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## Readiness Review Report

for

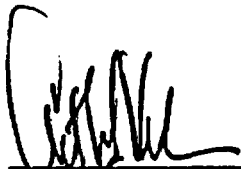
Civilian Radioactive Waste Management System  
Management and Operating Contractor

Design Activities

for

Engineered Barrier System/Waste Package Advanced Conceptual Design,  
Repository Advanced Conceptual Design, and  
Exploratory Studies Facility Title II and III Design

September 30, 1992



Approved  
Arthur S. Kubo  
Readiness Review Team Leader



Approved  
R.L. Robertson  
General Manager



Approved  
N. W. Trembath  
Readiness Review Board Chairperson

## **FOREWORD**

**This review was conducted in accordance with the Management and Operating Contractor (M&O) Quality Assurance (QA) Program procedure QAP 2-6, Rev. 1, Readiness Review, to evaluate the M&O's readiness to proceed with the Engineered Barrier System/Waste Package (EBS/WP) Advanced Conceptual Design (ACD), the Repository ACD, and the Exploratory Studies Facilities (ESF) Title II and III Design activities. These work activities were tasked (in accordance with the Department of Energy [DOE] Order 5700.7B, Work Authorization System) by Yucca Mountain Project Office (YMPO), Office of Civilian Radioactive Waste Management (OCRWM), DOE, under the Contract No. DE-AC01-91RW00134 executed between DOE and TRW Environmental Safety Systems Inc. (TESS), the OCRWM Management and Operating Contractor (M&O).**

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## **ATTACHMENTS**

**ATTACHMENT I      CRWMS Document Hierarchy**

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**ATTACHMENT III    Readiness Review IOC dated September 9, 1992**

**ATTACHMENT IV    Readiness Review Process Flow Chart**

## **1. EXECUTIVE SUMMARY**

**INTRODUCTION:** This Readiness Review Report is prepared on behalf of the Chairman, Civilian Radioactive Waste Management System (CRWMS) Mined Geologic Disposal System (MGDS) Design Readiness Review Board, in accordance with M&O QA Program procedure, QAP 2-6 Rev. 1, Readiness Review. The Chairman, acting under the authority of the General Manager, CRWMS M&O, conducted this assessment of the readiness of the M&O Nevada Site organization to begin Engineered Barrier System/Waste Package (EBS/WP) Advanced Conceptual Design (ACD), the Exploratory Studies Facilities (ESF) Title II and III Design, and Repository ACD. This review evaluated the requirements identified these design activities to be performed under the M&O Contract, DE-AC01-91RW00134, in accordance with tasking received from YMPO, OCRWM, DOE. The M&O contract statement of work defined a transition phase which covered a period of approximately 20 months from contract award to completion of phase-in of work from existing contractors. During the transition phase, the M&O organized, staffed, developed/implemented management control systems and a QA Program, trained personnel and completed the QA program Readiness Review required to begin quality affecting work (QAW).

**THE READINESS REVIEW SCOPE:** The scope of this review was to evaluate the readiness of the M&O Nevada Site to execute its responsibilities for the design of the EBS/WP ACD, the Repository ACD, and the ESF Title II and III Design and to accomplish its assigned related work tasks required to be performed under the M&O Program.

A successful QA Readiness Review of the M&O Nevada Site was conducted in December, 1991, with the full QA Program review in April 1992. Only those QA areas which resulted in Open Items would have been re-evaluated during this review. This review evaluated requirements identified in the scope of work but excluded Management Controls which were reviewed earlier as part of the M&O Management Controls Readiness Review. At the time of this review, there were no Open Items or Corrective Action Reports (CARs) assigned to the Nevada Site.

The scope of work was assigned by OCRWM in accordance with DOE Order 5700.7B, Work Authorization System, and in support of the YMPO. The tasks assigned to the M&O are defined

in accordance with the Program Work Breakdown Structure (Attachment II), the respective scopes of work and applicable Task Directives as assigned by YMPO to the M&O.

**THE READINESS REVIEW PROCESS:** The Readiness Reviews of the design activities were performed to confirm the following (see Attachment 1 - CRWMS Document Hierarchy):

- Design schedules and related planning documents have incorporated applicable CRWM Program and YMPO Project programmatic documents, e.g., Program Management Systems Manual, the Yucca Mountain Project (YMP) Management Plan, YMP Systems Engineering Management Plan (SEMP), etc.
- Applicable regulatory requirements, codes, standards, and controls have been identified (e.g., YMP Regulatory Compliance and YM Site Characterization Project [YMSCP] Environmental Regulatory Compliance Plan). Implementing administrative and line procedures as well as procurement documents reflect required design inputs.
- Design and interface responsibilities are clearly defined in applicable procedures and procurement documents<sup>1</sup>.
- Design schedules identify milestone design reviews and technical performance indicators<sup>1</sup>.
- Configuration management procedures for baselining design documents and controlling subsequent changes are developed, approved, and personnel trained in their use prior to start of design activities (e.g., YMPO Configuration Management Plan).
- Whether the design activity is mature enough to proceed to the next implementation phase.

