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

OCT 09 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

EVALUATION OF AMENDED RESPONSE TO DR YM-96-D-042 RESULTING FROM HEADQUARTERS QUALITY ASSURANCE AUDIT HQ-ARC-96-01

The Yucca Mountain Quality Assurance staff has evaluated the amended response to Deficiency Report YM-96-D-042. The amended 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 that date. Please send a copy of extension requests to Deborah Sult, YMQA/QATSS, P.O. Box 98608, Mail Stop 455, Las Vegas, Nevada 89193-8608.

If you have any questions, please contact either Mario R. Diaz at (702) 794-1489 or James T. Schmit at (702) 794-1472.

R. E. Spence

Richard E. Spence
Yucca Mountain Quality Assurance

YMQA:MRD-0042

Enclosure:
DR YM-96-D-042

cc w/encl:
T. A. Wood, DOE/HQ (RW-14) FORS
J. G. Spraul, NRC, Washington, DC
S. W. Zimmerman, NWPO, Carson City, NV
R. L. Strickler, M&O, Vienna, VA
B. R. Justice, M&O, Las Vegas, NV
Records Processing Center

cc w/o encl:
W. L. Belke, NRC, Las Vegas, NV
J. T. Schmit, YMQA/QATSS, Las Vegas, NV
D. G. Sult, YMQA/QATSS, Las Vegas, NV
D. G. Horton, DOE/OQA, Las Vegas, NV

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102.7

YMP-5

Recipients/Hillis

Mailed with memo dated 2/9/96 THIS IS A RED STAMP

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

8 ☐ Performance Report ☑ Deficiency Report
NO. ~~YMOAD-96-D042~~ YM-96-D-042
PAGE 1 OF 3
QA: L

PERFORMANCE/DEFICIENCY REPORT

1 Controlling Document:	2 Related Report No.
OCRWM QARD DOE/RW-0333P, Revision 5	HQ-ARC-96-01, CAR YM-95-028
3 Responsible Organization:	**4 Discussed With:**
CRWMS M&O	A. Segrest

5 Requirement/Measurement Criteria:
QARD Section 17.0

Paragraph 17.2.2.D states in part: "... Records shall be considered QA records when stamped, initialed, or signed and dated as complete."

QAP-17-1, Rev. 4 (Record Source Responsibilities for Incusionary Records), Para. 5.4.2.E.1 states: "The Record Source shall: submit original or copies of individual inclusionary records, records package segments, and records packages required by the procedures governing an activity, hardcopy and unbound whenever possible, to the RPC no later than 20 working days after completion (e.g., upon final approval signature) for the Nevada Site...."

6 Description of Condition:
Contrary to the above requirements, QA records were not submitted to the RPC within 20 working days after completion.

Examples:

1. An Impact Review Action Notice requesting review of a letter from Hollins to Segrest (per NLP-3-26, Rev. 0) was completed 8-11-95 and had not been submitted to the RPC as of 2/14/96.

2. Two (2) Title III Documentation Instructions (DI# BABEA0000-01717-5600-00001, Rev .0 and DI# BABEA0000-01717-5600-00002, Rev .0) were completed 11-3-95 and had not been submitted to the RPC as of 2/14/96.

3. Engineering Change Requests No. E96-0035, E96-0036, E96-0037, and E96-0038 were completed 12/21/95 and submitted to the RPC 2/6/96.

(Continued)

7 Initiator	9 QA Review
J. T. Schmit Date 02/16/96	QAR J. T. Schmit Date 02/16/96
10 Response Due Date	**11 QA Issuance Approval**
~~3/19/96~~ 20 WORKING DAYS FROM ISSUANCE	QAR (PR)/AD QAM (DR) Date 2-26-96

12 Remedial Actions:

SEE PR/OR CONTINUATION P. 4 OF

13 Remedial Action Response By	14 Remedial Action Due Date
A.M. SEGREST Date 3-26-96	~~MAY 3, 1996~~ 6-3-96 3-26-96 Date
15 Remedial Action Response Acceptance	**16 PR Verification/Closure**
QAR Date 4/3/96	QAR N/A Date

Exhibit AP-16.1Q.1 Enclosure Rev. 07/03/95

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U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

AMENDED

8 ☐ Performance Report
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~~YMQAD-96-D042~~

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PR/DR CONTINUATION PAGE

6 Description of Condition

Examples (cont'd)

4. QAP-17-6, Rev. 3, (Protection, Retrieval and Retention of Inclusionary Records) was completed and made effective 8/21/95, and was submitted to the RPC on 2/14/96.

5. B00000000-01717-4600-00057, Rev. 01, "Technical Document Preparation Plan for the MGDS Advanced Conceptual Design (Revised) Report" was approved 1/15/96 and had not been submitted to the RPC as of 2/15/96.

6. Borehole Access Request/Completion Report for USW-WT10 was completed 11/13/95 and had not been submitted to the RPC as of 2/14/96.

7. Borehole Access Request/Completion Reports dating back to 3/30/93 were submitted to the RPC on Transmittal No. DRC-164 dated 2/9/96.

9/27/96 LV.MGJSC.9/96-076

YM-96-D-04

8 DR NO. 57 3/12/96
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AMENDED

DEFICIENCY REPORT

17 Recommended Actions:

1. Submit all past due records to the RPC in accordance with QAP-17-1, Rev. 4.

2. Revise PAR for QAP-17-1, Rev. 4, dated 8-7-95 to eliminate change to Para. 5.4.5.A.10, which is in conflict with QARD Section 17.2.2.D.

18 Investigative Actions:

SEE PR/DR CONTINUATION PAGE 5 OF

19 Root Cause Determination:

SEE PR/DR CONTINUATION PAGE 5 OF

20 Action to Preclude Recurrence:

SEE PR/DR CONTINUATION PAGE 5 OF

21 Response by: RM. SECREST Date 3-26-96	22 Corrective Action Completion Due Date: ~~MAY 3, 1996~~ 6-3-96 3-26-96
23 Response Accepted QAR Date 4/3/96	24 Response Accepted AOQAM Date 4.8.96
25 Amended Response Accepted QAR Date 9/30/96	26 Amended Response Accepted AOQAM Date 10/8/96
27 Corrective Actions Verified QAR Date	28 Closure Approved by: AOQAM Date

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WASHINGTON, D.C.

8 ☐ Performance Report
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PR/DR CONTINUATION PAGE

6 Description of Condition

Examples (cont'd)

4. QAP-17-6, Rev. 3, (Protection, Retrieval and Retention of Inclusionary Records) was completed and made effective 8/21/95, and was submitted to the RPC on 2/14/96.

5. B00000000-01717-4600-00057, Rev. 01, "Technical Document Preparation Plan for the MGDS Advanced Conceptual Design (Revised) Report" was approved 1/15/96 and had not been submitted to the RPC as of 2/15/96.

6. Borehole Access Request/Completion Report for USW-WT10 was completed 11/13/95 and had not been submitted to the RPC as of 2/14/96.

7. Borehole Access Request/Completion Reports dating back to 3/30/93 were submitted to the RPC on Transmittal No. DRC-164 dated 2/9/96.

YMQAD-96-2012

8 DR NO. SII 3/12/96
PAGE 3 OF 3
QA: L

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DEFICIENCY REPORT

17 Recommended Actions:

1. Submit all past due records to the RPC in accordance with QAP-17-1, Rev. 4.

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18 Investigative Actions:

SEE PR/DR CONTINUATION PAGE 5 OF

19 Root Cause Determination:

SEE PR/DR CONTINUATION PAGE 5 OF

20 Action to Preclude Recurrence:

SEE PR/DR CONTINUATION PAGE 5 OF

21 Response by: RM. SEGREST Date 3-26-96	22 Corrective Action Completion Due Date: ~~MAY 3, 1996~~ 6-3-96 3-26-96
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PR/DR CONTINUATION PAGE

Response BLOCK 12 **REMEDIAL ACTIONS:**

1. (From Recommended Actions Block 17)
"Submit all past due records to the RPC in accordance with QAP-17-1, Rev . 4."

The examples listed in the DR have been submitted to the RPC or DRC as follows:

1. An Impact Review Action Notice requesting review of a letter from Hollins to Segrest (per NLP-3-26, Rev 0) was completed 8-11-95 and had not been submitted to the RPC as of 2/14/96.
The RPC signed receiving the transmittal for the above document on 2/16/96. #MOY-960125-03

2. Two (2) Title III Documentation Instructions (DI#BABEA0000-01717-5600-00001, Rev 0 and DI# BABEA0000-01717-5600-00002, Rev 0) were completed 11-3-95 and had not been submitted to the RPC as of 2/14/96.
The RPC received the transmittal for the above documents on 2/15/96. #MOY-960125-02

3. Engineering Change Request No. E96-0035, E96-0037, and E96-0038 were completed 12/21/95 and submitted to the RPC 2/6/96.
The RPC had received the above transmittal before the compliance audit.

4. QAP-17-6, Rev 3, (Protection, Retrieval and Retention of Inclusionary Records) was completed and made effective 8/21/95, and was submitted to the RPC on 2/14/96.
The RPC had received the above transmittal during the compliance audit.

5. B00000000-01717-4600-00057, Rev 01 "Technical Document Preparation Plan for the MGDS Advanced Conceptual Design (Revised) Report" was approved 1/15/96 and had not been submitted to the RPC as of 2/15/96.
The RPC has received a segmented package (ref:RPC-960311-01) for the TDPP.

6. Borehole Access Request/Completion Report for USW-WT10 was completed 11/13/95 and had not been submitted to the RPC as of 2/14/96.
The above document was submitted to the area 25 DRC on 2/14/96. This document is being compiled in a segmented package.

