OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION

QUALITY ASSURANCE SURVEILLANCE REPORT

OF

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE

FLOW OF REQUIREMENTS FOR THE

SCIENTIFIC INVESTIGATION PROCESS

SURVEILLANCE YMP-SR-93-037

CONDUCTED AT LAS VEGAS, NEVADA

AUGUST 16 THROUGH SEPTEMBER 8, 1993

ACTIVITIES SURVEILLED:

SCIENTIFIC INVESTIGATION PROCESS - STUDY PLANS, TEST PLANNING PACKAGES AND JOB PACKAGES

Prepared by: Robert E Harpster Date: 9/14/93
Robert E. Harpster
Surveillance Team Leader
Yucca Mountain Quality Assurance Division

Approved by: R C Horton Date: 9/16/93
Donald G. Horton
Director
Office of Quality Assurance

1.0 EXECUTIVE SUMMARY

This surveillance of the Yucca Mountain Site Characterization Project Office (YMPO) Regulatory and Site Evaluation Division (RSED) evaluated the flow of requirements for the scientific investigation process and the compliance of the Test Planning Packages (TPPs) and Job Packages (JPs) to Administrative Procedures (AP)-5.32Q, Revision 3, "Test Planning and Implementation of Requirements" and AP-5.21Q, Revision 3, Interim Change Notice 2, "Field Work Activation." This surveillance was conducted at the U.S. Department of Energy (DOE) YMPO, August 16 through September 8, 1993. During the surveillance, effectiveness of the implementation of DOE Quality Assurance (QA) Supplement III, "Scientific Investigation," was evaluated. One Corrective Action Request (CAR) YM-93-093 was issued to identify procedural noncompliance and/or lack of procedural clarity regarding contents in TPPs and JPs, and concerning the identification and control of requirements for the implementation of the scientific investigation process. Although the effectiveness of the portions of the QA program checked is currently considered adequate for this stage in site characterization, response to this CAR and the included recommendations for corrective action will allow a more complete evaluation of the effectiveness of the program with regard to future work. A description of the CAR is included in Paragraph 5.3 of this report, and an information copy of the CAR is enclosed as Attachment 1.

2.0 PURPOSE AND SCOPE

Surveillance 93-037 was conducted at YMPO offices to review the flow of requirements in the scientific investigation process, to verify the implementation of procedures AP-5.32Q and AP-5.21Q with respect to this flow, to review the coverage of QA program elements in the scientific investigation process, and to assess the QA implementing control flow of the scientific investigation process.

3.0 SURVEILLANCE TEAM

Robert E. Harpster, Surveillance Team Leader, Yucca Mountain Quality Assurance Division/Quality Assurance Technical Support Services (QATSS)

4.0 PERSONNEL CONTACTED DURING THE SURVEILLANCE

R. Barton, Support to YMPO Project Manager, DOE
S. Jones, Deputy Director for RSED, DOE
R. Crawley, Support Staff, RSED, DOE
S. Smith, Manager, Test Planning and Support Department, Technical and Management Support Services

5.0 SURVEILLANCE RESULTS

A sample of eleven TPPs and thirteen JPs were reviewed for evaluation with respect to requirements of procedures AP-5.32Q and AP-5.21Q.

Document hierarchy charts containing the flow of requirements and charts depicting the flow of process for scientific investigations were located and examined. These charts were reviewed and evaluated with respect to assuring prerequisites for a given activity and have been satisfied and that planning work identified prerequisites (Quality Assurance Requirements and Description (QARD), Sections 2.2.1 and 2.2.4).