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Footnote 1: The draft YMSCP ESF Design Transition Plan was available during the planning and execution of this Readiness Review. The Readiness Review Team was cognizant of responsibilities and schedules defined by the draft plan; however, the unapproved assignment of responsibilities and schedule peculiar to the transition of design responsibilities was not viewed as requirements by the Review Team. The Transition Plan was approved by the YMPO on September 11, 1992 and distributed to the participants late in the week of September 14, 1992 (after the Readiness Review was completed). The Transition Plan is silent on Title III responsibilities. A YMPO letter, August 25, 1992, assigning Title III responsibilities was variously interpreted by the contractor participants, e.g., Raytheon Services Nevada (RSN), the relinquishing Architect Engineer (A/E); REECo, the Constructor; and the M&O, the gaining A/E. The Readiness Review Team assessed the participants based on the YMPO letter that REECo would execute the first echelon Quality Control inspections with either RSN or the M&O accomplishing the Title III oversight inspection and design activities.

Although the activities reviewed may or may not be quality affecting, this review utilized the successful model from the previous QA Readiness Reviews. The review verified the readiness to perform tasks which are within the scope of the following OCRWM Quality Assurance Requirements Document (QARD) basic requirements:

- |             |    |   |  |
|-------------|----|---|--|
| Requirement | 1  | - | Organization                             |
| Requirement | 2  | - | Quality Assurance Program                |
| Requirement | 3  | - | Design Control                           |
| Requirement | 5  | - | Instructions, Procedures and Drawings    |
| Requirement | 6  | - | Document Control*                        |
| Requirement | 8  | - | Identification and Control Items†        |
| Requirement | 9  | - | Control Processes†                       |
| Requirement | 10 | - | Inspection†                              |
| Requirement | 11 | - | Test Control†                            |
| Requirement | 12 | - | Control of Measuring and Test Equipment† |
| Requirement | 13 | - | Handling, Storage and Shipping†          |
| Requirement | 14 | - | Inspection, Test and Operating Status†   |
| Requirement | 16 | - | Corrective Action*                       |
| Requirement | 17 | - | Quality Assurance Records*               |
| Requirement | 18 | - | Audits*                                  |
| Requirement | 19 | - | Computer Software                        |

\* During the course of the review it was reconfirmed that these requirements had been evaluated in the December, 1991, QA Readiness Review and determined to be acceptably qualified to meet the requirements of this review.

† Criteria used in ESF Title III review, only.

In addition, the following functional areas were included in this review:

- Environmental
- Regulatory and Licensing
- Health and Safety
- Project Management
- OCRWM Criteria 20, Scientific Investigation Criteria, Issues and attributes were incorporated into the other requirement areas as appropriate.

The Attributes List for these areas were based on the requirements derived from the scope of work utilizing OCRWM QARD criteria, the Systems Engineering Management Plan (SEMP) (Draft), the OCRWM Program Management System Manual (PMSM) (Draft), the M&O Management Plan, and YMPO Program Management documents and data.

OCRWM participation in the design readiness review included observers with the Readiness Review Team as well as a member on the Readiness Review Board.

**FINDINGS AND ACTIONS REQUIRED:** There are fourteen Open Items identified; five are designated Hold Points. The Open Items and Hold Points are listed below in the following groupings: Those common to all design activities; and those unique to a specific design activity.

**Common Items:** During the review the team identified Open Items and Hold Points that were common to the three design activities. The common Open Items and Hold Points are as follows:

- The M&O has not implemented an approved Health and Safety Plan. This item has been designated as a Hold Point and requires resolution prior to the start of ESF construction.
- The M&O has not documented the required safety analyses for the workplace and system design. This item has been designated as a Hold Point and requires resolution prior to the start of ESF construction.
- The "Mission 2001" (draft) project level schedule is being used by all project participants for planning although it is inconsistent with the current approved project baseline schedule (i.e., CRWMS Program Cost and Schedule Baseline). This planning schedule needs to be approved by DOE.
- Since the "Mission 2001" (draft) budget has not been approved for use by DOE, there is no DOE endorsed funding assumption for FY93 planning that aligns with the assumed Mission 2001 schedule.
- Engineering Plans for the design activities do not comply with a common SEMP. ESF and EBS/WP are based on the YMPO SEMP and the Repository ACD is based on the M&O SEMP.
- M&O procedures need to be developed and implemented in response to requirements 42 U.S.C. §5846 (10CFR21) regarding the discovery of defects in basic components (including safety related design, analysis, inspection, testing, fabrication, parts, components or consulting services) which could create a substantial safety hazard (YMP Regulatory Compliance Plan).

**EBS/WP ACD Items:** There are no unique EBS/WP ACD Open Items.



**ESF Design Items:** There are five unique ESF Design Open Items; three have been designated as Hold Points.

- The M&O does not have trained and certified inspection personnel or approved inspection procedures to perform the anticipated Title III scope of work. This has been designated as a Hold Point and requires resolution prior to the start of ESF construction.
- The scope of work for ESF Title III design activities (including Package 1A) is not clearly defined and the WBS does not address as built drawings. There is work scope responsibility uncertainty. The ESF Design Transition Plan was not approved when the review began, and the participant's interpretation of the YMPO letter of August 25, 1992 varied. Resolution of the ESF Title III work scope is a Hold Point and requires closure prior to start of this activity.
- The ESF Title III Design organization is not clearly defined. This is a Hold Point and must be closed prior to start of Title III Design activities.
- Training and verification of education has not been completed for all design personnel. Two individuals lacked home office educational certification.
- ESF Design package 1A has not yet been completed by the existing contractor (RSN, Raytheon Services Nevada). There are two major design changes, and YMPO is reviewing RSN's basis for design document. The M&O review and acceptance of this design in accordance with the transition plan is pending.