7. Borehole Access Request/Completion Reports dating back to 3/30/93 were submitted to the RPC on Transmittal No. DRC-164 dated 2/9/96.
The above documents were submitted to the records segmented package before the audit.

2. (From Recommended Actions Block 17)
"Revise PAR for QAP-17-1, Rev. 4, dated 8-7-95 to eliminate change to Para. 5.4.5.A.10, which is in conflict with QARD Section 17.2.2.D."

The subject section of the PAR was rejected because of the reason cited above. The Procedure, QAP-17-1, is currently being revised to produce Revision 5. The procedure revision is substantially along and is currently ready for another review/concurrence cycle. ATTACHMENT I is a Lotus Notes from the author on the how the wording in this section is intended to read. The closure for this item will be the completed procedure.

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

8 ☐ Performance Report
☑ Deficiency Report

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Response BLOCK 18 INVESTIGATIVE ACTIONS

The investigative action will be conducted primarily by the Office of Product Integrity (OPI) group supported by various M&O operations groups. The focus of the Investigative Action is to determine the extent of a condition identified by Deficiency Report YMQAD-96-D042 regarding records submittal within a 20 day period after completion. The investigative action will be performed to determine the extent and impact of the condition and the results of the determination. The results will establish if a root cause determination and corrective action to preclude recurrence are required, or provide justification for no further actions.

The investigative action will look at a sample (initially approximately 10 %, the sample will be expanded if required) of various Quality Affecting products that were produced by the M&O within the time frame of August 21, 1996 until February 16, 1996. The sample products and/or records packages identified will be identified.

Response BLOCK 19 ROOT CAUSE DETERMINATION

The Root cause is expected to be a conclusion of the Investigative Actions described in Block 18.

Response BLOCK20 ACTION TO PRECLUDE RECURRENCE

The Action to Preclude Recurrence is expected to be developed during the Investigative Actions. The Investigative Actions will determine the severity and the extent of the problem. Once this is known the the Action to Preclude Recurrence will follow.

h:\data\afs\dr042b.afs

ATTACHMENT I

To: Mary Woods
cc:
From: Margie Shepherd
Date: 03/26/96 03:24:44 PM EST
Subject: DR-042

This is the current wording in Draft B of QAP-17-1, Rev. 5. The wording, of course, can change (for the better), but I intend to keep the intent!!!

5.5.6 SUBMITTING RECORDS PACKAGES TO A RECORDS CENTER

The **Record Source** shall:

A. complete a Transmittal/Receipt Acknowledgment, labeling a privileged records package as such in accordance with A-SRP-0032, and forward it with the records package to a Records Center; and

B. submit the original or a legible copy of the records package to a Records Center no later than:

1. 20 working days after completion (e.g., final approval signature) of the last record generated by the subject activity of the records package (not including the Records Package Table of Contents); or

2. for a personnel qualification and training records package, 20 working days after termination of employment with the M&O; or

3. for a procurement records package, in accordance with applicable procurement procedures.

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U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

AMENDED

8 ☐ Performance Report
☑ Deficiency Report

NO. YMQAD-96-D042
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QA: L

PR/DR CONTINUATION PAGE

Response BLOCK 12 REMEDIAL ACTIONS:

1. (From Recommended Actions Block 17)
"Submit all past due records to the RPC in accordance with QAP-17-1, Rev . 4."

The examples listed in the DR have been submitted to the RPC or DRC as follows:

1. An Impact Review Action Notice requesting review of a letter from Hollins to Segrest (per NLP-3-26, Rev 0) was completed 8-11-95 and had not been submitted to the RPC as of 2/14/96.
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2. (From Recommended Actions Block 17)
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U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

AMENDED

8 ☐ Performance Report
☑ Deficiency Report

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QA: L

PR/DR CONTINUATION PAGE

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AMENDED

To: Mary Woods
cc:
From: Margie Shepherd
Date: 03/26/96 03:24:44 PM EST
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B. submit the original or a legible copy of the records package to a Records Center no later than:

1. 20 working days after completion (e.g., final approval signature) of the last record generated by the subject activity of the records package (not including the Records Package Table of Contents); or

2. for a personnel qualification and training records package, 20 working days after termination of employment with the M&O; or

3. for a procurement records package, in accordance with applicable procurement procedures.

PR/DR NO. YMQAD-D-042
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PERFORMANCE/DEFICIENCY REPORT RESPONSE

14 Remedial Actions:
Remedial Actions were previously documented on page 4 of the original DR response for BLOCK 12. These actions were completed per BLOCK 17 Recommended Actions.

15 Extent of Condition: (Not required for PR)
The Extent of Condition is primarily detailed in the Root Cause Analysis, which is covered in BLOCK 16 below. Additional Extent of Condition work was undertaken and reported in OPI report PI-96-059. This report will be sent to the QAR under separate cover to provide further Objective Evidence of actions taken to establish the Extent of Condition.

16 Root Cause Determination: (Not required for PR) Required ☑ Yes ☐ No
A Root Cause Determination was done using the procedure AP-16.4Q, Rev. 0, ICN 0, *Root Cause Determination.*. The Root Cause Determination is included as part of this DR Amended Response as ATTACHMENT II. (NOTE: The Root Cause Determination also has its own attachments)

17 Action to Preclude Recurrence: (Not required for PR) Required ☑ Yes ☐ No
The Action to Preclude Recurrence is included in the Root Cause Determination which is included in this DR as ATTACHMENT II.

18 Corrective Action Completion Due Date:	19 Response by: R.G. VAWTER
02/28/97	☐ Initial ☑ Amended Date 9/27/96 Phone (702) 295-5106

20 Response Accepted		21 Response Accepted (N/A for PR):	
QAR	Date	AOQAM	Date

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
ROOT CAUSE DETERMINATION QUESTIONNAIRE

Refer to Subsection 5.2 and 5.3 of AP-16.4Q for amplification of information.

1. Identify the adverse condition.

   See Attachment 1

2. Indicate *Where* the condition was found.

   See Attachment 1

3. Note *When* the condition was first found.

   See Attachment 1

4. Select which major program element(s) was affected. (Waste Acceptance, Storage, Transportation, or Repository.)

   See Attachment 1

5. Denote the specific area(s) or discipline(s) of the major program element the condition occurred. *(e.g., engineering, design, ES&H)*

   See Attachment 1

6. Determine if the condition is isolated or recurring.

   See Attachment 1

7. Determine if the condition is hardware (item) or programmatic (procedures, personnel) related or both.

   See Attachment 1

8. Denote what organizations are affected by this condition (M&O, USGS, Weston, OCRWM, etc.).

   See Attachment 1

9 Document the changes that have taken place that could have caused the condition.

See Attachment 1

10. Determine the need for sketches or photographs.

See Attachment 1

11. Determine the need for laboratory tests.

See Attachment 1

12. Identify the physical evidence examined.

See Attachment 1

13. Note the relevant documents reviewed.

See Attachment 1

14. Document any other information that may be pertinent to supporting the selection of the correct root cause.

See Attachment 1

15. Interviews conducted: ☐ Yes ☑ No
If Yes, refer to page 3 of this attachment.

RI or designee: (Print)	Signature:	Date:
Robert L. Howard	Robert L. Howard	9/27/96

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
ROOT CAUSE DETERMINATION QUESTIONNAIRE

Root Cause Code:	CAR No./DR No.:
2Ad, 4Bb, 5Ba, 10A	YMQAD-96-D042

Root Cause:

2Ad- Procedure Used Improperly
4Bb- Inadequate Supervision
5Ba- Incomplete Training
10A- Multiple Causes Present

Justification or Rationale for Selected Root Cause:

See Attachment 2

Designee: (Print)	Signature:	Date:
Robert L. Howard	Robert L. Howard	9/27/96
RI: (Print)	**Signature:**	**Date:**
Alden M. Segrest	A. M. Segrest	9/27/96

Attachment 1
Root Cause Determination Questionnaire
for YMQAD-96-D042

1. Identify the adverse condition.

According to Deficiency Report YMQAD-96-D042, the CRWMS M&O was not complying with the requirements of QARD Section 17.0 Paragraph 17.2.2.D and QAP-17-1 Rev 4. Specifically, QARD Section 17.2.2.D states in part...."Records shall be considered QA records when stamped, initialed, or signed and dated as complete." QAP-17-1 Rev 4 requirements for Record Source Responsibilities for Inclusionary Records paragraph 5.4.2.E.1 states : "The Records Source shall: submit original or copies of individual or inclusionary records, records package segments, and records packages required by the procedures governing an activity, hardcopy and unbound whenever possible, to the RPC no later than 20 working days after completion (e.g., upon final approval signature for the Nevada Site...." Contrary to these requirements, OCRWM OQA Audit HQ-ARC-96-01 revealed that in some instances QA records were not being submitted to the RPC within 20 days after completion. (See Deficiency Report YMQAD-96-D042 section 6 for initial examples of the violation)

2. Indicate *Where* the condition was found.

Initially, all examples of the condition documented in section 6 of Deficiency Report YMQAD-96-D042 were identified at the M&O in Las Vegas. The initial adverse condition described cases where records generated both in Las Vegas and at the Field Operations Center at Nevada Test Site were not being submitted in a timely manner. Investigative action performed by Engineering & Integration Product Integrity Staff revealed that quality related documents generated in the M&O Vienna, Virginia offices were also, in some cases, not submitted to the Records Processing Center in a timely manner.

3. Note *When* the condition was first found.

The condition was first identified in Deficiency Report YMQAD-96-D042 dated February 16, 1996. The condition was identified during OCRWM OQA Audit HQ-ARC-96-01 conducted in early February 1996. YMQAD-96-D042 identified examples of documents dating from August 1995 that had not been submitted to the records processing center as of February 1996. The investigation performed by Engineering and Integration Product Integrity staff also revealed cases of quality related documentation dating from the early Fall of 1995 that had not been submitted to the Records Processing Center in a timely manner.

