

YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION

QUALITY ASSURANCE SURVEILLANCE REPORT

OF

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE

AND

RAYTHEON SERVICES NEVADA

SURVEILLANCE NUMBER YMP-SR-91-026

CONDUCTED SEPTEMBER 18 THROUGH 24, 1991

ACTIVITIES SURVEILLED:

DESIGN PROCESS, ASSOCIATED PERSONNEL
TRAINING AND RECORDS

Prepared by: Donald J. Harris Date: 10-4-91
Donald J. Harris
Surveillance Team Leader
Senior Quality Assurance Engineer
Yucca Mountain Quality Assurance Division

Concurred by: Kenneth T. McFall Date: 10/7/91
Kenneth T. McFall
Quality Assurance Scientist
Yucca Mountain Quality Assurance Division

Approved by: Richard E. Spence Date: 10/8/91
Richard E. Spence
Director
Yucca Mountain Quality Assurance Division

1.0 INTRODUCTION

This report contains the results of the Yucca Mountain Quality Assurance Division (YMQAD) Surveillance YMP-SR-91-026 of the Yucca Mountain Site Characterization Project Office (YMPO) and Raytheon Services Nevada (RSN), conducted in Las Vegas, Nevada, from September 18 through September 24, 1991, to verify compliance and effectiveness of implementation of selected YMPO and RSN implementing procedures.

2.0 PURPOSE AND SCOPE

The purpose of this surveillance was to evaluate the effectiveness of the implementation of YMPO and RSN procedures associated with the Design Process and change control for the Exploratory Studies Facility (ESF), Title I Design and, to a degree, Midway Valley Trenching operations for design change control and the associated records and personnel training.

The scope of the surveillance included the following criteria and their attendant procedures:

<u>Criterion</u>	<u>Title</u>
II	Quality Assurance Program
	YMPO Quality Management Procedure QMP-02-01, Revision 3, Project Office Indoctrination and Qualification Training
	RSN Project Procedure PP-01-01, Revision 0, PIC No. 1, Indoctrination and Training
III	Design Control
	PP-03-09, Revision 0, Interdiscipline Review
	PP-03-12, Revision 0, Preparation and Control of Drawings
	PP-03-07, Revision 0, Preparation and Control of Specifications
	PP-03-13, Revision 0, Basis for Design
	PP-03-21, Revision 0, Management and Independent Technical Reviews
VI	Document Control
	YMPO Administrative Procedure-Quality AP-3.5Q, Revision 0, Field Change Control Process
	QMP-06-04, Revision 3, Project Office Document Development, Review and Approval

XVII Quality Assurance Records

PP-17-03, Revision 0, PIC No. 1, Records Source Requirements

3.0 SURVEILLANCE PERSONNEL

The Surveillance was conducted by the following personnel:

Donald J. Harris, Surveillance Team Leader, Senior Quality Assurance Engineer, Harza Engineering Company/YMQAD

Kenneth T. McFall, Quality Assurance Scientist, Science Applications International Corporation/YMQAD

John T. Buckley, Observer, U.S. Nuclear Regulatory Commission, Washington, D.C.

4.0 SUMMARY OF SURVEILLANCE RESULTS

The implementing procedures listed in Section 2.0 of this report were the source of questions used to conduct this surveillance. Checklists generated from these documents were used to determine compliance. The following results were obtained during the surveillance.

1. QMP-02-01, Revision 3, "Project Office Indoctrination and Qualification Training"

The Surveillance team reviewed the training records for those personnel (both the primary and secondary reviewers) involved in the Project Office, QMP-06-04 review of the ESF Title I Design Training Summary Report. All personnel completed their training on QMP-06-04 prior to performing the review. Those personnel involved were W. Dixon, D. Dobson, C. Hampton, E. Petrie, W. Wilson, H. Adkins, W. Girdley, P. Karnoski, and G. Braun.