**Repository ACD Items:** There are two unique Repository ACD Open Items.

- Current work scope as defined in the WBS (work breakdown structure) does not adequately define the scope of work for the studies and evaluations to be performed.
- The Repository ACD Engineering Plan has not been completed and submitted 35 to DOE for approval.

**RECOMMENDATIONS:** The M&O is ready to start ESF Design, EBS/WP ACD and Repository ACD assigned scopes of work except for those tasks subject to Hold Points.

The Readiness Review Board makes these recommendations to the M&O General Manager:

- **Work can proceed with EBS/WP ACD, ESF Title II and III Design, and Repository ACD activities not subject to Hold Points identified in this report.**
- **Work can proceed on activities subject to Hold Points when cleared by the M&O General Manager.**
- **The highest priority should be assigned to closing the health and safety related Hold Points.**

## **2. PURPOSE**

The purpose of this Readiness Review is to verify that the M&O Design organization is ready to accomplish the assigned design tasks to be performed under the OCRWM approved M&O QA Program. The review focused on whether the following criteria were satisfied:

- Work activity prerequisites have been satisfied;
- Detailed Implementing documents are available and approved; and
- Adequate numbers of personnel in each required discipline have been suitably trained and qualified.

All Hold Points and Open Items identified during the M&O Nevada Site QA Readiness Review held in December 1991, were closed at the start of this Readiness Review.

### **3. REQUIREMENTS**

The following documents and the Team-Participant Orientation Meeting presentations (see Paragraph 4.0) were used as source material for this Readiness Review:

- Request for Waiver from the Requirements of Department of Energy Order (DOE) Order 4700.1, letter dated July 23, 1992 from G. R. Haymond to PR242, A. Gupta
- Title III responsibility assignments, YMPO, W. Simeca, letter dated August 25, 1992
- M&O Readiness Review Plans for Repository ACD, EBS/WP ACD and ESF Title II and III Design, dated September 4, 1992
- Contract Statement of Work, dated January 18, 1991.
- ASME, NQA-1-1989 Edition, Quality Assurance Program Requirements for Nuclear Facilities.
- Yucca Mountain Project, Project Management Plan, Revision 2.
- Quality Assurance Requirements Document for the Civilian Radioactive Waste Management Program, (QARD), DOE/RW-0214, Revision 4.
- CRWMS M&O Quality Assurance Program Description (QAPD), Revision 2.
- CRWMS M&O Quality Administrative Procedure, QAP-2-6, Readiness Review, Revision 1.
- DOE Order 4700.1, Project Management System.
- DOE Order 5700.7B, Work Authorization System.
- OCRWM Program Management System Manual (PMSM) (DRAFT).
- M&O Management Plan dated June 2, 1992.
- M&O Quality Administrative Procedures for Design Control.
- YMSCP Environmental Regulation Compliance Plan, August 1992
- YMP Regulatory Compliance Plan (September 1990)
- YMP SEMP (February 1991)
- YMP Safety and Health Plan (June 1992)

- **YMSCP Tracers, Fluids and Material Management Plan (January 1992)**
- **YMSCP ESF Design Transition Plan (August 1992, signed September 11, 1992)**
- **Title 5 U.S.C. §551-706 Administrative Procedure Act as amended**
- **10CFR50 Appendix B, Domestic Licensing of Production and Utilization Facilities**
- **Exploratory Studies Facilities Design Transition Plan, Rev. 0**

#### **4. READINESS REVIEW PROCESS**

The Readiness Review was planned and conducted in accordance with M&O QAP-2-6 Rev. 1, Readiness Review. The flow chart included as Attachment IV outlines the major steps in the readiness process.

The M&O General Manager provided the final direction for this review on September 9, 1992 and provided guidelines for conducting the review (Attachment III). The following schedule applied:

- Activated Readiness Review Team (August 7, 1992)
- Published Readiness Review Plan (September 4, 1992)
- Developed Attributes List (September 4-16, 1992)
- Conducted Readiness Review (September 17-19, 1992) (The original schedule for this and the complementary OCRWM ESF Construction Readiness Review was accelerated by YMPO in mid-August by as much as 30 days to meet operational requirements.)
- Completed Readiness Review Report (September 25, 1992)
- Presented Readiness Review Report to Readiness Review Board (September 30, 1992)
- General Manager's Decision (September 30, 1992)

The previous Readiness Reviews of the M&O Nevada Site along with QA program audits documentation were reviewed and evaluated as part of this review. All Open Items were determined to be resolved and closed.

System requirements, technical studies, and design work are in support of the YMPO and are a subset of, and work to, YMPO management plans, baselines and Technical Direction Letters and Technical Directives. Representative baseline documents used in the review are outlined in Section 3.0.