It should be noted that a similar condition was identified and documented in YMQAD

Attachment 1
Root Cause Determination Questionnaire
for YMQAD-96-D042

Corrective Action Request YM-95-028 in March 1995. The corrective action for that deficiency document was closed out in August 1995.

4. Select which major program element(s) were affected. (Waste Acceptance, Storage, Transportation, or Repository)

As indicated in Question No. 2, originally the examples of the adverse condition that were identified affected only the Repository program element. However, subsequent investigative action has revealed that the M&O Waste Acceptance, Storage, and Transportation (WAST) project is affected as well.

5. Denote the specific areas or disciplines of the major program element the condition occurred.

The following areas in the M&O Nevada had instances of quality related documentation not being turned over in a timely manner:

Scientific Programs Operations
Engineering and Integrations Operations
Support Operations
Site Construction and Operations
Regulatory Operations
Quality Assurance

The following areas in the M&0 Vienna had instances of quality related documentation not being turned over in a timely manner:

Waste Management and Integration
Quality Assurance
Finance and Business

6. Determine if the condition is isolated or recurring.

Based on the examples provided in Deficiency Report YMQAD-96-D042 and the investigative actions documented in Product Integrity Report PI-96-049, the adverse condition is recurring. Additional evidence that the condition is recurring and is not isolated is that the same problem was identified in Corrective Action Request YM-95-028 and Performance Report LVMO-96-P014, Performance Report LVMO-96-P016, Performance Report LVMO-96-P017, Deficiency Report LVMO-96-D055, and Deficiency Report LVMO-96-D056.

Attachment 1
Root Cause Determination Questionnaire
for YMQAD-96-D042

7. Determine if the condition is hardware (item) or programmatic (procedures, personnel) related or both.

The condition identified in Deficiency Report YMQAD-96-D042 is related to the turn over of quality documentation to the records center in a timely manner. It is not related to the adequacy of the documentation. No hardware deficiencies have been identified in examples cited in the deficiency report nor in the subsequent investigative actions. No Non-Conformance Reports have been issued. The condition is therefore clearly a programmatic problem only.

8. Denote what organizations are affected by this condition. (M&O, USGS, Weston, OCRWM, ect.)

As indicated in responses to Questions No. 1, 2, 4, and 5, the condition only applies to the CRWMS M&O. Specifically, the only organizations affected by this condition are those M&O organizations that implement CRWMS M&O QAP-17-1.

9. Document the changes that have taken place that could have caused the condition.

The greatest change that has taken place that may have contributed to or caused the condition was the considerable downsizing and restructuring of staff that took place during Fall 1995 (occurring approximately during the same time frame as the condition occurred.)

10. Determine the need for sketches or photographs.

As noted in the response to Question No. 8, this is a programmatic deficiency and is not related to a hardware failure or deficiency. Therefore, no sketches or photographs are necessary.

11. Determine the need for laboratory tests.

Again, as noted in the response to Question No. 8, this is a programmatic deficiency and is not related to a hardware failure or deficiency. Therefore, no laboratory tests or analyses are required.

12. Identify the physical evidence examined.

As noted in the response to Question No. 8, this is a programmatic deficiency and is not related to a hardware failure or deficiency. No hardware, equipment, tools, or work

areas were required to be evaluated. All evidence examined was in the form of documentation and is discussed in Question No. 13.

13. Identify the relevant documents reviewed.

OCRWM QARD DOE/RW-0333P, Revision 5
CRWMS M&O QAP-17-1 Revision 4
Deficiency Report YMQAD-96-D042
Performance Report LVMO-96-P014
Performance Report LVMO-96-P016
Performance Report LVMO-96-P017
Corrective Action Request YM-95-028
Deficiency Report LVMO-96-D055
Deficiency Report LVMO-96-D056
Surveillance Report 96-NSS-40
Surveillance Report 96-NSS-48
Surveillance Report 96-NSS-61
Completed Training Requirements Report for CAR YM-95-028
Other specific documentation is covered in Product Integrity Report PI-96-059.

14. Document any other information that may be pertinent to supporting the selection of the correct root cause.

Interviews performed during the Investigative Actions for the deficiency and during M&O Quality Assurance surveillances 95-NSS-24, 96-NSS-40, and 96-NSS-48 revealed the following:

In several cases, especially in cases involving the generation of QAP-2-0 activity evaluations, records generators incorrectly assumed that submitting a document to the Document Control Center for controlled distribution in accordance with M&O QAP-6-1 was equivalent to submitting the document to the Records Processing Center. Some records sources based this assumption on previous experience at nuclear power plants where the document control function and the records processing function were performed by the same group. Other records sources based this assumption on the fact that, until recently, the Document Control organization and the Records Processing organization where in the same physical location and therefore functioned as a single unit. Regardless, QAP-2-0 Rev 2 directs the responsible manager to distribute the approved activity evaluation in accordance with QAP-6-1 and process the records in accordance with Section 6 of the procedure. It should be noted that discussions with individuals involved with the QAP-2-0 evaluations that were not submitted to the RPC as

documented in Performance Report LVM0-96-P014 indicated that the individual delegated the responsibility for submitting the activity evaluations to the RPC also assumed that submitting the documents to Document Control in accordance with QAP-6-1 was equivalent to submitting the document to the RPC.

Surveillance Report 96-NSS-48 documented an instance of where the responsible individual knew that the procedure (M&O) required a document to be submitted to the Records Processing Center in accordance with QAP-17-1 but elected not to submit the document because he assumed that it would duplicate a DOE records submittal.

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Results Summary for Root Cause Determination for YMQAD-96-D042:

The Root Cause Investigation has concluded that the following General Cause areas are related to the deficiency described in YMQAD-96-D042:

(1) Implementing Documents
(2) Personnel
(3) Management System
(4) Immediate Supervision
(5) Training

(6) Communications, (7) Scientific Investigation/Design, (8) Human Factors, and (9)Reliability System were eliminated as General Cause categories contributing to the deficiency and therefore the Basic and Root Causes in these General Causes were eliminated as well.

General Cause Category (1)

Implementing Documents, Basic Cause 1A - No Documents and 1B- Wrong/Inadequate Procedure and the Root Causes beneath these Basic Causes were eliminated. The investigation determined that Basic Cause Category 1C - Error in Following Implementing Documents and the Root Cause Category beneath it 1Cg -Ambiguous Instructions, were contributing factors in the deficiency.

General Cause Category (2)

Personnel, both Basic Cause Category 2A-Lack of Attention to a task 2B-Lack of Qualification had Root Causes that contributed to the deficiency. Specifically, weaknesses were found related to the following Root Causes: 2Aa-Carelessness, 2Ac-Work Overload, 2Ad-Procedure used improperly, 2Ba-Individual Not Qualified.

General Cause Category (3)

Management System, Basic Categories 3A- Standards, Policies, and Administrative Controls (SPAC) and 3B- Audits/Evaluations were eliminated as contributing to the deficiency. Basic Cause Category 3C - Corrective Action and Root Cause Category 3Ca- Inadequate Corrective Action were found to contribute to the deficiency.

General Cause Category (4)

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Immediate Supervision, both Basic Cause Category 4A-Immediate Supervision Preparation/Planning and 4B-Supervision During Work had Root Causes that contributed to the deficiency. Specifically, weaknesses were found in the following Root Causes: 4Ab- Inadequate Job Plan, 4Ac-Inadequate Instructions to Subordinates, 4Ae-Inadequate Scheduling, 4Bb- Inadequate Supervision.

General Cause Category (5)

Training, both Basic Cause Category 5A- No Training and 5B- Inadequate Training Methods had Basic Causes that contributed to the deficiency. Specifically, weaknesses were found in the following Root Causes: 5Ab- Infrequent Task, 5Ba- Incomplete Training, and 5Bc- Continuous Training Inadequate, and 5Bd-Inadequate Testing and or Measure of Aptitude.

Breakdown of Contributing Causes by General Cause:

General Cause (1) - Implementing Documents
- Basic Cause 1C - Error in Following Implementing Document
  - Root Cause 1Cg -Ambiguous Instructions

General Cause (2)- Personnel
- Basic Cause 2A-Lack of Attention to a Task
  - Root Cause 2Aa-Carelessness
  - Root Cause 2Ac-Work Overload
  - Root Cause 2Ad-Procedure used improperly
- Basic Cause 2B-Lack of Qualification
  - Root Cause 2Ba-Individual Not Qualified

General Cause (3) - Management System
- Basic Cause 3C - Corrective Action
  - Root Cause 3Ca- Inadequate Corrective Action

General Cause (4)- Immediate Supervision
- Basic Cause 4A-Immediate Supervision Preparation/Planning
  - Root Cause 4Ab- Inadequate Job Plan
  - Root Cause 4Ac-Inadequate Instructions to Subordinates
  - Root Cause 4Ae-Inadequate Scheduling
- Basic Cause 4B-Supervision During Work
  - Root Cause 4Bb- Inadequate Supervision

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General Cause (5) - Training
- Basic Cause 5A- No Training
  - Root Cause 5Ab- Infrequent Task
- Basic Cause 5B- Inadequate Training Methods
  - Root Cause 5Ba- Incomplete Training
  - Root Cause 5Bc- Continuous Training Inadequate
  - Root Cause 5Bd-Inadequate Testing and or Measure of Aptitude

General Relationships Among Contributing Causes:

