



Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 98608
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AUG 23 1995

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Technical Project Officer
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Site Characterization Project
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ISSUANCE OF SURVEILLANCE RECORD YMP-SR-95-037 RESULTING FROM
YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION'S (YMQAD) SURVEILLANCE
OF THE AND CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM
MANAGEMENT AND OPERATING CONTRACTOR (CRWMS M&O) (SCPB: N/A)

Enclosed is the Record of Surveillance YMP-SR-95-037 conducted
by the YMQAD at the CRWMS M&O facilities in Las Vegas, Nevada,
June 26-July 28, 1995.

The purpose of the surveillance was to observe and evaluate, if
documented evidence exists, that analyses were performed by the
CRWMS M&O Systems Engineering organization, to determine
impact(s) to affected design documents and other affected
documents or activities due to Interim Change Notice 2; to the
Exploratory Studies Facilities Design Requirements document, as
required in Administrative Procedure (AP)-3.3Q, "Change Control
Process," and Quality Management Procedure (QMP)-03-09, "Project
Change Control Board Process."

Due to the fact that AP-3.3Q and QMP-03-09 have been superseded
by Yucca Mountain Administrative Procedure (YAP)-3.5Q, "Change
Control Process," there are no corrective actions required.
Rather, recommendations are provided. A surveillance of the
design requirements change process impact analyses, per YAP-3.5Q
will be scheduled for the near future to follow-up on the
recommendations provided in this report.

This surveillance is considered completed and closed as of the
date of this letter.


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AUG 23 1995

If you have any questions, please contact either Mario R. Diaz at 794-7974 or John A. Gray at 794-7633.



Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:MRD-4261

Enclosure:
Surveillance Record YMP-SR-95-037

cc w/encl:

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

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

¹ORGANIZATION/LOCATION:
Civilian Radioactive Waste
Management, Management and
Operating Contractor (CRWMS
M&O), Las Vegas, NV

²SUBJECT: Impact analyses performed
to Interim Change Notice (ICN) 2,
Exploratory Studies Facility Design
Requirements (ESFDR) document.

³DATE: 6/29 - 7/28/95

⁴SURVEILLANCE OBJECTIVE: To observe documented evidence that adequate impact analyses were performed on affected documents due to ICN 2 to the ESFDR.

⁵SURVEILLANCE SCOPE: The scope of this surveillance includes observation and evaluation of documented evidence that analyses were performed by affected organizations to determine impact to affected design documents and other affected documents or activities due to ICN 2 to the ESFDR.

⁶SURVEILLANCE TEAM:
Team Leader:

John A. Gray

Additional Team Members:

N/A

⁷PREPARED BY:

John A. Gray
John A. Gray

6/28/95

Surveillance Team Leader

Date

⁸CONCURRENCE:

N/A

QA Division Director

Date

SURVEILLANCE RESULTS

⁹BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

See pages 2 through 7

¹⁰SURVEILLANCE CONCLUSIONS:

See pages 7 and 8

¹¹COMPLETED BY:

John A. Gray
John A. Gray

8/10/95
Date

¹²APPROVED BY:

R. C. [Signature]
QA Division Director

8/23/95
Date

BLOCK 9 (Continued) BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

Basis of Evaluation:

The basis of evaluation for this surveillance is the Quality Assurance Requirements and Description document (QARD) requires that design changes to impact related implementing documents be determined and communicated to affected organizations. For ICN 2 (effective 4/14/95) to the ESFDR, the documents impacted should have been determined prior to Change Control Board (CCB) member evaluation and the results of the associated impact analyses should have been communicated to affected organizations. ICN 2 to the ESFDR created Appendix C to the ESFDR wherein Exploratory Studies Facility (ESF) design requirements were allocated to four ESF Configuration Items (CI). Each new CI was defined and its corresponding boundaries, physical interfaces, and functional interfaces were provided by this change. The surveillance was conducted from June 29 through July 28, 1995 to determine if necessary impact analyses were identified, in progress or completed, and affected organizations notified.