2. PP-01-01, Revision 0, PIC #1, "Indoctrination and Training"

The Surveillance team reviewed the training records of designated reviewers of the RSN ESF Title I Design Summary Report. Reviewers were designated in the Team selection record for both the management and technical reviews to be performed in accordance with PP-03-21. The following personnel were involved in the reviews:

Management

J. Beyer	N. Elkins	P. Karnoski
J. Calovini	E. Gardiner	L. Shephard
E. Cikanek	J. Gardiner	O. Spacek
R. Craig	M. Glora	T. Sullivan
R. Deklever	T. Jesson	J. Taipole
M. Dussman		

Technical

J. Bartlett	J. Gardiner	C. Kim
J. Beyer	J. Hensen	J. MacMullen
L. Bruno	T. Jesson	C. Powers
E. Fitch	N. Kalia	H. Spicker
B. Foster	R. Kalinski	J. Taipole

The Surveillance Team reviewed the training records of the designated reviewers who performed the Interdisciplinary Review of the ESF Title I Design Summary Report in accordance with PP-03-09. The following personnel were involved:

B. Anzai	B. Hale	B. Stanley
R. Clark	I. Lang	N. Tamondong
J. Dumas	W. Moore	S. Williams
T. Griener	J. Nelson	

The Surveillance Team determined the reviewers were trained to the appropriate procedure prior to performing the reviews as evidenced by the RSN Self-Study Record dates, except for M. Dussman, who performed a Management Review in accordance with PP-03-21 on June 5, 1991, her Self-Study Record was signed and dated on July 23, 1989, for PP-03-21, Revision 0. CAR No. YM-91-084 was initiated for this deficiency.

3. PP-03-07, Revision 0, "Preparation and Control of Specifications"

The Surveillance Team reviewed the Title I Design Summary Report for the Exploratory Studies Facilities, Revision I, Draft H, Volume 4, Outline Specifications dated September 3, 1991, which contained approximately 100 outline specifications. The Outline Specifications is an interim draft developmental document used as a basis for the preparation of the final specification. The Outline Specifications were in a suitable format and contained sufficient information to provide the basis for development of the final specification.

4. PP-03-09, Revision 0, "Interdisciplinary Review"

The Surveillance Team reviewed a total of five technical work product packages during the course of the surveillance. There were four drawing packages and one report package. There was one additional report package available but that package was determined not to need an interdisciplinary review. The six packages made up 100 percent sampling of the available documents. The packages examined for adherence to this procedure were the following:

- o Civil Package No. 2, Drawings
- o Mining Package No. 1, Drawings
- o Structure Package No. 1, Drawings
- o Heating, Ventilation and Air Conditioning (HVAC) and Plumbing Package, Drawings
- o Underground Water Distribution System, Report

All the examined work product packages were found to be in compliance with this procedure.

5. PP-03-12, Revision 0, "Preparation and Control of Drawings"

The Surveillance Team reviewed approximately 75 drawings for compliance with this procedure. The drawings were taken from Design Summary Report, Volume III. The sampling consisted of drawings associated with the Mining, Structural Engineering, Mechanical Engineering, HVAC, and Electrical Engineering sections of the ESF Title I Design Summary Report. This procedure concerns itself primarily with the review and approval of the drawings. All the drawings were found to be in compliance with the procedure.

6. PP-03-13, Revision 0, "Basis for Design"

The Surveillance Team reviewed the Basis for Design which was still in the draft stage and was not ready to be surveilled. The "Basis for Design" is anticipated to be ready for production in early October 1991.

This surveillance was also tasked to examine the flowdown of requirements into the ESF Title I Design Summary Report. The requirements flowdown from the upper-tier documents including the Waste Management System Requirements, Volume IV; System Description (SD); System Requirements (SR); Repository Design Requirements (RDR) and the Exploratory Shaft Facility Design Requirements (ESFDR). These

requirements flow into the Basis for Design and the ESF Title I Design Report. Flowdown of requirements from the ESFDR to the Design Summary Report cannot be established since only those requirements needed to satisfy Title I work were included. Therefore, those requirements not included are by default Title II in nature and thus outside the scope of the surveillance.