- Basic Cause 1C - Error in Following Implementing Document
  - Root Cause 1Cg -Ambiguous Instructions
  - Root Cause 2Ad-Procedure used improperly
  - Root Cause 2Aa-Carelessness
  - Root Cause 4Ac-Inadequate Instructions to Subordinates
  - Root Cause 5Ab- Infrequent Task

The general theme underlying the affirmative answers to AP-16.4Q Attachment 9.5 questions indicating that the above causes were contributing factors is that personnel made assumptions about procedure instructions that lead to failure. These incorrect assumptions were in part made because the personnel did not perform the task frequently enough to be familiar with the procedure requirements for records turnover, or that they were careless in following procedure and assumed that instructions for submittal to Document Control were equivalent to instructions for submittal to the Records Processing Center (RPC). *The best single fit for this general weakness is Root Cause 2Ad-Procedures Used Improperly.*

- Basic Cause 4A-Immediate Supervision Preparation/Planning
  - Root Cause 4Ab- Inadequate Job Plan
  - Root Cause 4Ae-Inadequate Scheduling
  - Basic Cause 4B-Supervision During Work
  - Root Cause 4Bb- Inadequate Supervision
  - Root Cause 2Ac-Work Overload

The general theme underlying the affirmative answers to AP-16.4Q Attachment 9.5 questions indicating that the above causes were contributing factors is that Supervision is not emphasizing appropriate turnover activities in during job planning and execution. *The best single fit for this general weakness is Root Cause 4Bb - Inadequate Supervision.*

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Basic Cause 5B- Inadequate Training Methods
Root Cause 3Ca- Inadequate Corrective Action
Root Cause 5Ba- Incomplete Training
Root Cause 5Bc- Continuous Training Inadequate
Root Cause 5Bd-Inadequate Testing and or Measure of Aptitude
Root Cause 2Ba-Individual Not Qualified

The general theme underlying the affirmative answers to AP-16.4Q Attachment 9.5 questions indicating that the above causes were contributing factors is that previous efforts directed at training were not effective enough or provided to a broad enough population to prevent the condition from re-occurring or from preventing the condition from occurring widely through out the M&O. The fact some personnel and supervision still do not understand the records turnover process is further indication that training in this area is not comprehensive enough. *The best single fit for this general weakness is Root Cause 5Ba - Incomplete Training.*

RECURRENCE CONTROL

Based on the analysis of all the contributing causes, attention should be focused on additional mandatory classroom training as part of the recurrence control measures. Specifically, much of weaknesses found related to inappropriate use of procedures, immediate supervision and completeness of training can be improved with a comprehensive training program. This is particularly important since the new records procedure (AP-17.1Q) is expected to be in place at the end of October. Weaknesses found related to personnel errors in following procedures because of ambiguous instructions, procedures not being used properly and not being qualified can be improved with classroom training. Weaknesses due to work overload, inadequate job planning, and inadequate scheduling indicates that records responsibilities need to be re-emphasized to line management. Classroom training should be required for all first line supervisors and above for records source responsibilities. The training should include information related to the different functions of Document Control and Records Processing, delegation of responsibility for administrative details of handling records turnover and subsequent follow up, and including records turnover as part of job planning and scheduling. Testing should be required to measure effectiveness of training regarding records source responsibilities. First Line Supervisors should identify those individuals in their organization who need classroom training regarding records source responsibilities.

Why Extensive Training is A Good Idea

1. The Root Cause Analysis indicates that it is needed.

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2. The process for records source turnover of records is changing in the near future. AP-17.1Q will describe the overall process requirements for records turnover. Personnel will need to become familiar with the new process. Additionally, a significant portion of M&O personnel are not used to working with AP's. Implementation of the new procedure provides a unique window of opportunity to accomplish relevant training.

3. The sufficiency of the administrative record is an important management issue. Quality Assurance Records constitute a significant portion of the documentation of Program decisions completeness of the administrative record. Management can use classroom training as a forum to re-emphasize this issue.

Other Proposed Corrective Actions for Recurrence Control:

1. Re-emphasize the roles and responsibilities of the Records Coordinators in Organizations

2. Re-emphasize the importance of records turnover to line management through staff meetings and re-issuance of Senior Management Policy Statement regarding role of records sources.

Questions Supporting Root Cause Code Determination

1. IMPLEMENTING DOCUMENTS

Was an implementing document related difficulty (procedure/plan wrong or incomplete, not used, or followed incorrectly) involved?

All documents that become QA program records must be developed in accordance with implementing documents. In the M&O procedure system, the procedure that generates the document also sets the requirements for what documents become records. For M&O NLPs and QAPs a standard section (Section 6) describes the requirements for records submittal. Section 6 of all procedures directs records to be submitted in accordance with QAP-17-1. It should be noted that Section 6 of the procedures are written more as requirements rather than as actions for a specific individual. Section 5 of the procedures are written as action step. However, the investigators have reviewed a large sample of QAPs and NLPs and have concluded that the implementing documents generally contain actions in Section 5 for records submittal. As noted below, personnel made errors in following procedures such as assuming that Document Control and the RPC were equivalent and an having inconsistent interpretations regarding

authentication; therefore implementing documents should be considered as a contributing general cause area.

NOTE: Some causes under this section should be considered under Code 8, "Human Factors," if improved human factors design, man-machine, or man-environment conditions could have prevented the difficulty or error. Not all problems or poorly human factored designs can be overcome by providing detailed procedures to explain or work around those problems or designs.

A. No Document

Was no procedure/plan used to do a job?

A stated above, documents must be generated in accordance with procedures in order for them to become QA records.

NOTE: If a procedure/plan was available but not used, the condition should also be considered under Code 3Ac, "SPAC Not Used," because the standard or policy to use procedures to perform all work may not have been used.

a. No Procedure/Plan

Was a procedure/plan not used because no procedure existed for the job or task being performed?

No cases were found during the investigation where a procedure did not exist to generate the record or that does not require record submittal.

b. Not Available

Was a procedure/plan not used because it was not readily available (no copy of the procedure at the work location or there was only one master copy that had to be reproduced for usable field copies)?

No cases were found during the investigation that indicate that the availability of procedures contributed to documents not being submitted to the RPC in a timely manner.

Was a procedure not used because utilization was inconvenient (working conditions or locations such as tight quarters, radiation zones, tunnels, and plastic suits made handling of procedures inconvenient)?

No cases were found during the investigation that indicate that the availability of procedures contributed to documents not being submitted to the RPC in a timely manner.

B. Wrong/Inadequate Procedure/Plan

Was a procedure/plan wrong or incomplete?

Based on the procedure review discussed in response to the first question under "Implementing Documents" the investigators have concluded that wrong or incomplete procedures have not contributed to the deficiency. See Section 1.C.g. below for related information regarding ambiguous instructions.

Did it fail to address a needed precaution, prerequisite or situation that could occur while performing the procedure?

No cases were found during the investigation that indicate that procedures failed to address a needed precaution, prerequisite or situation that contributed to documents not being submitted to the RPC in a timely manner.

a. Typographical Error

Was a typographical error in the procedure/plan responsible for the event?

No cases were found during the investigation that indicate that a typographical error in a procedure or procedures contributed to documents not being submitted to the RPC in a timely manner.

b. Sequence Wrong

Was there an incorrect sequence of steps in the procedure/plan even though the correct information was present?

No cases were found during the investigation that indicate that the sequence of steps in procedures was wrong. Records submittal is required by Section 6 of all M&O QAPs and NLPs.

c. Facts Wrong

Were facts or information in the procedure/plan incorrect?

No cases were found during the investigation that indicate that the requirements in procedures for submitting records contributed to documents not being submitted to the RPC in a timely manner.

d. Situation/Process Requirements not Covered

Were details of the procedure/plan incomplete or the information insufficient?

No cases were found during the investigation that indicate that the procedures contained insufficient information for submitting records or that this might have contributed to documents not being submitted to the RPC in a timely manner.

Did the procedure fail to address all situations that could occur during completion of the procedure? (For example, a step might instruct an operator to remove dirt from a tunnel but does not address where to place the dirt upon removal.)

No cases were found during the investigation that indicate that the procedures should have contained more information regarding specific situations for submitting records or that this might have contributed to documents not being submitted to the RPC in a timely manner.

C. Error in Following

Was a condition caused by making an error while following, or trying to follow, a procedure/plan?

There were several cases found during the investigation where errors were made in following the procedures that generate the documents. For instance, the investigators found that several personnel involved in the preparation of QAP-2-0 Activity Evaluations incorrectly assumed that submitting the activity evaluation for document control in accordance with QAP-6-1 was equivalent to submitting the document to the RPC. This erroneous assumption lead to the documents never being appropriately submitted to the RPC. As an example, the investigation found that for those QAP-2-0 Activity Evaluations documented in Performance Report LVMO-96-P014, the individual delegated responsibility for submitting activity evaluations to Document Control and to the RPC assumed that the two functions and organizations were equivalent. This was definitely part of the contributing factors that lead to the deficiency.

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NOTE: Some errors in following procedures should be considered under Code 3Ac, "SPAC Not Used." An example is an error made because several steps of a procedure were performed at one time and checked off, instead of reading each step, performing the instructions, and checking off the step before proceeding.

If the cause for incorrectly following the procedures cannot be coded in one of the following categories, proceed to Code 8, "Human Factors," and determine if one of those causes is appropriate. If the human factors categories do not apply, consider under Code 3Ac, "SPAC Not Used."

Also, some causes may be considered under Code 5, "Training," if additional training was necessary to successfully complete the procedure.

a. Format Confusing

Was the procedure format confusing or different from the standard format the user was accustomed to using?

No format issues were identified that contributed to documents not being submitted to the RPC in a timely manner were discovered during the investigation.

Were the steps in the procedure not logically grouped?