Requirements considered during the surveillance:

- Quality Assurance Requirements and Description document (QARD), Section 3.2.8 F, "Design changes that impact related implementing documents or training programs shall be communicated to Affected Organizations."
- Quality Assurance Procedure (QAP) 3.5, Revision 2, "Technical Document Preparation," Step 5.5c, "specifies the use of the review criteria in the Technical Document Preparation Plan (TDPP) and establishes additional review criteria as needed."
- QAP 6.2, Revision 2, ICN 1, "Document Review," Attachment 9.4, section 2.8, "When applicable, are potential interactions with other technical work addressed adequately?" Also section 2.10, "Does the final document correctly incorporate technical input? Is there adequate, complete, accurate, and traceable flow of requirements from source documents to the final document?"
- TDPP, Revision 5 for the change or revision of Mined Geologic Disposal System (MGDS) Design Requirements Documents (DRD), section 4.9, QAP 6.2, "Technical Review", review criteria for changed or revised DRD.
- Quality Management Procedure (QMP) -03-09, Revision 3, ICN 4, "Project Change Control Board Process," Steps 3 and 3.a:
 3. "Request change document review analysis, assessment, and additional studies by affected organizations as directed by the Change Control Board (CCB) in accordance with the following"

- a. If the change document is a Change Request (CR), Document Change Proposal, or Directive, request the review in accordance with Administrative Procedures (AP)-3.3Q, as directed."

AP-3.3Q, Revision 5, ICN 2, Change Control Process, Steps 5.1 f NOTE, 5.2.1 a, 5.3.2b, Exhibit 9.1 and Exhibit 9.3;

-5.1 f NOTE: The CCB uses the Change Impact Checklist to assess the adequacy of supporting justification for the proposed change. The originator, as much as possible, identifies potential impacts that include, but are not limited to technical, regulatory, quality, management, institutional, budgeting, schedules, and safety issues.

-5.2.1 a Analyze and assess the impacts, as indicated in the Change Impact Checklist, for the cognizant areas of responsibilities.

-5.3.2 b The Technical Project Officer (TPO)/Division Director identifies affected controlled documents by initiating and completing approvable portions of Exhibit 9.3, Affected Document Notice (ADN).

-Exhibit 9.1 Instructions; step 4, place an "X" beside each activity, document category, or function potentially affected by the proposed change. The "X" notation as being affected, requires explanation on the Change Document Continuation Page.

-Exhibit 9.3 Steps 8, 9 and 13 for Affected Organization

[8] Enter a description of organization's areas of responsibilities and work that is impacted by the approved CR.

[9] Enter the following information for documents impacted by the change:

a. Abbreviated title of controlled document affected by the approved CR.

b. Old document number of controlled document affected by the approved CR.

c. Revision of controlled document affected by the approved CR.

[13] Enter the affected organizations internal organizations affected by the ADN. (This block is optional for TPO purposes only. "N/A" if not applicable).

Documents Examined:

AP 3.3Q, Revision 5, ICN 2, "Change Control Process," (Superseded by YAP 3.5Q, Revision 0 on 5/19/95)

QMP-03-09, Revision 3, ICN 4, "Project Change Control Based Process," (Superseded by YAP 3.5Q on 5/19/95)

QAP 3.5, Revision 2, "Technical Document Preparation."

QAP 6.2, Revision 2, ICN 1, "Document Review."

QARD Document DOE/RW-0333P, Revision 3.

CRWMS M&O QAP-3-1, Revision 5, "Technical Document and Milestones Review."

CRWMS M&O QAP-3-5, Revision 5, "Development of Technical Documents."

CRWMS M&O QAP-3-9, Revision 5, "Design Analysis."

CRWMS M&O QAP-3-14, Revision 2, "Technical and Management Reviews."

CRWMS M&O NLP-3-18, Revision 2, "Documentation of Quality Assurance Classification Controls in Drawings, Specifications, Design Analysis, and Technical Documents."