To ensure an independent review of the determinations of the Readiness Review Team, the M&O General Manager appointed a Review Board Chairperson external to the M&O. The appointed

Chairperson, Nathaniel T. Trembath, is a former senior executive at the Group level within TRW who brings an extensive background in program management with particular emphasis on the systems engineering approach in support of government projects. Thomas R. Colandrea, an industry consultant with extensive experience in the National Waste Program and a highly regarded member of the ASME NQA Program, has been retained as a Board member. Robert Barton is the DOE Observer. Senior M&O executives and managers comprise the remainder of the review board.

The M&O Board members received training on the OCRWM QARD, the M&O QAPD and QAP-2-6 Rev. 1, Readiness Review. The DOE member was provided copies of the M&O QAPD and QAP-2-6 Rev. 1 for review. This training has been documented in accordance with QAP-2-1, Indoctrination and Training.

The Readiness Review Board members are:

- Nathaniel T. Trembath - Chairman
- Raymond W. Godman, M&O Assistant General Manager, Operations
- Arthur B. Greenberg, M&O Assistant General Manager, Systems
- L. Dale Foust, M&O Nevada Site Manager
- R. James Brackett, M&O Quality Assurance Manager
- Thomas R. Colandrea, Consultant
- Robert Barton, DOE Observer

The General Manager designated Arthur S. Kubo, the M&O Chief Engineer, as the Readiness Review Team Leader. The Team Leader appointed the following individuals to the Readiness Review Team with responsibilities as indicated:

- Thomas A. Faries - Team Coordinator
- Robert A. Morgan - Team Consultant
- David D. Evans - ADP; Facilities and Equipment
- James L. Tierney - QA
- Charles T. Tankersley - Environmental, Safety and Health
- Shem K. Blackley - Design Controls
- Wally A. Houston - Design Controls
- Richard J. Parker - Construction Management
- Michael E. Stern - Regulatory & Licensing and Environmental
- Henry A. Sindt - Project Management
- DOE Observers

- Samuel D. Horton
- Jaime Gonzalez
- Robert Ramsgate
- Steven Harris

The biographies of the M&O Board and team members are documented in Appendix A.

The following requirements and guidance were provided for the review:

1. Review Team members are qualified by education and experience in the disciplines required for the Readiness Review. The Team consists mainly of M&O staff persons augmented by outside specialists as appropriate.
2. The Review Team was provided with written guidelines for the Readiness Review. This guidance addresses, but not be limited to: the Readiness Review Plan; documents to be considered when developing a Readiness Review Attributes List; and the schedule for conducting the review. The Readiness Review Team was instructed that the M&O has an OCRWM approved QA program and this review focused on the readiness to begin design activities.
3. The Readiness Review Report specifically addresses as a minimum the following characteristics:
  - The work activity, facility, and equipment prerequisites have been satisfied.
  - The procedures and instructions related to the critical phase of work have been developed, approved, and distributed.
  - That an adequate number of personnel have been suitably qualified and trained in the use of approved procedures.
4. In addition to the characteristics outlined in the above paragraph, the Readiness Review Plan specified that the following criteria, as a minimum, be met:
  - SEMP approach is factored into design activities, per the Technology Project Management Plans, Section 12, and DOE Order 4700.1, Project Management System.
  - Design inputs reflect program requirements, DOE Orders, codes, standards, quality classifications, and procurement specifications.
  - Design responsibilities and interfaces are defined in procedures and procurement documents. Design personnel are qualified and adequately trained in the use of applicable technical and administrative procedures.
  - Planning documents discuss requirements for in-process design reviews and schedules identify milestone design reviews.



- Procedures exist for preparing baselines of design documents and for controlling subsequent changes.

The Readiness Review Team developed the Attributes List using Requirements Lists prepared by each respective design function utilizing the form shown as Appendix B; the scope of work as defined by the Work Authorization System; the criteria contained in the OCRWM QARD; the OCRWM/M&O SEMP; the OCRWM PMSM (Drafts); and the M&O Management Plan. The overall Attribute List structure was based on the 19 Criteria of NQA-1 and Environmental Project Management, Regulatory and Licensing, and Health and Safety. The OCRWM QAPD Criteria 20, Scientific Investigation Control, was embedded in the appropriate design categories. This structure was used to ensure that the Attributes List is comprehensive. This comprehensive attribute list was tailored to acknowledge the status of OCRWM QA Program approval and reflect the scope of the work activity reviewed. The Readiness Review Team Leader approved the Attributes List prior to the start of the review.

Prior to the beginning of the review, individual members of the team reviewed OCRWM, YMPO and M&O documents and procedures in support of the objectives of the review.

The Readiness Review was initiated by a Team-Participant Orientation Meeting. The Readiness Team Leader presented his perspectives on the following topics to the review participants:

- Readiness requirements
- M&O Readiness strategy
- Assumptions of the review
- Roles and responsibilities of the review participants.

The MGDS Manager summarized the ESF Title II and III, EBS/WP ACD and Repository ACD design activities by presenting the following information for each design activity:

- Organization
- Scope of Work Plan
- List of activities to be performed under the M&O program
- Requirements Lists with emphasis on incomplete elements, if any
- Process used to identify requirements
- Implementation Plan for the M&O scope of work
- Determination of staffing requirements and qualifications of personnel

Upon completion of the presentations, the review team conducted the Readiness Review using the approved Attributes List, reference to the introductory presentations, referring to previously reviewed documents and records, by individual and/or group discussions with design managers and staff, and work space walk-through with cognizant managers.