7. PP-03-21, Revision 0, "Management and Independent Technical Reviews"

- a. The Surveillance Team reviewed the independent technical reviews conducted by outside qualified individuals. All reviewers were documented as being trained in the review procedure and documented as being professionally qualified to conduct the review. All reviewers were also documented as being independent of the work being reviewed. The following personnel conducted independent technical reviews of the ESF Title I Design Summary Report and the reviews were examined for compliance with this procedure:

J. Bartlett	J. Hansen	C. Kim
J. Beyer	T. Jessen	J. MacMullen
L. Bruno	H. Kalia	C. Powers
E. Fitch	R. Kalinski	H. Speiker
B. Foster	P. Karnoski	J. Taipale
J. Gardiner		

This was a 100 percent sampling of the reviewers of the document. The reviews were found to be in overall compliance with this procedure with the exceptions being that some items requiring input of information were left blank. The Design Summary Report for Title I has not been submitted to records, and before it is, the blanks will be filled in with the appropriate information.

Some documentation for some of the reviewers was not included in the report's supporting information as required. All the missing documentation, such as documentation attesting to the qualifications and independence of some reviewers was supplied during the course of the surveillance.

There were two secondary reviewers, R. Dotta and E. Marshall Weaver, that provided comments on the Technical Review and Response forms (LV-353) for primary reviewers J. Taipale and J. Beyer. However, the secondary reviewers had no objective evidence of training to PP-03-21. The comment disposition was concurred with by the primary reviewers, therefore, the secondary reviewers' names were marked through and initialed and dated on the master set of documents. At the end of the surveillance, the supporting documentation was complete.

The reviews were also examined for the resolution and incorporation of comments by reviewers. A total of 22 resolved comments from six different reviewers were tracked through the process to incorporation into the final document. Of the comments, 21 were found to be incorporated into the text of the final document. One comment had apparently fallen through the cracks and the resolved comment was omitted from the final version. The reviewer was contacted and the comment was withdrawn by the reviewer since it was of a minor nature. The withdrawal of the comment is fully documented with the reviewer's dated signature.

- b. The Surveillance Team reviewed the independent management reviews conducted by outside qualified (trained) individuals. All reviewers were documented as being trained in the review procedure except for one person (see Section 4.0, Item 2, last paragraph for details). The following personnel conducted the independent management reviews of the ESF Title I Design Summary Report (North Portal):

J. Beyer	N. Elkins	P. Karnoski
E. Cikanek	E. Gardiner	L. Shephard
R. Craig	M. Glora	O. Spacek
M. Dussman	T. Jessen	T. Sullivan

A 100 percent review was conducted of the comments from the reviewers documented on the Comment Review and Response Form (CRRF), Attachment 3 of the procedure.

The review comments were examined for comment disposition and resolution concurrence, a total of 496 comments were generated, of which 64 were resolved without change and 151 were deferred to the Title II effort. (The Design Summary Report indicated 153 comments were deferred, which is in error.)

A total of nine deferred comments contained in the design Summary Report section were reviewed for correctness by checking the deferred comments on the Comment Review and Response form against the deferred comment listing. No deficiencies were detected.

The review process and compliance to PP-03-21 for both the Technical and Management Reviews were determined to be acceptable.

8. OMP-06-04, Revision 3, "Project Office Document Development, Review and Approval"

The Surveillance Team reviewed the YMPO review of the ESF, Title I Design Summary Report, which was initiated by the Document Action

Initiation (DAI) No. 386. The Management Review Plan, Design Summary Review Plan, DSR 91 provided the review instructions and criteria.