5.1 Documents Reviewed

TPPs:	91-5	91-32	91-34
	92-1	92-2	92-5
	92-7	92-15	92-16
	92-17	91-32	
JPs:	92-2	92-20c	91-1
	91-5	93-11	93-10
	93-9	92-1	92-2
	91-2	91-6	91-8
	91-9		

Charts and Plans:

Figure 1-3, Office of Civilian Radioactive Waste Management Hierarchy YMP/92-32, Revision 0, Draft

Scientific Investigation Process (Site Characterization) SMSCRT 129/7 1690

Yucca Mountain Project, Project Management Plan, YMP/88-2, Revision 2

5.2 Analysis of Results

TPPs reviewed contained correct references to the appropriate higher tier documents. Some TPPs were written as a series of "Phases" which are referred to as revisions (examples are TPPs 91-32, 92-05, 92-02 and 92-01). Signed approval pages containing a summary of the revision history were not included in some TPPs of the higher revision numbers while some TPP revisions did not use revision bars.

JPs reviewed contained all required contents with the exception that some did not reference the proper scoping documents (specifically the TPP). Examples are JPs 91-6 and 91-8.

QARD Section 2.2.4, "Planning Work," states that "Planning shall be performed to ensure work is accomplished under suitably controlled conditions. Planning elements shall include identification of prerequisites, special controls, environmental conditions processes, or shall...." Also, stated under Section 2.2.1, "...prerequisites for a given activity have been satisfied." The key objective of the QA program pertinent to this surveillance is to assure that QA documents defining prerequisites for a given activity, exist and provide methods for implementation. This QARD requirement is interpreted to mean that the process of the key steps in scientific investigations are to be completed and performed in a correct and specified order. Details of each investigation process can be performed using the scientific notebook documentation process and/or technical procedures, and for routine work, stand alone procedures can be used; i.e., technical reviews, peer reviews, APs, Branch Technical Procedures, Quality Assurance Administrative Procedures, and appropriate participant procedures. However, results of this surveillance questions the adequacy of the current QA procedures to provide control of the overall scientific investigation process. Possible solutions include: (1) Issue a flowchart as a controlled document and develop an implementing procedure for each major sub-division of the process. For example: test planning, test implementation, and test evaluation and (2) issue flowchart as part of each implementing procedure. See attached CAR for recommended actions.

5.3 CAR YM-93-093

1. Contrary to the requirement that work planning includes identification of prerequisites and that prerequisites for a given activity have been satisfied, documented flowdown of requirements for the scientific investigation process is inconsistent and incomplete. Also, the sequence or series of prerequisites for a scientific investigation process is not controlled nor is there an implementing procedure for this process.

2. Contrary to the requirement that revision history for TPPs be included in revisions, and that change bars be used to identify changes, some TPPs do not clearly document the content or the revision history.

3. Contrary to requirements that a JP scope includes specific references to scoping documents, some JPs do not reference the TPP initiating the JP.

6.0 RECOMMENDATIONS

Recommendations are included in the attached CAR and are as follows:

1. Consider documents that track requirements to the work be controlled. The control is necessary to show the sequence and completeness of the implementation of requirements. Also, the flow of actions should be documented and controlled to assure that planned actions are implemented, complete, and are in a correct sequence to assure that the sequence of action occurs to produce a complete process. Also necessary is assurance that all organizations and participants are currently updated as to changes and that interfaces in the flow of work are identified.

2. It is hard to understand the scope, interaction, and sequence of management between the numerous management plans. Although plans are not directly under the QA program, plans present programs that control or direct the quality-affecting process for managing work on items, activities important to safety, and waste isolation. A controlled chart of the hierarchy of management plans and their interactions is recommended to demonstrate the quality control of direction for work performed under these management plans.

3. Recommend AP-5.32Q be revised to clearly define applicability with respect to work off-site or laboratory work. Also, clarify when a JP is required; as in the case of a field test off the repository block.

   Recommend AP-5.21Q be revised to clearly define the applicability with respect to work off-site; as for regional or off the repository block, and whether the work is surface disturbing or not.

   Make procedures clarify whether JPs can be issued without the higher tier document TPP and if so, identify the circumstances for criteria under which this is permissible.