YMP/Configuration Management (CM)-019, Revision 1, ICN 2, "Exploratory Studies Facility Design Requirements."

BABEAB000001717-0200-00008, Revision 2, "Requirements Allocation Analysis for Lining and Ground Support."

BABEAB000-01717-0200-00010, Revision 2, "Technical Specification North Ramp Ground Support Scoping Analysis."

BABEE0000-01717-0200-00001, Revision 0, "ESF Alcove Support Analysis."

BABEAB000-01717-6300-02165, Revision 6, "Specification Inputs List for Rockbolts and Accessories."

TDPP for the change or revision of MGDS Design Requirements Documents

ESFDR document, Requirements Backup Sheets, Revision 1, ICN 2, of the ESFDR Section B.2.12, "Hydrologic Properties of Major Faults Encountered in the ESF."

Individuals contacted during the surveillance:

J. W. Peters, Product Checking, Underground Design, CRWMS M&O

D. J. Rogers, System Engineering/ESF Design, Subsurface, CRWMS M&O

S. W. Moncilovic, Level 2 Configuration Management, CRWMS M&O

Sandra L. Moore, Plans and Procedures Department, CRWMS M&O

Milton S. Rindskopf, System Engineering/Requirements, CRWMS M&O

C. Barry Thom, System Engineering/Technical Requirements, CRWMS M&O

Gary M. Teraoka, Systems Engineering/Technical Requirements, CRWMS M&O

Richard Jiu, Systems Engineering/Interface Control, CRWMS M&O

Kent Fitzgerald, Systems Engineering/Level 3 Configuration Management, CRWMS M&O

Observations:

In general, the needed impact analyses for ICN 2 to the ESFDR were and are being performed. The affected design organizations are being communicated with as the analyses are completed. There were misjudgments during process implementation which resulted in lack of adequacy of documented directions to affected organizations in the area of performance of impact analyses, e.g.;

- During CCB processing of the CR, the written instructions from the CB Chairperson did not direct analyses assessment and additional studies to be performed by affected organization in accordance with AP 3.3Q (see requirements for QMP-03-09, page 2 of 7); which requires the affected organization to perform analyses and assessments of impacts as indicated on the Change Impact Checklist for their cognizant areas of responsibility (the originator had checked and described the needed impact analyses on the checklist and continuation page). Rather, the CR went directly to the CCB for evaluation.
- When the Assistant Manager Engineering and Field Operation (AMEFO) complied with the CCB Change Directive, the CRWMS M&O facilitator did not fully comply with the instructions for completing the ADN by not completing Block 8, Description of Organization's Area of Responsibilities, and the work that is impacted by the approved CR; by not making adequate entries in Block 9, which requires specific information for documents impacted by the change; and by not completing Block 13, which requires entry of organizations affected by the ADN. This resulted in the lack of an entry in Block 18 (the effective date of the change where all documents modifications listed in the ADN are to be completed).

NOTE: This process no longer exists in YAP-3.5Q, the key organization responsible for the modifications was the CRWMS M&O, and the ADN information from the AMEFO did list the generic changes to be performed by the M&O, therefore, no deficiency is reported.

Due to the issues described above, the CRWMS M&O individuals contacted by the Surveillance Lead were each unsure if all the impact analyses resulting from ICN 2 are identified and/or completed. Through coordination between the Surveillance Lead and the CRWMS M&O ADN Coordinator, the following analyses status was obtained:

- The CRWMS M&O investigation into the documents affected by the ICN 2 to the ESFDR is ongoing.
- The initial investigation found no significant technical impact due to changes imposed by ICN 2.
- All the Package 2C "Q" analyses are undergoing revision for their use in Package 8A. All of these "Q" analyses will be checked against ESFDR, Revision 1, ICN 2 to confirm their compliance. This activity is estimated to take up to two months to complete. Drawings or specifications requiring revision due to changes in the "Q" analyses will be revised shortly thereafter.
- For the non "Q" analyses for the other permanent items and their drawings and specifications, a plan is currently being developed to conduct side-by-side comparison of the new ESFDR Appendix C requirements allocations (ICN 2) against existing Requirements Allocation Analyses (RAA). The RAAs were previously used to ensure compliance with the ESFDR and were the basis used in developing these non "Q" analyses and their drawings and specifications. This comparison will highlight any differences between old and new requirements allocations and will identify any additional documents that must be revised; this comparison will take a few months to complete.
- The above activities were documented on the ADN for ICN 2 to the ESFDR from CRWMS M&O and the ADN submitted to the Level II CM on July 27, 1995, with a change effective date (Block 18) of October 31, 1995.

