

9/1/95

24 Response Accepted

AOQAM

Date

9.5.95

25 Amended Response Accepted

QAR

Date

26 Amended Response Accepted

AOQAM

Date

27 Corrective Actions Verified

QAR

Date

28 Closure Approved by:

AOQAM

Date

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

8 ☐ Performance Report
☒ Deficiency Report

NO. YMQAD-95-D-005

PAGE 3 OF 3

QA: L

PR/DR CONTINUATION PAGE

6 (Continued)

been provided. It is noted that one of these values was calculated incorrectly. Identification of, or perhaps avoidance of, the error would have been assisted by having the details of the calculation at hand during the review by the document checker.

12 Remedial Actions:

A revision will be issued for each of the documents (B00000000-01717-2200-00080 REV 00, B00000000-01717-2200-00079 REV 00 & BB0000000-01717-0200-00005 REV 00) with attachments illustrating the steps of all hand calculations.

A PAR on QAP-3-9 will be initiated, as specified in block 20, below.

18 Investigative Actions:

Of the 5 Waste Package Development documents prepared under QAP-3-9, three were the subject of this DR. The other two were reviewed for compliance as part of this investigation.

In one of the documents (BB0000000-01717-0200-00003 Rev 00) there were a number of dimensions given in both the English and the metric system. All of the conversions were a single multiplication or division, by a conversion factor known to engineers generally. There were no other calculations in the document.

In the other document (BBA000000-01717-0200-00121 Rev 00) the calculations involved repeated application of a simple formula to data from a large file, and tabulation of the results. The input data were identified as belonging to the Characteristics Database (CDB), a QA certified database. This CDB file is in dBASE IV format, and the source code (in dBASE programming language) giving the formula, which was applied to the data, is included. The checking was by an independent program which applied the same formula in FORTRAN.

It is, therefore, concluded that both documents have adequate detail and explanation of the calculations.

19 Root Cause Determination:

No root cause determination, based upon investigative actions.

20 Action to preclude recurrence:

QAP-3-9 Attachment I, section 7 (Design Analysis) should be revised to read as follows:

7. Design Analysis - The complete analysis; including calculations, shall be presented in sufficient detail that a qualified individual would be able to understand, and reproduce, the analysis without recourse to the originator.

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

8 ☐ Performance Report
☒ Deficiency Report
NO. YM-QAD-95-D-006
PAGE 1 OF 3
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QAP 3-9, Revision 5

2 Related Report No.
YM-ARP-95-16

3 Responsible Organization:
CRWMS M&O

4 Discussed With:
Hugh Benton

5 Requirement/Measurement Criteria:

Para 5.2.3A: Requires a check of the design analysis for completeness and technical adequacy.

Para 5.2.3B: Requires a check that design inputs were correctly selected and incorporated, are appropriate for use in the design.

6 Description of Condition:

Contrary to the above requirements, the following conditions are noted:

- Document BB0000000-01717-0200-00005, revision 00 and BB0000000-01717-0200-00003, revision 00 - the discipline check copy reviewed does not provide objective evidence that the above requirements were checked. The checklists used did not require a check to verify the above requirements. The checklist used is a compliance (procedure) checklist. One of the checklist questions that was noted as satisfactory could not have been completed at the time of the discipline check. This question is: Are appropriate signatures in place with proper dates on the design analysis review summary?
- Margin and text notations in the initial copy for "Initial Waste Package Probabilistic Criticality Analysis: Uncanistered Fuel (TBV-069-WPD)" Document Identifier B00000000-01717-2200-00079, Revision 00A do provide objective evidence that calculations were checked. However, none of the back check copy, Revision 00B; the final check copy, Revision 00D; nor the final version, Revision 00, provide objective evidence that these documents underwent the same careful scrutiny. Changes made as a

7 Initiator

S. R. Maslow
Stephen R. Maslar

Date *8/2/95*

9 QA Review

S. R. Maslow Date *8/2/95*
QAR

10 Response Due Date

20 Working Days From Issuance

11 QA Issuance Approval

[Signature] for Date *8.2.95*
QAR (PRI)/AOQAM (DR)

12 Remedial Actions:

13 Remedial Action Response By:

SEE ATTACHED PAGES Date *8/31/95*

14 Remedial Action Due Date

SEE ATTACHED PAGES Date

15 Remedial Action Response Acceptance

SEE ATTACHED PAGES Date *8/31/95*
QAR

16 PR Verification/Closure

SEE ATTACHED PAGES Date
QAR

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

8
DR NO. YMQAD-95-D-006
PAGE 2 OF 3
QA: L

DEFICIENCY REPORT

17 Recommended Actions:

Evaluate extent of the problem and insure recently implemented corrective actions will be effective.