7.0 ATTACHMENTS

Attachment 1: Information copy of CAR YM-93-093
Attachment 2: Chart "Scientific Investigation Process (Site Characterization)"

ATTACHMENT 1

INFORMATION COPY

OF

CORRECTIVE ACTION REQUEST

ORIGINAL
THIS IS A RED S

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

8 CAR NO.: YM-93-093
DATE: 9/10/93
SHEET: 1 OF 2
QA

CORRECTIVE ACTION REQUEST

1 Controlling Document	2 Related Report No.
QARD, Sections 2.2.1 & 2.2.4, AP-5.32Q, and AP-5.21Q	YMP-SR-93-037

3 Responsible Organization	4 Discussed With
DOE/RSED	Susan B. Jones

5 Requirement:

1) QARD, Sections: 2.2.1 - The Quality Assurance Program establishes requirements to ensure that prerequisites for a given activity have been satisfied and 2.2.4 - Planning work, "Identification of Prerequisites."

2) AP-5.32Q, 5.6.2: Adding an annotated approval page signed by the responsible Division Director, the Director of QA and the affected parties to the revised version of the test package. Signed approval page shall contain a summary of the revision(s) made and change bars will be used to indicate changes.

3) AP-5.21Q, Attachment 2, Job Package Scope 6: Specific references to scoping document. List references including plans. "Test Planning Package Documents."

6 Adverse Condition:

1) Inconsistencies and incompletions identified in documents that show the flowdown of requirements. No controlled document located that shows the flow of the scientific investigation process and the sequential implementation of such a process.

2) Some higher revision of test planning packages reviewed, show no approval page documenting revision history. Examples: 92-05, 92-02, and 92-01.

3) Some Job Packages reviewed do not make reference to higher tier planning documents such as test planning packages. Examples: 91-06 and 91-08.

9 Does a significant condition adverse to quality exist? Yes___ No X_ If Yes, Circle One: A B C	10 Does a stop work condition exist? Yes___ No X_; If Yes - Attach copy of SWO If Yes, Circle One: A B C D	11 Response Due Date: 20 Working Days from Issuance

12 Required Actions: [X] Remedial [X] Extent of Deficiency [X] Preclude Recurrence [ ] Root Cause Determination

13 Recommended Actions:

1. Numerous management plans exist. It is hard to understand the scope, interaction and sequence of management between the plans. Although the plans are not directly under the QA program, the plans present programs that control or direct quality-affecting process for managing work on items and activities important to safety and waste isolation. A controlled chart of the hierarchy of management plans and the interactions

7 Initiator Robert E. Harpster Date	14 Issuance Approved by: QADD Date 9/14/93
15 Response Accepted QAR Date	16 Response Accepted QADD Date
17 Amended Response Accepted QAR Date	18 Amended Response Accepted QADD Date
19 Corrective Actions Verified QAR Date	20 Closure Approved by: QADD Date

REV. 08/91

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

8 CAR NO.: YM-93-093
DATE: 9/10/93
SHEET: 2 OF 2
QA

CORRECTIVE ACTION REQUEST (Continuation Page)

13 Recommended Action(s) (continued)

is recommended to demonstrate the quality control of the direction for work performed under these management plans.

Consider documents that track requirements to the work be controlled. The control is necessary to show the sequence and completeness of the implementation of the requirements. Also, the flow of actions should be documented and controlled to assure that the planned actions are implemented and are in the correct sequence and complete so as to assure that the whole sequence of action occurs to produce a complete process. Also necessary is to assure all organizations and participants are currently updated as to changes, and that interfaces in the flow of work are identified.

2. Recommend AP-5.32Q be revised to clearly define the applicability with respect to work off-site or laboratory work. Also, clarify when a JP is required; like in the case of a field test off the repository block.