The task matrix shown in Appendix B was completed to identify and document the tasks to be performed under the M&O program and to verify the prerequisites for these tasks.

Observers were instructed on the appropriate interaction protocol with members of the Readiness Review Team and the participants, e.g., Observer questions were submitted on an "Observer Question Form" with responses provided in writing.

Upon completion of the interviews based on the approved Attributes Lists, the Review Team prepared this report and a summary presentation for delivery by the Readiness Review Team Leader to the Readiness Review Board on September 30, 1992. This report includes Open Item Reports generated during the review, actions required to close the Open Item Report. Recommended Hold Points are identified and the specific areas which contribute to the hold is specified. Work cannot proceed on the hold areas until the General Manager is satisfied that the hold has been closed. The report concludes with an overall recommendation for the M&O General Manager's consideration regarding readiness to proceed within the defined scope of work in each activity reviewed.

## **5. READINESS REVIEW SUMMARY**

This section summarizes the results of the readiness review by design activity and appropriate Review Criteria. The Open Items are grouped as Common to All Design Activities (EBS/WP ACD, ESF Design, and Repository ACD), and unique to a Specific Design.

### **Common to All Design Activities:**

- Open Item M&O D-001 - DOE approval of the use of the "Mission 2001" schedule as an interim project level schedule is required.
- Open Item M&O D-002 - YMPO funding guidance is needed for FY93 such that work scopes and schedules can be integrated.
- Open Item M&O D-003 - The M&O does not have an approved Health and Safety Plan. This item has been designated as a Hold Point and requires action prior to ESF Title III Design and subsequent construction activities.
- Open Item M&O D-004 - There is no M&O Safety Analysis documentation for workplace and system design. This item has been designated as a Hold Point and requires action prior ESF Title III Design and subsequent construction activities..
- Open Item M&O D-005 - Engineering Plans for ESF Design, EBS/Waste Package ACD and Repository ACD are not based on the same SEMP.
- Open Item M&O D-007 - Implementing procedures which are responsive to the requirements of 42 U.S.C. § 5846 (10CFR21) are required to ensure that discovery of defects in basic components (including safety related design, analysis, inspection, testing, fabrication, parts, components, or consulting service) which could create a substantial safety hazard are reported to the NRC. Currently, procedures do not exist which will ensure that should such defects be determined the report required by 42 U.S.C. §5846 (10CFR21) is accomplished.

The Environmental Criteria and the Health and Safety Criteria are common to each of the design areas.

The Yucca Mountain Environmental Management Plan and the Environmental Protection Implementation Plan as well as the transition plans for environmental work as described in the letter to Mr. John H. Nelson (Science Applications International Corporation [SAIC]) from Mr. John

J. Easton (DOE General Counsel) of February 6, 1992 assign responsibility to SAIC for environmental regulatory compliance. T&MSS (SAIC) will be utilized by the M&O to accomplish the review of M&O design activities regarding environmental factors. The M&O procedures are adequate to ensure that environmental considerations will be factored into the design process and that documentation of environmental reviews by T&MSS is appropriately accomplished. Adequate resources exist to enable proper interpretation of the environmental laws and regulations applicable to the design. Regarding environmental factors, the M&O is ready to begin design activities.

The Health and Safety Criteria was evaluated from a project prospective and it was determined that the M&O does not have a DOE approved Health and Safety Plan and had no documentation indicating that the required safety analyses had been accomplished. A draft Health and Safety Plan was reviewed during the interview. As a result, all health and safety attributes except Safety Analysis will be combined to form the basis for Open Item M&O D-003 as stated above. The required M&O Safety Analysis documentation will form the basis for Open Item M&O D-004 as stated above. The Health and Safety Plan is a required by YMPO; the Safety Open Items will apply to M&O Nevada Site activities. These Open Items are designated Hold Points and are applicable to the three design activities. The health and safety Hold Points must be cleared prior to the start of ESF Title III work.

The training records for M&O personnel were examined and a representative sample (approximately 25%) reviewed. With the exceptions noted in Section 5.2.1, the records were in order.

The process for maintaining and controlling work plans, schedules, and changes is as follows:

- The YMPO Change Control Procedures are fundamentally divided into two parts, Configuration Management (CM) and Document Control (DC). All of the Configuration and project Cost and Schedule activities are controlled and baselined by the YMPO Change Control Board using CM procedures. The controlled management documents defining the management process are controlled by the YMPO Change Control Board using Document Control Procedures.
- The Configuration Management (CM) Procedures require the identification of Configuration Items which then define the configuration to be controlled. The

current document hierarchy will transition to the new document hierarchy on December 15, 1992, according to the current schedule. The CM procedures for the new document hierarchy are fundamentally the same as for the old hierarchy. Cost and Schedule Baselines are controlled and baselined by Configuration Management Procedures.

- The Document Control (DC) Procedures refer to those plans that define the YMPO management process. When the new document hierarchy is adopted only nine YMPO management documents will be controlled by the Change Control Board. All other control documents will be delegated to the appropriate YMPO Division Director for approval using the same document control procedure.