A total of 46 comments were documented on the Document Review Sheets (DRS) by the designated or secondary reviewers. The comments were properly resolved to the satisfaction of the reviewers who initialed and dated the DRS "Accept" column and signed and dated the Document Review Cover sheet, Section III, Item d, which indicated the acceptance of the response and incorporation as appropriate into the document.

The review process and compliance to QMP-06-04 for the management review was determined to be acceptable.

9. AP-3.5Q, Revision 0, "Field Change Control Process"

The Surveillance Team reviewed the Field Change Control process and associated documents generated in support of the Midway Valley Trenching operation. It was determined that some of the Field Change Requests (FCRs) generated and submitted to the Local Records Center were incomplete, and some of the procedure steps (requirements) were not being performed or were in variance to the procedure, those deficiencies are documented on CAR No. YM-91-085.

It was also noted that AP-3.5Q, Paragraph 3.2 stated in part that the FCCB is a field counter part to the Yucca Mountain Site Characterization Project (YMP) CCB (per AP-3.3Q). The CCB is limited to either accepting or rejecting recommended changes. If the CCB accepts a recommended change, a change request is generated and the change is then processed in accordance with the responsible organization program procedures. However, AP-3.5Q allows the FCCB the latitude to physically change specifications and drawings in the field via an approved FCR and continue the work in accordance with the revised FCR documents in the job package.

Based on the above, the Surveillance Team reviewed the AP-3.5Q process against the Quality Assurance Program Description (QAPD) (DOE/RW-0215) requirements and determined that the process defined in AP-3.5Q was not in accordance with the upper tier document. These variances were documented in CAR No. YM-91-086.

10. PP-17-03, Revision 0, PIC #1, "Records Source Requirements"

The Surveillance Team determined that no Title I Records Packages have been completed and turned over to Records Management. The in-process documents are maintained in locked file cabinets that are rated at 350° for one hour. There is an access list of 12 personnel that have access to the records. It was noticed that the procedure stated

that draft documents be marked "draft," however, the draft documents are coded by the controlling procedure to identify the document as draft. A procedure change is currently in process to clarify the requirements.

5.0 PERSONNEL CONTACTED DURING THE COURSE OF THE SURVEILLANCE

A. Ali, Manager, Audit and Surveillance, RSN
E. Bean, Document and Records Control, Technical and Management Support Services (T&MSS)
R. Bullock, Technical Project Officer, RSN
J. Calovini, Deputy Technical Project Officer, RSN
R. Deklever, Chief, QA Compliance, RSN
J. Douglas, Engineering Records, RSN
D. Keller, Manager, Central Records Operations, T&MSS
J. Rue, Senior Quality Engineer Coordinator, RSN
R. Schreiner, Chief Design Engineer, RSN
E. Spangler, Plans & Procedures Division, T&MSS
A. Tacelli, Field Document and Records Control, T&MSS
D. Tunney, Manager, Quality Assurance Engineering, RSN

6.0 MEASURING AND TEST EQUIPMENT USE DURING SURVEILLANCE

There was no Measuring and/or Test Equipment used during the course of this surveillance.

7.0 SURVEILLANCE TEAM EVALUATION

It is the consensus of the Surveillance Team that the RSN QA program was implemented satisfactorily and was effective during the processing of the ESF Title I Design Summary Report. It was noted that by definition on the flowdown check, that if the requirement was not in the Title I documents that the requirement was deferred to Title II. The YMPO Management Review of the Title I documents was determined to be satisfactory.

The Field Change Control Process (AP-3.5Q) used in support of the Midway Valley Trenching operation was determined to be unsatisfactory based on incomplete documentation and performance which did not adhere to the procedure. The AP-3.5Q procedure itself appears to be in noncompliance with the QAPD, in that it allows the Architect and Engineer's (A&E) specification and drawings to be changed via the FCR process and allows work to proceed prior to RSN revising the documents.