No cases were found during the investigation that indicate that the logical grouping of procedure steps contributed to documents not being submitted to the RPC in a timely manner.

b. More than One Action per Step

Did some procedural steps have more than one action or direction (can easily lead to actions being skipped)?

No cases were found during the investigation that indicate that having more than one action step in a procedure contributed to documents not being submitted to the RPC in a timely manner.

Did some steps in the procedure state one action to perform that actually required several steps (for example, installing shoring while earth is being removed and guniting is taking place at the same time)?

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No cases were found during the investigation that indicate that one action step in a procedure actually required several steps could have contributed to documents not being submitted to the RPC in a timely manner.

c. Multiple References

Did references to the different physical areas in the procedure, or reference to more than one document, confuse the user?

No cases were found during the investigation that indicate that references to the different physical areas or references to more than one document confused users contributed to documents not being submitted to the RPC in a timely manner.

d. No Sign off Space

Was an error made because each separate action in a step did not have a checkoff space provided?

This is not applicable to YMQAD-96-D042. Sign off spaces are not typically used for individual procedure steps in the implementation of quality assurance program documents.

(An example is a step with a list of electrical terminations to check, but without a separate checkoff space for each termination. A list with several terminations and no checkoff spaces can easily lead to missing one or more terminations.)

e. Checklist Misused

Was a checklist misused (by performing several steps at one time instead of performing each step and checking it off as completed prior to proceeding)?

NOTE: Consider coding under Code 3Ac, "SPAC Not Used," if a checklist was misused, particularly for a procedure that is required to be performed in a step-by-step manner.

This is not applicable to YMQAD-96-D042. Checklists are not typically used.

f. Data/Computation Wrong or Incomplete

Was an error made because of a mistake in recording or transferring data, or because

of incorrect calculations?

Not applicable for YMQAD-96-D042.

g. Ambiguous Instructions

Were the instructions in the procedure/plan unclear, uncertain, or could be interpreted in more than one way?

No cases were found during the investigation that indicate that unclear or uncertain instructions in the procedures lead documents not being submitted to the RPC in a timely manner. However, in some cases, as documented in M&O Surveillance Report 95-NSS-24, individuals have interpreted the act of record authentication in different ways. For instance, some individuals did not recognize that approving a document is an act of authentication and that record authentication occurs when the individual signs block 11 of the Records Package Table of Contents in Attachment V of M&O QAP-17-1 Rev. 4. This interpretation had lead to records sources believing that clock for timeliness begins at the point were the Records Package Table of Contents is completed rather than when the quality related document is approved. ***The multiple interpretations of "authentication" could have contributed to the deficiency.***

h. Inadequate Limits/Parameters

Were limits or permissible operating ranges not expressed in absolute numbers or in a plus (+) or minus (-) format?

Not applicable for YMQAD-96-D042.

2. PERSONNEL

Was the event caused by error on the part of an individual?

Personnel factors that affect performance include emotional strain, sickness, injury, fatigue, medication, interpersonal friction, or environmental conditions at a preceding task. The worker also may be affected by his/her attitude toward the job (e.g., job was too complicated, involved personal risk, would result in serious consequences if performed incorrectly, the task seemed unnecessary or is one of lower status or demeaning, or lack of concentration from repeatedly performing the same task).

NOTE: Before utilizing this code, additional investigation must be conducted to ensure

that the individual was *not* set up for failure.

As noted below, personnel errors occurred in following procedures which could have contributed to the deficiency. Personnel Errors should be considered as General Cause area contributing to the deficiency.

A. Lack of Attention to a Task

Was the individual not paying attention to details?

As indicated below, there were cases found where individuals were not paying enough attention to the procedure details. Therefore, "Lack of Attention to Detail" should be considered as a basic cause area that contributed to the deficiency.

NOTE: If the personnel error was caused by lack of management direction or work overload, consider coding under Code 4B, "Supervision During Work," because the required supervision was less than adequate (LTA).

a. Carelessness

Was the individual not paying attention to certain details of the task being performed?

Yes, there were several cases discovered during the investigation that were related to individuals not paying specific attention to the details of the procedure. Specifically, individuals assuming the submittal of QAP-2-0 Activity Evaluations in accordance with QAP-6-1 was equivalent to submitting documents to the RPC could be considered as a lack of attention to procedural detail; this should be considered as a contributing cause of the deficiency.

Has the individual performed the task so repeatedly that it is done without concentration?

No cases were found during the investigation that indicate that individuals failing to submit documents to the RPC had performed the task repeatedly and had a lapse in concentration such that it contributed to documents not being submitted to the RPC in a timely manner.

Did the task seem unnecessary or demeaning?

Yes, there was at least one case were an individual had concluded that submitting a QAP-3-5

Technical Document was unnecessary. The individual assumed that since the document was submitted to the Department of Energy (DOE) as a deliverable, that the DOE would be submitting the document as a record, and the submittal required by QAP-3-5 would be a duplication of effort; this should be considered as a contributing cause of the deficiency.

b. Oversight/Lack of Direction

Was the individual assuming what actions were necessary, without specific direction from supervision?

As discussed in Section 4.A.c, individuals may have assumed what was necessary regarding records turnover to the RPC when supervision did not provide adequate instruction. The investigators believe that this condition is better described by Cause Code 4-"Immediate Supervision"

Was the task too complicated?

No cases were found during the investigation that indicate that the records submittal process was too complicated such that it could have contributed to documents not being submitted to the RPC in a timely manner.

Did the task involve personal risk?

No cases were found during the investigation that indicate that records submittal involved either professional or personal safety risks that could have contributed to documents not being submitted to the RPC in a timely manner.

c. Work Overload

Was the individual trying to perform too many tasks at once?

In the case of the TBV/TBD documentation described in LVMO-96-P017, the individual originally responsible for the work left the organization during the initial FY 96 downsizing. The work was turned over to another individual. While the size of the organization shrank, the amount of work required with respect to records remained the same. This may have been a contributing cause to the deficiency.

Was the individual fatigued, ill, or injured?

No cases were found during the investigation that indicate that documents failed to be submitted to the RPC in a timely manner because an individual was fatigued, ill, or injured.

Was the individual suffering from the environmental conditions of a previous task?

No cases were found during the investigation that indicate that documents failed to be submitted to the RPC in a timely manner because an individual was suffering from the environmental conditions of a previous task.

d. Procedure Not Used or Used Improperly

Was a procedure/plan not used or used improperly because the user performing the job considered the procedure too difficult to understand or follow?

No cases were found during the investigation that indicate that documents failed to be submitted to the RPC in a timely manner because an individual considered the procedure too difficult to understand or follow. However, as discussed in Section 1.C. - "Error in Following Implementing documents"- errors were made in following implementing documents. This can also be considered as an improper use of procedures. Therefore, "Procedures Used Improperly" could be considered as a contributing factor in the deficiency.

e. Wrong Revision Used

Was the wrong revision of a document used?

(The wrong revision may be used for several reasons, such as delays in printing and placing approved revision in the field, failure to discard old revisions when new ones are issued, or failure to enter approved temporary procedure changes.)

No cases were found during the investigation that indicate that documents failed to be submitted to the RPC in a timely manner because an individual was using the wrong revision of a procedure.

B. Lack of Qualification

Was the individual not qualified to perform the task assigned?

NOTE: If personnel error was caused by lack of qualification, this condition may require coding under Code 4Af, "Worker Selection Inadequate."

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a. Individuals Not Qualified

As noted below, the investigation revealed that the qualifications of some individuals responsible for turning documents over to the RPC was a contributing factor. Related issues are covered by questions regarding training.

Did the individual not have the training or experience to perform the task?

The investigation revealed at least one instance (documented in M&O surveillance report 96-NSS-61 and related deficiency report LVMO-96-D056) where an individual was not trained to the Implementing Document that failed to submit documentation in a timely manner. This may have been a contributing factor leading to this particular example of the deficiency.

3. MANAGEMENT SYSTEM

Did the error result because of inadequate standards, policies or directives; organizational ineffectiveness; administrative control deficiencies; or failure to use the existing policy?

There is no indication that the deficiency was the result of inadequate standards, policies or directives; organizational ineffectiveness; administrative control deficiencies, or failure to use the exiting policy.

Was implementation of the policy or directives LTA?

See specific answers below.

Was an event caused by inadequate assessments, or failure to perform reviews or evaluation?

See specific answers below.

Was an event caused by failure to adequately correct or implement corrective actions of known malfunctions or deficiencies?

See specific answers below.

NOTE: The "Management System" category refers to problems in the administrative controls, the organization, or the system by which work is controlled and accomplished. This category represents problems upper level management has control over and responsibility to correct. It is not intended to reflect errors

committed by management, but rather weakness in the work control system.

A. Standards, Policies, Administrative Controls (SPAC)

Standards, Policies, and Administrative Controls related to quality assurance documentation submittals to the RPC are covered by quality assurance implementing documents. Therefore the essential points of the questions covered in this section are already documented in the responses to questions in the "Implementing Documents" section above.

B. Audits/Evaluations

Was a condition caused by or can it be attributed to inadequate audit or evaluation programs or failure to provide independent audits or evaluations?

NOTE: This category should only be used if it is judged reasonable to expect an audit or evaluation system to be in place for the affected equipment or system. Everything cannot be audited, but important safety related systems and effectiveness of those systems should be audited or evaluated periodically. Before using this category, it must be reasonable for the auditor to detect the kind of error that caused the incident.

a. Lack of Depth Audit

Were audits or evaluations not performed thoroughly enough to detect system deficiencies?