During contact with the Manager of ESF Design, Subsurface, the Surveillance Lead requested a matrix listing all the impact reviews which resulted from ICN 2 to the ESFDR. The Manager agreed that a matrix would be highly beneficial for all concerned and assigned his staff to prepare it. This matrix should identify the documents against which impact analyses are performed, the individual(s) performing the reviews, the targeted completion date, and actual completion date. During surveillance report preparation, a matrix from the Manager of ESF Design, Subsurface, was presented to the Surveillance Lead which matrixed the analyses, associated specifications, and affected drawings to DIES and the ESFDR.

BLOCK 10 (Continued) SURVEILLANCE CONCLUSIONS:

Conclusions:

There exists a definite lack of communication and interface within the CRWMS M&O Systems Engineering organization in regards to design requirements changes. For example, two M&O CM individuals are physically located about 25 feet from each other, yet no interface communication about ICN 2 CCB Directive occurred, resulting in the Level II CM package coordinator thinking there was no response (ADN) from the M&O when actually the ADN was slowly being generated by the M&O Level III ADN coordinator. The processes laid out in AP 3.3Q and QMP-03-09 work, but were too open to interpretation of when affected organizations need to perform impact analyses. The impact analyses for ICN 2 are in progress, but not due to documented direction in accordance with the procedures, rather, due to Systems Engineering management direction. CCB evaluators are not being informed of all the pertinent supporting affected documents that are impacted and therefore, without their knowledge, they are performing only partial evaluations. The new replacement procedure YAP 3.5Q for QMP-03-09 and AP 3.3Q places the responsibility of determining required impact analyses of affected documents, etc, on the change originator without benefit of the affected organizations providing this input (unless requested by the originator); creating a situation where scope, cost, schedule, and milestone impacts may not be addressed adequately.

Recommendations:

- (1) The CRWMS M&O CM organizations should coordinate the new YAP 3.5Q process to ensure adequate impact analyses are identified, completion dates targeted, and all pertinent information provided to the Level II CCB member for adequate evaluation.
- (2) Due to the importance of impacts on documents and activities, the CRWMS M&O should define the entire design requirements change impacts analyses process. They should also identify the responsible organizations, what the review responsibilities are, a matrix program that lists and tracks documents and activities impacted by the associated revision/change, the completion target dates, completion dates, and affected the organizations. The matrix program could be computerized to link all interfaces and provide easy identification of affected documents and activities (the matrix presented to the Surveillance Lead is a good start). The process could be proceduralized to ensure adequacy of compliance.
- (3) Establishment of better communications and interface within System Engineering wherein the design requirements change initiators don't cause a severe backlog of impact analyses due to desire to upgrade DRDs at too fast a rate.
- (4) The Level II and Level III CM personnel involved in change control documents need to establish and maintain better communication to ensure more accurate status of CR's.

- (5) Lastly, the CRWMS M&O Systems Engineering organization needs to make all individuals responsible for determining and executing impact analyses, due to design requirements changes, aware of the YAP 3.5Q requirements. The requirements include identification of technical, cost or schedule, Work Breakdown Structure and Cost Schedule Baseline, Planning and Summary Accounts, and design bases impacts (impacts of form, fit, function, system safety, site characterization, radiological health and safety, and waste isolation). The impact analyses are required to be identified prior to CCB member evaluation. As a minimum, ensure that training to the design change process is completed by responsible design organization personnel.