The following preparatory activities are currently underway in the Construction Management Office regarding the conduct, authority, and performance of the construction management function for the start of construction (Title III).

- Detail the tasks expected to be required based on current YMPO guidance.
- Detail the authority which must be delegated to the Construction Management Office from YMPO to accomplish the tasks required.
- Detail the strategy for the operation of the Construction Management Office. This will include how business is to be conducted on a routine basis, such as required meetings, program reviews, verification points, etc.

## **5.1 ENGINEERED BARRIER SYSTEM/WASTE PACKAGE ADVANCED CONCEPTUAL DESIGN**

The EBS/WP ACD activity is authorized under Work Authorization No. DB-01022-RW-19(10/1/91).

The following enabling documents were utilized in the program implementation:

- Work Package Plan, YMP/90-62
- Waste Package Design (Basis for Site Characterization Plan, Chapter 8) YMP/CM-0010
- Waste Package Implementation Plan, YMP/92-11

The scope of work includes defining the scientific activities in support of the EBS/WP design activities, following the in-progress laboratory testing, initiating the performance analysis of the

ACD design concepts, beginning ACD design activities and evaluations, initiating engineering tasks in support of the design, and supporting system studies.

The EBS/WP ACD activities matrix is provided in Appendix B.

The following Readiness Review criteria applied to the EBS/WP ACD:

#### **5.1.1 Organization**

The M&O's readiness to perform EBS/WP ACD scope of work was reviewed with respect to nine organizational criteria. The review revealed that the M&O has the required organizational structure in place, has adequate numbers of qualified personnel in each required discipline in place or plans to add such personnel on a schedule consistent with work requirements, and has the required facilities and subcontracts available or scheduled to be available when needed.

The review identified no unique Open Items.

#### **5.1.2 QA Program**

The M&O has a DOE accepted Quality Assurance Program. DOE conditionally accepted the M&O Quality Assurance Program Description (QAPD) on July 25, 1991, authorized the M&O to perform work to the M&O QA Program on July 13, 1992, and accepted the M&O Computer Software Quality Assurance Plan (CSQAP) on September 8, 1992. With the acceptance of the M&O CSQAP, DOE unconditionally accepts the M&O QA Program.

The review identified no unique Open Items.

#### **5.1.3 Design Control**

Review of M&O Design Control was accomplished during interviews using the approved Attributes List. The M&O demonstrated readiness in the Design Process through a well defined scope of work, proper inclusion of regulatory requirements in processes, providing adequate workplace

conditions and including procedures for reliability, availability and maintainability. Proper procedures are in place to verify correctness of design. Design Control measures are in place to cover responsibility changes in organizations and needed design process changes. The M&O organization is mature and functions as a team. Communications appear effective with external interfacing organizations. Appropriate procedures, programs and training are adequate.

Design control attributes related to future scientific, regulatory and licensing activities and the successful attainment of a license for the repository were reviewed. The M&O programs and procedures which addressed these attributes were determined to be in place. Procedures are in place to document the rationale for design decisions as well as to track and identify assumptions utilized in the design process. With respect to the above identified attributes, the M&O is ready to begin EBS/WP ACD activities.

The review identified no unique Open Items.

#### **5.1.4 Procurement Document Control**

Procedures are in place for QAW procurements and were reviewed during the April 1992 M&O QA Readiness Reviews. No QAW procurements are planned for the period reviewed.

#### **5.1.5 Plans, Procedures and Drawings**

Review of M&O use of instructions, procedures and drawings in performing engineering activities was accomplished during interviews using the approved attributes list. The M&O demonstrated the following:

- QAW activities are prescribed by and performed in accordance with appropriate documented instructions, procedures and drawings;
- Appropriate training is provided and documented procedures, instructions and drawings prior to the start of QAW; and
- Procedures are in place to assure that Quality Administrative Procedures and Line Procedures are reviewed by a knowledgeable individual on an acceptable frequency.

The review identified no unique Open Items.

#### **5.1.6 Control of Purchased Items and Services**

Procedures are in place for QAW procurements and were reviewed during the April 1992, M&O QA Readiness Reviews. No QAW procurements are planned for the period reviewed.

#### **5.1.7 Computer Software Design and Control**

Approved QA computer software procedures are in place (CSQAP, QAP 19-1 and QAP 19-2). The M&O computer software QA plan has been approved by OCRWM. Current schedules indicate that computer software QAW will not be required before CY94. The current plans anticipate installation and checkout of hardware and software by March 1993. At that time, the software will be validated and the users trained. Currently, only standard office automation hardware and software are being used; and none are required at this time for engineering or design calculations.

The review identified no unique Open Items.

#### **5.1.8 Regulatory and Licensing**

The regulatory and licensing attributes applicable to M&O EBS/WP ACD activities necessary to initiate work were determined to be satisfied. Notwithstanding the need to develop procedures to report defects to the Nuclear Regulatory Commission (NRC) in accordance with the provisions of 42 U.S.C. § 5846 (10CFR21) (Reference Section 5.0 of this report); the M&O is ready to begin work regarding EBS/WP ACD activities from the regulatory and licensing perspective.