The condition identified in Deficiency Report YMQAD-96-D042 was identified during OCRWM OQA Audit HQ-ARC-96-01 conducted in early February 1996. A similar condition was identified and documented in YMQAD Corrective Action Request YM-95-028 in March 1995. Corrective Action Request YM-95-028 was generated as a result of OQA Audit HQ-ARC-95-04. Therefore, lack of thorough audits or evaluations did not contribute to improper detection of the program deficiency.

b. Infrequent Audit

Were audits or evaluations performed too infrequently to detect system or equipment deficiencies?

As noted above, the condition identified in Deficiency Report YMQAD-96-D042 was identified during OCRWM OQA Audit HQ-ARC-96-01 conducted in early February 1996. A similar condition was identified and documented in YMQAD Corrective Action Request YM-95-028 in

March 1995. Therefore, frequency of audits or evaluations does not appear to be thorough audits or evaluations did not contribute to improper detection of the program deficiency.

c. Not Independent

Was an event caused by failure to provide independent (other than the custodian of system involved) audits or evaluations?

Both OCRWM OQA Audit HQ-ARC-96-01 and OQA Audit HQ-ARC-95-04 were performed by independent organizations. Therefore the independence of the organizations performing audits and evaluations does not appear to be an issue with respect to the deficiency identified in YMQAD-D042.

C. Corrective Action

Was an event caused by failure to provide corrective action for known deficiencies, or failure to implement recommended corrective actions before known deficiencies recur?

NOTE: In this section and the two categories in a and b listed below, known deficiencies are any deficiencies other than equipment failures, such as human performance related deficiencies or administrative control system deficiencies. Recurring equipment failures because of inadequate or unimplemented corrective actions may be coded under Code 9Bb, "Equipment Repeated Failure - Previous Corrective Action Inadequate."

a. Inadequate Corrective Action

Was no corrective action for known deficiencies recommended or were implemented corrective actions unsuccessful in preventing recurrence?

Based on the examples provided in Deficiency Report YMQAD-96-D042 and the investigative actions documented in Product Integrity Report PI-96-049, the adverse condition is recurring. Additional evidence that the condition is recurring is that the same problem was identified in Corrective Action Request YM-95-028 and Performance Report LVMO-96-P017. The resolution of Corrective Action Request YM-95-028 included corrective actions to prevent recurrence. Since the deficiency identified in YMQAD-96-D042 is a recurring deficiency, the implemented corrective actions for YM-95-028 were unsuccessful in preventing recurrence. It should be noted that part of the corrective action to prevent recurrence in YM-95-028 was additional personnel training. Although documentation related to CAR YM-95-028 indicated that the deficiency occurred throughout the M&O, it appears based on a review of training attendance documentation associated with YM-95-028, the majority of M&O personnel trained were in the

Quality Assurance organization and the Engineering and Integration organization. See discussions in Section 5-Training for related information. This may be a contributing factor in the deficiency identified by YMQAD-96-D042.

b. Untimely Corrective Action

Was corrective action not performed soon enough after the deficiency to allow for the program to remain "on track" and prevent large numbers of deficiencies to be open and unresolved at the same time?

A review of the documentation associated with YM-95-028 indicates that the timeliness of corrective actions was not so much of a factor as the effectiveness of the corrective action.

c. Corrective Action Not Yet Implemented

Was recommended corrective action for a known deficiency not implemented or installed (due to delays in funding, delays in project design, normal length of the corrective action to implementation cycle, tracking deficiencies, etc.) before recurrence of the deficiency?

As noted above, corrective actions related CAR YM-95-028 were implemented; however the corrective actions were not completely successful.

4. IMMEDIATE SUPERVISION

Was an event caused by inadequate or lack of immediate (first line) supervision during job preparation or during performance of the job?

A. Preparation/Planning

Was an event caused by failure of immediate supervision to provide adequate preparation (including capable workers, job plans, or walk-through) for a job?

a. No Preparation/Planning

Did immediate supervision fail to provide any preparation/planning for work to be performed?

The investigators did not find that there were cases where supervision failed to provide for plan for the work to be performed contributed to the deficiency. However, as noted below, in some cases the planning was inadequate.

b. Inadequate Job Plan

Did immediate supervision provide incorrect, incomplete, or inadequate job plan for the performance of work?

Discussions with some supervisors indicate that although the work was planned initially, resources originally allocated to perform the work either were shifted to other priorities or were reduced from the original plans. In some instances, this contributed to documents not being turned over in a timely manner.

c. Inadequate Instructions to Subordinates

Did immediate supervision provide incorrect, incomplete or inadequate job instructions prior to beginning of work?

The investigation indicated that in some cases immediate supervision may not have provided complete or adequate instructions to subordinates. This is particularly the case with respect to many of the QAP-2-0 activity evaluations that were not turned over in a timely manner. QAP-2-0 paragraph 5.2.E. requires responsible managers to "ensure that the completed Activity Evaluation is processed as a record in accordance with Section 6.0". The investigators found that in several cases that supervisors had delegated some of administrative duties for handling QAP-2-0 evaluations was delegated to subordinates. Records turnover requirements may not have been properly communicated; therefore, "Inadequate Instructions to Subordinates" may have been a contributing factor in the deficiency.

d. Inadequate Walk-Through

Did immediate supervision provide an inadequate walk-through (show location of equipment, how to operate equipment, proper sequence of steps, etc. for a specific job) with workers before starting the job?

NOTE: Walk-through should be required for the most complex jobs, especially if they are performed infrequently.

Since YMQAD-96-D042 is not an equipment or hardware related deficiency, supervisor walk through is not applicable.

e. Inadequate Scheduling

Was scheduling of work inadequate, too infrequent or at times not compatible with OCRWM or Yucca Mountain Site Characterization Project milestones?

Scheduling issues that may be related to the deficiency are intertwined with planning issues. See discussion on "Inadequate Planning" for more details.

f. Worker Selection Inadequate

Did immediate supervision fail to select capable workers to perform the job?

(Examples of inadequate worker selection are choosing workers who are fatigued or not alert due to working excess overtime, workers who may have substance abuse problems, or workers who are not trained or certified for a particular job.)

There is no indication that supervisors' selection of workers was a contributing cause of the deficiency.

B. Supervision During Work

Did immediate supervision fail to provide adequate support, coverage, oversight, or guidance during job performance?

NOTE: One must judge what level of supervision was necessary by the importance of the job in relation to safety and production. A reasonable level of supervision is required.

a. No supervision

Did immediate supervision fail to follow the job or provide any support, coverage, or oversight during the job?

b. Inadequate Supervision

Did immediate supervision fail to provide adequate oversight, coverage, or support during the actual performance of the job?

In the case Performance Report LVMO-96-P017, the supervisor interviewed indicated that once he became aware of the problem, he asked the responsible individual on several occasions to get the documents turned over to the RPC. However, the condition persisted. It was not until another individual took over responsibility for the documentation and identified the problem on a Performance Report that it actually got serious attention. This may be a contributing cause of the deficiency.

5. TRAINING

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Was an event caused by incomplete or inadequate training?

NOTE: Some causes may be coded under Code 8, "Human Factors," if improved human factors, design, man-machine, or man-environment conditions could have prevented the error. Also, consider coding under Code 1, "Implementing Documents," if using an appropriate procedure would have alleviated the need for training.

A. No Training

Was there a lack of personnel training?

*The investigation revealed at least one instance (documented in M&O surveillance report 96-NSS-61 and related deficiency report LVMO-96-D056) where an individual was not trained to the Implementing Document that failed to submit documentation in a timely manner. **This may have been a contributing factor leading to this particular example of the deficiency.***

NOTE: Failure of personnel to use management policy because personnel were not trained should be coded under Code 3, "Management System," and 3Ab, "Inadequate Communication of SPAC."

a. Inadequate Job/Task Analysis

Was no training offered due to inadequate/incomplete job analysis (not identifying the tasks required to perform the work correctly and safely)?

Was no training offered due to inadequate/incomplete task analysis (not identifying the correct steps, the level of knowledge required, or the skills required, to perform the work)?

(Job analysis is the process of listing all tasks or jobs that personnel perform. Task analysis is the process of listing the steps in completing a task with required knowledge and skills listed for each step).

All work that could produce quality related documents is analyzed in accordance with QAP-2-0 "Control of Activities." QAP-17-1 Records Source Responsibilities is always identified as applicable. Reading/Self Study is always a minimum training requirement for quality affecting work. Inadequate Job/Task Analysis is not considered as a contributing cause of the deficiency.

b. Infrequent Task

Was no training offered because a task was performed so infrequently (or not expected at all) that training was decided as unnecessary?

The investigation revealed that in several cases, predominantly with respect to QAP-2-0 Activity evaluations turnover, that the documents that should have been turned over to the RPC were the only quality affecting documents that the individual was required to produce during the period under investigation. The infrequency of the task may have contributed to the deficiency. Therefore "Infrequent Task" should be considered as a contributing cause of the deficiency.

c. Refresher Training

Was refresher training not given as necessary to help personnel stay abreast of changes and to ensure continued proficiency?

Reading / Self study is the only training required for records sources. Refresher training is not always required. See discussions in Section 5.B on "Inadequate Training Methods" for related information on this issue.

B. Inadequate Training Methods

Were training methods such as testing, repeat training, facilities used, and thoroughness of training inadequate?

As discussed below, there is some indication that inadequate training methods were used and could have possibly contributed to the deficiency. Therefore, "Inadequate Training Methods" should be considered as a general cause area relating to the deficiency.

a. Incomplete Training

Was training on a subject incomplete such that training failed to address all necessary aspects of a system or subject?