18 Investigative Actions:

19 Root Cause Determination:

20 Action to Preclude Recurrence:

21 Response by:

DS 9/31/95
See Attached Pages Date

22 Corrective Action Completion Due Date:

DS 9/31/95
See Attached Pages

23 Response Accepted

DS 9/31/95
OAR *See Attached Pages* Date

24 Response Accepted

DS 9/31/95
AOQAM *SEE ATTACHED PAGES* Date

25 Amended Response Accepted

OAR Date

26 Amended Response Accepted

AOQAM Date

27 Corrective Actions Verified

OAR Date

28 Closure Approved by:

AOQAM Date

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

8 ☐ Performance Report
☒ Deficiency Report

NO.YMQAD-95-D-006

PAGE 3 OF 3

QA: L

PR/DR CONTINUATION PAGE

Block 6 (Continued)

consequence of a notation in revision 00A added new text and data, of which one datum was wrong. This error appears in the final document, Revision 00.

3. The same error also appears in the corresponding place in "Initial Waste Package Probabilistic Criticality Analysis: Multi-Purpose Canister with Disposal Container (TBV-060-WPD)," Document Identifier B00000000-01717-2200-00080, Revision 00, again with no objective evidence that calculations were rechecked. The initial review for this document was begun after the final check for the previous document.

4. It is also noted that for BB0000000-01717-0200-0003, Revision 00, there is no objective evidence that the checker reviewed the check copy. No initials exist on any page of the check copy. Further, the design analysis checklist is signed by a different individual than the one that signed as the checker on the design analysis review summary sheet.

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

8 ☐ Performance Report
☒ Deficiency Report
NO. YM-QAD-95-D-006
PAGE 1 OF 3
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:
QAP 3-9, Revision 5

2 Related Report No.
YM-ARP-95-16

3 Responsible Organization:
CRWMS M&O

4 Discussed With:
Hugh Benton

5 Requirement/Measurement Criteria:

Para 5.2.3A: Requires a check of the design analysis for completeness and technical adequacy.

Para 5.2.3B: Requires a check that design inputs were correctly selected and incorporated, are appropriate for use in the design.

6 Description of Condition:

Contrary to the above requirements, the following conditions are noted:

1. Document BB0000000-01717-0200-00005, revision 00 and BB0000000-01717-0200-00003, revision 00 - the discipline check copy reviewed does not provide objective evidence that the above requirements were checked. The checklists used did not require a check to verify the above requirements. The checklist used is a compliance (procedure) checklist. One of the checklist questions that was noted as satisfactory could not have been completed at the time of the discipline check. This question is: Are appropriate signatures in place with proper dates on the design analysis review summary?

2. Margin and text notations in the initial copy for "Initial Waste Package Probabilistic Criticality Analysis: Uncanistered Fuel (TBV-069-WPD)" Document Identifier B00000000-01717-2200-00079, Revision 00A do provide objective evidence that calculations were checked. However, none of the back check copy, Revision 00B; the final check copy, Revision 00D; nor the final version, Revision 00, provide objective evidence that these documents underwent the same careful scrutiny. Changes made as a

7 Initiator *S. R. Maslar*
Stephen R. Maslar

Date *8/2/95*

9 QA Review

QAR *S. R. Maslar*

Date *8/2/95*

10 Response Due Date

20 Working Days From Issuance

11 QA Issuance Approval

QAR (PRI)/AOQAM (DRI) *[Signature]* for Date *8-2-95*

12 Remedial Actions:

SEE RESPONSE ON P. 3 OF 3

13 Remedial Action Response By

Date *8/30/95*

14 Remedial Action Due Date

OCTOBER 6, 1995

Date

15 Remedial Action Response Acceptance

QAR *S. R. Maslar*

Date *9/1/95*

16 PR Verification/Closure

QAR *N/A*

Date

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

8
DR NO. YMQAD-95-D-006
PAGE 2 OF 3
QA: L

DEFICIENCY REPORT

17 Recommended Actions:

Evaluate extent of the problem and ensure recently implemented corrective actions will be effective.