8.0 SYNOPSIS OF DEFICIENCIES

The following CARs were generated as a result of this Surveillance:

YM-91-084 The review notice for the ESF Title I, Design Summary Report required the designated management reviewers to perform the review in accordance with PP-03-21. M. Dussman performed the review on June 5, 1991, prior to completing the reading assignment for the PP-03-21, which was subsequently accomplished on July 23, 1991.

YM-91-085 The following conditions were included within this CAR:

- a. AP-3.5Q, FCR Nos. 91/082, 91/083, 91/084, 91/086, 91/088, and 91/089 were signed by the YMPO Site Manager in Block 17 disposition authority. However, the Site Manager failed to mark the "Approval" block or "Disapproval" block.
- b. AP-3.5Q, Paragraph 5.0, Step 13 requires the project participant to revise the FCR identified documents in accordance with internal procedures and submit the revised documents to the FCCB. RSN, the designated design organization, currently does not have a Change Control procedure that interfaces with AP-3.5Q for design changes processed by the FCCB. This is documented on a RSN Deficiency Report DR-91-5-026.
- c. AP-3.5Q, Paragraph 5.0, Step 17, requires the Site Manager to submit the FCR form to the field document control. In addition to the FCR a Controlled Document Issuance Authorization (CDIA) and a Controlled Distribution Release Instruction (No form number) is submitted to the field document control. AP-3.5 does not address these documents and AP-1.5Q for the CDIA form is not referenced in AP-3.5Q.
- d. AP-3.5Q, Paragraph 5.0, Step 18, requires field document control to submit the approved FCR to the field Local Records Center (LRC) and copies to affected participants and Division Directors, Project CCB Secretary, Site Office Plan Room, and Site Manager. Actually, Field Document Control, in accordance with their procedure Work Instruction WI-REC-006, Revision 0, YMP Site Office Records Center Services, submitted the original FCR and CDIA to Project Document Control for processing per AP-1.5Q, sends a copy of FCR marked "Temporary" to the job package and a copy to the Site Manager.

YM-91-086 The QAPD DOE/RW-0215, Revision 3, ICN 1, Paragraph 3.1.8 Design Change Control, states in part; changes are reviewed and approved by the Organization that reviewed and approved

the original Design Document, except when the Organization is no longer responsible. In these cases, Office of Civilian Radioactive Waste Management (OCRWM) will designate a new responsible organization.

Paragraph 5.1, states in part, activities affecting quality are performed in accordance with these documents. OCRWM delegates preparation and control of design drawing.

Paragraph 6.1.1 states in part, documents that specify quality and/or technical requirements are revised in accordance with written procedures. Major change shall be reviewed and approved by the same organization that performed the original review and approval, unless other organizations are specifically designated by the organization responsible for the document.

Contrary to the above requirements, AP-3.5Q allows the YMPO FCCB to generate changes to RSN design documents, (RSN is currently the OCRWM designate A&E), via the FCR process, which is then posted against the design documents in the job package, allows work to continue. The FCR process circumvents the normal RSN change control process for specification and drawings. In addition, RSN does not have a design control procedure that interfaces with AP-3.5Q, or a procedure that addresses RSN design field changes.

9.0 RECOMMENDATIONS

The Surveillance Teams recommends that a Management Hold be placed on any Title II design change activities until such time that (1) AP-3.5Q, "Field Change Process," is evaluated for compliance to the upper-tier documents, and (2) the A&E program procedures for Design Change to accommodate the field change process is in place and effective. Additionally, Field Document Control should revise procedure WI-REC-006, Revision 0, to comply with AP-3.5Q.

10.0 REQUIRED ACTIONS

Response to the CARs delineated in Section 8.0 of this report is due within the time frame stated in Block 10 of the CARs as detailed in the CAR transmittal letter. Upon response and satisfactory verification of all remedial and corrective actions, the CAR will be closed and the YMPOAD will notify YMPO by letter of the closure.