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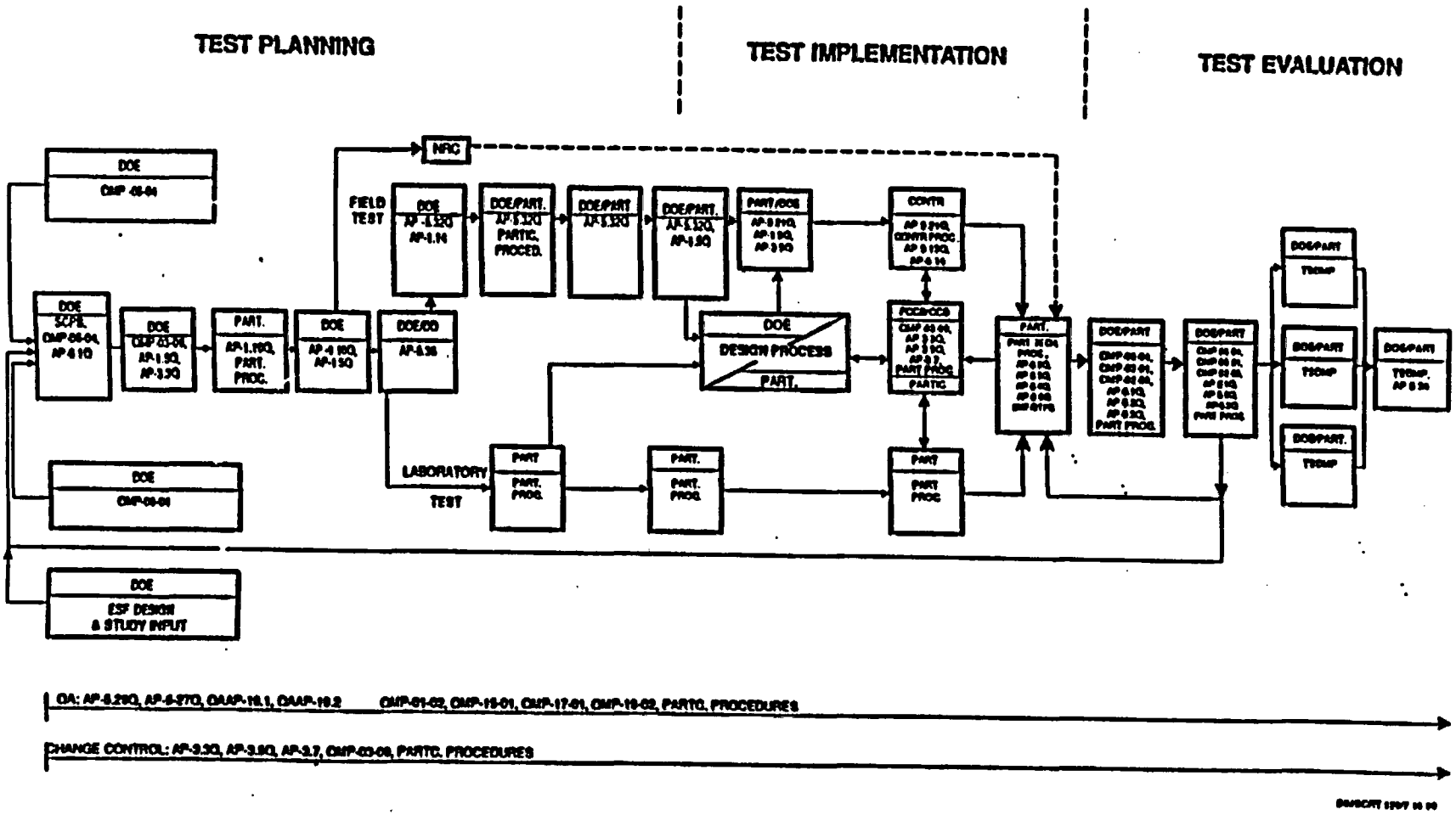
Also, make procedure clarify whether JPs can be issued without the higher tier document TPP and if so, what are the circumstances for criteria under which this is permissible.

SCIENTIFIC INVESTIGATION CONTROLS
(SITE CHARACTERIZATION)



ATTACHMENT 2