Program control documents or procedures are in place to enable satisfaction of regulatory requirements associated with EBS ACD activities. Sufficient resources are available to enable detailed evaluation of the regulatory objectives and intent associated with the applicable regulations. Regulatory requirements are clearly identified in the document hierarchy, including specific references to detailed regulatory considerations.



### **5.1.9 Project Management**

The M&O's readiness to perform the EBS/WP ACD scope of work was reviewed with respect to seven project management attributes. This review revealed that the M&O has an adequately defined scope of work, that a project level schedule exists (but is not approved and baselined), that detailed control level schedules and systems and procedures for evaluating, controlling and reporting on work progress exist, that a budget for performing the work has not been established (Reference Section 5.0 of this report) and that there are no open work activity prerequisites.

The review identified no unique open items.

### **5.1.10 Health and Safety**

Refer to Section 5.0 of this report for discussion on the Health and Safety review.

The review identified no unique Open Items.

### **5.1.11 Environmental**

The division of responsibilities between various contractors on the Yucca Mountain Project assigns T&MSS (SAIC) the responsibility for environmental activities. The M&O has no direct responsibility to accomplish the environmental reviews related to the EBS/WP ACD activities. Environmental review activities will be accomplished by T&MSS according to the M&O procedures. Those procedures were determined to be adequate to begin EBS/WP ACD activities with respect to environmental considerations. The M&O is ready to begin EBS/WP ACD activities as to environmental factors (See Section 5.0 of this report).

## **5.2 EXPLORATORY STUDIES FACILITY**

The planning basis for this activity is the Mission 2001 draft. The activity is authorized under the following enabling documents:

- YMP Technical Direction Letter, dated 4/21/92, which directs the preparation and implementation of a transition plan.
- The ESF Design Transition Plan (YMP/92-20) which establishes a methodology and develops a schedule to transition ESF design responsibilities from RSN to the M&O.
- The Design Plan (YMP/CC-0009)
- The ESF Plan (YMP/CC-0014), which is subordinate to the Design Plan, describes the work to be accomplished and directs that an Engineering Plan be prepared by the Architect/Engineer.

The scope of the ESF Title II and III Design activities is as follows:

- 1A\* Package for site preparation and partial portal of North Ramp
- 1B\* Design Package for surface facilities at North Portal
- 2\* Design Package for North Ramp from Portal to Topopah Springs (TS)
- 3A\* Design Package for site preparation and partial portal of South Ramp
- 3B\* Design Package for surface facilities at South Portal
- 4 South Ramp from Portal to TS level
- 5 North Ramp from Calico Hills (CH) turnout to CH level
- 6 South Ramp from CH turnout to CH level
- 7 Exploration drifts at CH level
- 8 Exploration drifts at TS level
- 9 Main test level core area at the TS level
- 10 Shaft at North end: Surface to TS level

**\*FY 93 Scope of Work**

The ESF Activities Matrix is provided in Appendix B.

The ESF activity has an approved QA program in place. The majority of the work will be performed using the M&O QA procedures with the following exceptions:

- Classification per YMP AP 6.17Q
- Submittals from Vendors/Constructor to the A/E per YMP AP 5.26 (Title III)

- Submittal of as-built information from the Constructor to the A/E per YMP AP 5.24Q (Title III)
- Transfer of technical data between participants per YMP AP 5.1Q

The activity's staffing, training, facilities, and equipment requirements to begin design are in place and functioning to standards. The activity's standards and practices documents will be under document control prior to transition. Supporting contracts and systems engineering support will be in place prior to transition. The ESF activity's design schedules have been developed.

The M&O's readiness to perform ESF Title II and III scope of work was reviewed with respect to sixteen attribute categories. At the time of the review, six categories were not applicable based on the statement of work. The following Readiness Review criteria applied to the ESF Design.

#### **5.2.1 Organization**

The M&O's readiness to perform the ESF Title II Design scope of work was reviewed with respect to nine organizational attributes. This review revealed that the M&O has the required organizational structure in place, has adequate numbers of qualified personnel in each required discipline in place or plans to add such personnel on a schedule consistent with work requirements, and has the required facilities and subcontracts available or scheduled to be available when needed.

The M&O's readiness to perform the ESF Title III scope of work was reviewed with respect to nine organizational attributes. This review revealed that the M&O has not adequately defined the organizational structure at the present time. Consequently, it was not possible to confirm that adequate numbers of qualified personnel or plans to acquire these resources on a schedule consistent with work requirements are in place, or that the required facilities and subcontracts are available or scheduled to be available when needed.

The review identified two unique Open Items.

- Open Item ESF-004 - Clearly define the ESF Title III Design organization structure and interfaces between internal and external organizational units. Verify that

adequate numbers of qualified personnel, facilities and required subcontracts, if any, are or will be available when needed. This Open Item is designated as a Hold Point.

- Open Item ESF-005 - Complete verification of education and training for 2 individuals.

### **5.2.2 QA Program**

The M&O has a DOE accepted Quality Assurance Program. DOE conditionally accepted the M&O Quality Assurance Program Description (QAPD) on July 25, 1991, authorized the M&O to perform work to the M&O QA Program on July 13, 1992, and accepted the M&O Computer Software Quality Assurance Plan (CSQAP) on September 8, 1992. With the acceptance of the M&O CSQAP, DOE unconditionally accepts the M&O QA Program.