Since Reading/ Self study is the only mandatory training regarding records source responsibilities for the timely turnover of documents to the RPC, it is difficult to evaluate whether training covered the subject matter. However, since other root cause areas indicate that records sources failed to understand completely what was required of them in order to get documents to the RPC, there is indication that "Incomplete Training" is a possible contributing factor of the deficiency. Additionally, since the classroom training that was provided on records source responsibilities as part of the corrective actions for YM-95-028 did not reach a wide M&O audience, the training could be considered incomplete from an organizational perspective as well.

b. Inadequate Facilities

Were training facilities such as classrooms, shops, mockups, or visual aids inadequate?

There is no indication that training facilities were inadequate or contributed to the deficiency.

c. Continuous Training Inadequate

Was continuing training or retraining of personnel too infrequent, insufficient in depth, or inadequate?

*Reading/Self Study is required for all personnel performing quality affecting work. However, this often the only training that personnel get with respect to turnover of quality affecting documents to the RPC. Additionally, although classroom training was conducted as part of the action to preclude recurrence for YM-95-028, personnel attending that training represented a relatively small population of the M&O. **This indicates that continuous training may not have been provided to a broad enough sample of M&O personnel and may have contributed to the recurrence of the deficiency.***

d. Inadequate Testing or Measure of Aptitude

Was testing inadequate to the point it did not help personnel demonstrate that learning was accomplished?

*Reading/Self Study is required for all personnel performing quality affecting work. However, this is often the only training that personnel get with respect to turnover of quality affecting documents to the RPC. There are not testing requirements for Reading/Self study. Additionally, although classroom training was conducted as part of the action to preclude recurrence for YM-95-028, a personnel attending that training represented a relatively small population of the M&O. Further, the classroom training that was provided did not include testing or any other means of measuring aptitude. **Therefore, "Inadequate Testing or Measure of Aptitude" should be considered as a contributing cause of the deficiency.***

6. COMMUNICATIONS

Was an error caused by misunderstood verbal communications or lack of communications?

A. Misunderstood Verbal

Was an event caused by a misunderstanding of verbal communications between personnel (operator to operator, operator to supervisor, supervisor to management, etc.)?

Not applicable for YMQAD-96-D042.

B. No Communication/Not Timely

Was an event caused by failure to communicate or by communicating too late?

a. No Communication Method Available

Was no communication ever made because no method or system existed for communicating?

Not applicable for YMQAD-96-D042.

b. Late Communications

Were communications provided too late because events happened too fast to allow time for communications?

Not applicable for YMQAD-96-D042.

Was no communication provided because of time constraints which inhibited taking time to communicate?

Not applicable for YMQAD-96-D042.

c. Inadequate Communication at Shift Turnover

Did incorrect, incomplete, or inadequate shift turnover occur?

Not applicable for YMQAD-96-D042.

7. SCIENTIFIC INVESTIGATION / DESIGN

Did the condition occur during the scientific investigation, design or design review process?

Not applicable for YMQAD-96-D042.

8. HUMAN FACTORS

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Justification and Rationale for Root Cause Determination
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Was an error made because of poor or undesirable human factors?

There were no cases found during the investigation that indicate that poor or undesirable human factors contributed to the deficiency.

NOTE: For the purposes of the cause code, "Human Factors" has a narrowly defined meaning. "Human Factors" refers to causes relating to four categories:

- Man-machine interface problems (problems caused by a poorly designed or inadequate relationship between a person and the equipment, facility or system).
- Problems resulting from a poor work environment.
- Problems resulting from a system being too complex.
- Problems caused by non-fault tolerant systems (errors are not detectable or not recoverable).

Always consider coding of human factors problems under Codes 1, "Implementing Documents," and 5, "Training." Determination between human factored designs, procedures, and training is difficult to judge, but the three are interrelated.

A. Man-Machine Interface Improper

Was an event caused by poor coordination or interaction of personnel with the equipment, systems, facilities, or instrumentation with which they work?

Not applicable for YMQAD-96-D042.

B. Work Environment Inadequate

Was the work environment not conducive to good human performance (such as poor housekeeping, inadequate lighting, or excessive noise)?

a. Poor Housekeeping

Did poor housekeeping conditions contribute to the condition?

No cases were found that poor housekeeping contributed to the deficiency.

b. Too Hot/Cold Ambient Conditions

Was the adverse condition caused by excessive exposure of personnel to hot or cold environment (for example, heat exhaustion or numbness from cold)?

Not applicable for YMQAD-96-D042.

c. Bad Lights

Was condition caused by bad lighting conditions--too much, too little, or glare producing?

Not applicable for YMQAD-96-D042.

d. High Radiation Area

Did high radiation contribute to causing the adverse condition by making personnel hurry work to reduce exposure or by requiring protective clothing that diminished performance?

Not applicable for YMQAD-96-D042.

C. Complex System

YMQAD-96-D042 is a program related deficiency rather than a hardware related deficiency, therefore the questions in this section regarding system complexity are note applicable.

9. RELIABILITY SYSTEM

Was the equipment difficulty or malfunction a repeat or unexpected failure (reliability problem)?

YMQAD-96-D042 is a program related deficiency rather than a hardware related deficiency, therefore the questions in this section are note applicable.

10. MISCELLANEOUS OR MULTIPLE AREAS

This category includes causes that do not fit into any of the previous categories and includes areas where there are multiple causes.

A. Multiple Causes Present

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Was the condition cause due to multiple causes (i.e., more than one root cause)?

As noted above, multiple causes are present.

B. Material / Equipment Inadequate

Was the material/equipment damaged, lost, or the wrong size?

YMQAD-96-D042 is a program related deficiency rather than a hardware related deficiency, therefore the questions in this section are note applicable.

Was the condition related to insufficient, incomplete, lack of or no documentation, or incorrect or no part numbers?

YMQAD-96-D042 is a program related deficiency rather than a hardware related deficiency, therefore the question is not applicable.

C. Unknown

After exhaustive evaluation, was the condition determined to be unknown?

NOTE: This cause should be selected only if the RI could not determine any other cause or any contributing causes.

D. Natural Causes

Was the failure a result of a natural phenomenon of which there was no human control possible, such as earthquakes, floods, volcanoes, lightning, etc.?

Not applicable for YMQAD-96-D042.

E. Planned Failure

Was the failure planned and expected, such as the normal frequency failure of parts or equipment, or the planned failure of an item to facilitate production?

YMQAD-96-D042 is a program related deficiency rather than a hardware related deficiency, therefore the question is not.

Attachment 3
Summary of Evaluation for Records Source Responsiblities
in Procedures (for YMQAD-96-D042 Root Cause Determination)

QAP and AP Sample:

QAP	Record Required	RESPONSIBLE Individual
QAP-1-0	Organizational Description	QA Manager
	Documentation Of Comment Resolution	QA Manager
	Approved Document	QA Manager
	Delegation of Authority	All Managers
	Termination Of Authority	All Managers
QAP-2-0	Approved Activity Evaluations	Responsible Manager
QAP-2-1	Training Attendance Records	M&O Instruction
	Reading/Self Study Records	M&O Employee
	Classroom Training Materials/Briefing Materials	Training Manager
QAP-2-2	Position Description	Location Training Manager
	Verification of Education Form	Location Training Manager
	Verification of Work History Form	Location Training Manager
	Letters Of Explanation	Location Training Manager
	Verification Letters From University & Colleges	Location Training Manager
	Verification Of Work History Letters From Previous Employers	Location Training Manager
QAP-2-3	Classification Analysis	Department Manager
	Proposed Revision To Q-List	System Eng. Manager
	WAST Q-List	Wast Eng. Manager
QAP-2-5	Surveillance Reports	Surveillance Leader
	Completed Checklists Or Objective Evidence For Not Required	Surveillance Leader

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Summary of Evaluation for Records Source Responsiblities
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QAP-2-6 READINESS REVIEW	GM'S Memo	Readiness Review Team Leader
	Readiness Review Plan	Readiness Review Team Leader
	Readiness Review Report	Readiness Review Team Leader
	Open Item Reports	Readiness Review Team Leader
	Closed Open Items Reports	Readiness Review Team Leader
	Readiness Review Completion Memo	Readiness Review Team Leader
QAP-3-0 DESIGN CONTROL PROCESS	None	N/A
QAP-3-1 DOCUMENT REVIEW	Completed DRRS	Review Facilitation
	Review team List	Review Facilitation
	Completed Comment Forms	Review Facilitation
	Review Correspondence	Review Facilitation
	Review Package	Review Facilitation
	Concurrence Draft	Review Facilitation
QAP-3-2 DESIGN VERIFICATION	Design Verification Summary	Verification Leader
	Document List (If Used)	Verification Leader
	Design verification Record(s)	Verification Leader
	Design Package	Verification Leader
	Design Verification Checklist	Verification Leader
	List Of Reference Documents	Verification Leader
QAP-3-3 PEER REVIEW	Peer Review Report	Peer Review Chair Person
	Peer Review Checklist	Peer Review Chair Person

Attachment 3
Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

QAP-3-4 BASELINE CONTROL	None	N/A
QAP-3-5 DEVELOPMENT OF TECHNICAL DOCUMENTS	Approved Technical Document	Responsible Department Manager
	TDPP Or Memo	Responsible Department Manager
	Review Drafts	Responsible Department Manager
	Reviewers Concurrence	Responsible Department Manager
	Review Correspondence	Responsible Department Manager
QAP-3-8 SPECIFICATIONS	Approved Specification	Lead Design Engineer
	Specification Inputs List	Lead Design Engineer
	Specification Review Summary	Lead Design Engineer
	Check Copy	Lead Design Engineer
	Design Review Copy(s)	Lead Design Engineer
	Final Check Copy	Lead Design Engineer
QAP-3-9 DESIGN ANALYSIS	Design Analysis	Lead Design Engineer
	Design Analysis Review Summary	Lead Design Engineer
	Check Copy	Lead Design Engineer
	Design Review Copy(s)	Lead Design Engineer
	Final Check Copy	Lead Design Engineer
QAP-3-10 ENGINEERING DRAWINGS	Approved Drawings	Lead Design Engineer
	Drawing Inputs List	Lead Design Engineer