18 Investigative Actions:

Technical and compliance checking of all quality affecting engineering documents, including Design Analyses, is the responsibility of the Product Checking Group (PCG). The MGDS Design Guidelines Manual DI# B00000000-01717-3500-00001 Rev 01, issued 5/29/95, requires that "the PCG manager, in conjunction with the LDE, will select qualified personnel to check the engineering document." Conversations with the Product Checking Group Manager and group members (those checking engineering documents on a full time basis) have indicated that the deficiencies cited in (6) would without question be discovered during the checking process now in effect. The new Design Analysis Checklist is much more comprehensive than the checklists employed while checking the four documents cited in (6). Furthermore, PCG checks each document twice (Check Copy and Final Check Copy).

19 Root Cause Determination:

No root cause identification of condition is required, based on investigative action.

20 Action to Preclude Recurrence:

The MGDS Design Guidelines Manual Rev 01, 5/29/95, which was issued by PCG subsequent to preparation of each of the four Design Analysis documents cited in (6), presents an extensive Design Analysis Checklist which now addresses both technical check (question 7, with many subparts) and compliance check. Mandatory use of the Design Analysis Checklist is invoked by NLP-3-28 Checklists for Design Products Rev 00, 8/11/95. The Design Analysis Checklist is much more comprehensive than the checklists employed while checking the four documents cited in (6). Furthermore, the PCG MGDS Design Guidelines Manual requires that "the PCG manager, in conjunction with the LDE, will select qualified personnel to check the engineering document." If not a permanent PCG member, the selected person will perform only a technical check, unless authorized by the PCG manager to also perform the compliance check; otherwise a PCG member will be assigned to perform a separate compliance check (thus there may be two checkers; one for technical and one for compliance). PCG checks both the Check Copy and the Final Check Copy.

21 Response by <i>[Signature]</i> Date <i>8/30/95</i>	22 Corrective Action Completion Due Date: 10/06/95
23 Response Accepted QAR <i>S. R. Martin</i> Date <i>9/1/95</i>	24 Response Accepted AOQAM <i>[Signature]</i> Date <i>9.5.95</i>
25 Amended Response Accepted QAR _____ Date _____	26 Amended Response Accepted AOQAM _____ Date _____
27 Corrective Actions Verified QAR _____ Date _____	28 Closure Approved by: AOQAM _____ Date _____

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

8 ☐ Performance Report
☒ Deficiency Report

NO. YMQAD-95-D-006

PAGE 3 OF 3

QA: L

PR/DR CONTINUATION PAGE

Block 6 (Continued)

consequence of a notation in revision 00A added new text and data, of which one datum was wrong. This error appears in the final document, Revision 00.

3. The same error also appears in the corresponding place in "Initial Waste Package Probabilistic Criticality Analysis: Multi-Purpose Canister with Disposal Container (TBV-060-WPD)," Document Identifier B00000000-01717-2200-00080, Revision 00, again with no objective evidence that calculations were rechecked. The initial review for this document was begun after the final check for the previous document.

4. It is also note that for BB0000000-01717-0200-00003, Revision 00, there is no objective evidence that the checker reviewed the check copy. No initials exist on any page of the check copy. Further, the design analysis checklist is signed by a different individual than the one that signed as the checker on the design analysis review summary sheet.

Block 12 Remedial Actions:

IOC LV.MG.AMS.8/95-129, Checking/Review by Product Checking Group (SCPB: N/A), 8/21/95 states that Product Checking Group (PCG) check is mandatory for Design Analyses, Specifications, and Drawings that are quality affecting.

Regarding Block 6 Item 1: NLP-3-28, Checklists for Design Products, Rev 0, 8/11/95, requires use of expanded technical and compliance checklists. A signed and dated notation by the technical checker (A. Roy) has been added to document BB0000000-01717-0200-00003 Cover Sheet attesting that Dr. Roy performed the technical check on 2/15/95, the day before he signed the Review Summary sheet box #7. Document BB0000000-01717-0200-00005 will be corrected and reissued as Revision 01; the revisions will be checked by the individual(s) designated by PCG.

Regarding Block 6 Items 2 and 3: Each document (B00000000-01717-2200-00079 and B00000000-01717-2200-00080) will be corrected and reissued as Revision 01; the revisions to each will be checked by the individual(s) designated by PCG.

Regarding Block 6 Item 4: A signed and dated notation by the technical checker (A. Roy) has been added to document BB0000000-01717-0200-00003 Cover Sheet attesting that Dr. Roy performed the technical check on 2/15/95, the day before he signed the Review Summary sheet box #7. Two checker signatures will occur whenever PCG assigns different individuals to perform the technical check and the compliance check.