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Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

	Drawing Review Summary	Lead Design Engineer
	Check Copy	Lead Design Engineer
	Design Review Copy	Lead Design Engineer
	Final Check Copy	Lead Design Engineer
QAP-3-12 TRANSMITTAL OF DESIGN INPUT	Design Input Request	Responsible Manager
	Design Input Transmittal	Responsible Manager
	Design Input	Responsible Manager
QAP-5-1 PREPARATION OF M&O QUALITY ASSURANCE PROGRAM DOCUMENTS	**(NEW PROCEDURE)** Approved Procedure	
	(NEW PROCEDURE) Review Draft	
	(NEW PROCEDURE) Concurrence Drafts(s)	
	(NEW PROCEDURE) Completed Review Packages	
	(NEW PROCEDURE) Completed Accepted PARs	
	(NEW PROCEDURE) Matrix Documentation	
	(EDITORIAL REVISION) Approved Procedure	
	(EDITORIAL REVISION) Completed RR W/Attach. RCC Or Explanation	
	(MATRIX UPDATE) Completed RR With RCC	

Attachment 3
Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

	(SOURCE DOCUMENT REVIEW) Notification To Evaluate	
	(QA POLICY STATEMENT) Approved Policy Statement	
	(QA POLICY STATEMENT) Review Draft, Concurrence Draft(s), Completed Review Packages	
QAP-6-1 DOCUMENT CONTROL	None	
OCRWM QAP 6.2	DRRs	
	Document Copies	
	External Reviewers Qualifications	
QAP-7-0 PROCUREMENT CONTROL PROCESS	None	
QAP-7-2 PROCUREMENT PLANNING	Approved Procurement Plan And Drafts	
	procurement Plan Review Records	
QAP-7-3 DEVELOPMENT OF PROCUREMENT REQUIREMENTS	Procurement Requirements Documents Statement of Work, Technical Requirements, QA Requirements, Proposal Evaluation Criteria, Supplier Performance Evaluation Criteria or Acceptance Criteria	
	Procurement Requirements Review Doc. Records	
	Draft Procurement Documents	
	Memo Of Reviewer Selection	
	Memo For Evaluation And Impact Of Exceptions And Changes	

Attachment 3
Summary of Evaluation for Records Source Responsiblities
in Procedures (for YMQAD-96-D042 Root Cause Determination)

OCRWM AP-7.4Q MAINTENANCE OF THE OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT QUALIFIED SUPPLIERS LIST	SER	
	Notification Of Audit Results	
	Removing Supplier From QSL	
	Reassigning Supplier Maintenance Activities	
QAP-7-4 SOLICITATION, EVALUATION, AND AWARD	Subcontract Documents And Changes As Issued	
	Records Of Solicitation Package Checking...	
QAP-7-5 SUPPLIER PERFORMANCE	O.E. Correction Of QA Deficiencies	
	M&O Acceptance Of QA Prog. & Release To Perform Work...	
	Description Of Restriction Changes	
	Supplier Document Submittal....	
	Supplier Nonconformance...	
	Supplier QA Program Eval...	
	Supplier QA Program Document Revision	
	Requests For Audits	
	Post Award Mtgs.	

Attachment 3
Summary of Evaluation for Records Source Responsibilities in Procedures (for YMQAD-96-D042 Root Cause Determination)

QAP-7-6 ACCEPTANCE OF PROCURED SERVICES	Source verification Waiver Documentation	
	Source Verification Report	
	Technical Verification Report	
	Audit Evaluation Report	
	Surveillance Evaluation Report	
	Acceptance Documentation	
	Final Acceptance Deter.	
	Request For Audits	
QAP-10-1 CERTIFICATION OF INSPECTION PERSONNEL	Certification Record	QA MGR.
	Written Exam. Questions	QA MGR.
	Doc. Revoking Cert.	QA MGR.
QAP-12-1 CONTROL OF MEASURING AND TEST EQUIPMENT AND CALIBRATION STANDARDS	M&TE Issuance	M&O Personnel
	M&TE Usage Docum.	RES. MGR
	M&TE Removal From Service	M&O Personnel
	DOC. For Use Of Calib. STD	RES. MGR.
	Bases For Calif. No STD	RES. MGR.
OCRWM AP-16.1Q PERFORMANCE/DEFICIENCY REPORTING	Completed PRs &DRs Inc. Cont. Pages	
	Relevant Correspondence	

Attachment 3
Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

	Deficiency Document Encoding Form	
OCRWM AP-16.2Q CORRECTIVE ACTION AND STOP WORK	Completed CARS And Continuation Pages	CAR Coordinator
	Relavent Correspondence	CAR Coordinator
	Stop Work Orders	CAR Coordinator
	Deficiency Document Encoding Form	
OCRWM AP-16.3q TREND EVALUATION AND REPORTING	Trend Reports	Trending Coordinator
	Deficiency Document Encoding Form	
	Suspected Trend Investigation Reports	
OCRWM AP-16.4q ROOT CAUSE DETERMINATION	Attach. 9.3 Is Included With CAR OR DR	
QAP-17-1 RECORD SOURCE RESPONSIBILITIES FOR INCLUSIONARY RECORDS	Records Package Table Of Contents And Special Instruction Sheet If Lifetime Record Is Included	Compiler
	Nonpermanent QA Records Toc., Special Instruction Sheets And Transmittal/Receipt Acknowledgment	Compiler
QAP-17-2 Receiving And Indexing Inclusionary Records	Transmittal/Receipt Acknowledgment	RPC Staff
QAP-17-3 ELECTRONIC IMAGING OPERATIONS	Special Instruction Sheets	RM Staff

Attachment 3
Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

	Lists Of Accession Numbers	RM Staff
	Nonpermanent Special Instruction Sheets	RM Staff
QAP-17-6 PROTECTION, RETRIEVAL, AND RETENTION OF INCLUSIONARY RECORDS	Access Lists	RPC Staff
	Transmittal/Receipt Acknowledgment	RPC Staff
QAP-SI-0 SCIENTIFIC AND ENGINEERING SOFT WARE	None	
QAP-SI-1 ACQUIRED SCIENTIFIC AND ENGINEERING SOFTWARE	Life Cycle Plan	Qualification Analyst
	Validation Test Plan	Qualification Analyst
	Software Qualification Report	Qualification Analyst
QAP-SI-2 DEVELOPED SCIENTIFIC AND ENGINEERING SOFTWARE	LCP, V&V Plan And Software Qualification Report And Inclusions For The Above	V&V Analyst T
	Explicit Nonpermanent Records	V&V Analyst
QAP-SI-3 SOFTWARE CONFIGURATION MANAGEMENT	Superseded, Retired Or Withdrawn Source And Executable Software Per LCP	SCM Manager
	Documentation For Above	SCM Manager
	Closed SCR	SCM Manager

Attachment 3
Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

NLP Sample:

Procedure #	Procedure Title	Responsible Individual for Submittal of Applicable Records
NLP-2-0	Determination of Importance Evaluation	DI Manager
NLP-2-3	Overview Surveillance	M&O Field QA
NLP-3-8	Revision to Engineering Drawings Issued By Raytheon Services Nevada	Originator Processes Dwg. In accordance with QAP 3-10 Records None
NLP-3-9	Revision to Exploratory Studies - Facility Design Pkg 1A Specs.	Originator Processes In Accordance with QAP 3-8 Records None
NLP-3-10	Preparation of Changes to Engineering Drawings and Specifications	Job Package Coordinator
NLP-3-15	To Be Verified (TBV) and To Be Determined (TBD) Monitoring System	The Administrator
NLP-3-18	Documentation of QA Controls on Drawings, Specifications, Design Analyses, and Technical Documents	No Records
NLP-3-24	Processing of Inputs List Changes	Originators Process Per QAP-3-8 or QAP-3-10
NLP-3-25	Configuration/Change Control	Field Changes by The Job Package Coordinator Non-Field by the CM Processor
NLP-3-26	Impact Reviews of Revisions of Documents and Field/Laboratory Data that Affect the MGDS Development Organization	EDC Controller
NLP-3-27	Support Engineering Calculations	Originator
NLP-3-28	Checklists For Design Products	EDC
NLP-3-29	Documentation Line Procedure	Responsible Manager
NLP-3-31	Review and Approval of Submittals	EDC

Attachment 3
Summary of Evaluation for Records Source Responsiblities in Procedures (for YMQAD-96-D042 Root Cause Determination)

NLP-5-1	Preparation of M&O Nevada Work Instructions	Responsible Manager Department Manager
NLP-5-2	SNL, LANL, LLNL, LBNL and USGS Alternate Procedure Format	No Records
NLP-6-1	Document and Records Center: Document Control Operations	No Records
NLP-6-3	Control of Vendor Technical Manuals and Information	The Customer
NLP-17-1	Yucca Mountain Site Office: Document and Records Center: Records Services Operations	None
NLP-17-5	Storage and Retrieval of Quality Assurance Records by a Records Storage Service Supplier	M&O RPC Supervisor
NLP-17-6	Records Source Responsibilities for Inclusionary Records (Nevada Site)	Records Source
NLP-17-7	Receiving and Indexing Inclusionary Records (Nevada Site)	No Records
NLP-SIII-2	Work Program	Originator
NLP-SIII-3	Borehole History Reports	D.E.
NLP-SIII-4	Scientific Investigation Control	Responsible Manager
NLP-SIII-5	Surface-Based Test Management	References YA-SIII-3Q for Submission of Data Packages