The review identified one unique Open Item.

- Open Item ESF-003 - The M&O does not have trained and certified inspection or approved inspection procedures to perform the anticipated Title III scope of work. This is a Hold Point and requires resolution prior to the start of ESF construction.

### **5.2.3 Design Control**

The review of the M&O design process and control measures was done using the approved Attributes List. The review utilized interviews, examination of objective evidence, and incorporated inspection of design office facilities.

The design process was found to rely upon approved plans, procedures and other measures to demonstrate readiness to begin assigned scope of work under Title II. Drawing standards and control processes were in development and appeared to be satisfactory. CAD systems components were being received and put in service on a schedule to support start of active Title II design.

Selected questions from the approved Attributes List were directed towards readiness to support Title III design, including field change processes and as-built documentation of design. The

review determined that appropriate measures were being taken to provide required design office support for Title III.

Design control attributes related to future regulatory and licensing activities and the successful attainment of a license for the repository were reviewed. The M&O programs and procedures which addressed these attributes were determined to be in place. Procedures are in place to document the rationale for design decisions as well as to track and identify assumptions utilized in the design process. With respect to the above identified attributes, the M&O is ready to begin ESF Title II design activities.

The review identified one unique Open Item.

- Open Item M&O D-006. A guidance document is needed for preparation of Basis of Design Documents (BFD's).

#### **5.2.4 Procurement Document Controls**

Procedures are in place for QAW procurements and were reviewed during the April 1992 M&O QA Readiness Reviews. No QAW procurements are planned for the period reviewed.

#### **5.2.5 Plans, Procedures and Drawings**

Review of M&O use of instructions, procedures and drawings in performing engineering activities was accomplished during interviews using the approved Attributes List. The M&O demonstrated the following:

- Quality affecting work activities are prescribed by and performed in accordance with appropriate documented instructions, procedures and drawings (See Open Item ESF-003 for Construction Management in Sections 5.2.2 and 5.2.9);
- Appropriate training is provided and documented on procedures, instructions and drawings prior to the start of quality affecting work (See Open Item ESF-003 for Construction Management in Section 5.2.2 and 5.2.9); and
- Procedures are in place to assure that Quality Administrative Procedures and Line Procedures are reviewed by a knowledgeable individual on an acceptable frequency.

The review identified no unique Open Items.

#### **5.2.6 Control of Purchased Items and Services**

Procedures are in place for QAW procurements and were reviewed during the April 1992 M&O QA Readiness Reviews. No QAW procurements are planned for the period reviewed.

#### **5.2.7 Identification and Control of Materials, Parts, Components, and Samples**

This criterion was not applicable for this review because it is not included in the M&O's current assigned scope of work.

#### **5.2.8 Control of Processes**

This criterion was not applicable for this review because it is not included in the M&O's current assigned scope of work.

#### **5.2.9 Inspection**

This criterion was reviewed using the approved Attributes List. DOE Letter dated August 25, 1992, subject: Title III Inspection of ESF Construction Work, requires that the A/E will be responsible for inspection and surveillance of construction QC activities related to ESF and to perform inspections with certified inspectors under an approved QA program. The M&O does not currently have personnel trained and certified to perform that oversight nor do they have the necessary procedures in place to perform the oversight.

The review identified one unique Open Item.

- Open Item ESF-003 - The M&O does not have trained and certified inspection personnel or approved inspection procedures to perform the anticipated Title III scope of work. (See paragraph 5.2.2, duplicate Open Item.) This is a Hold Point and requires resolutions prior to the start of ESF construction.

#### **5.2.10 Test Control**

This criterion was not applicable for this review because it is not included in the M&O's current assigned scope of work.

#### **5.2.11 Control of Measuring and Test Equipment**

This criterion was not applicable for this review because it is not included in the M&O's current assigned scope of work.

#### **5.2.12 Handling, Storage and Shipping**

This criterion was not applicable for this review because it is not included in the M&O's current assigned scope of work.

#### **5.2.13 Inspection, Test and Operating Status**

This criterion was not applicable for this review because it is not included in the M&O's current assigned scope of work.

#### **5.2.14 Computer Software Design and Control**

The review successfully resolved questions concerning the application of the CAD System and the role to be assumed by the subcontractor, Mercury Blueprint. The CAD System and all drawings and calculations will be subjected to manual review. Mercury Blueprint is intended to provide high volume reprographics support and will not be involved in the design process. Approved QA computer software procedures are in place (CSQAP, QAP 19-1 and QAP 19-2). The M&O Computer Software Plan has been approved by OCRWM.

The review identified no unique Open Items.



### **5.2.15 Regulatory and Licensing**

Program control documents or procedures are in place to enable satisfaction of regulatory requirements associated with ESF Title II design activities. Sufficient resources are available to enable detailed evaluation of the regulatory objectives and intent associated with the applicable regulations. Regulatory requirements are clearly identified in document hierarchy including specific references to detailed regulatory considerations.

The review identified no unique Open Items.

### **5.2.16 Project Management**

The M&O's readiness to perform its ESF Title II and III scopes of work was reviewed with respect to seven project management attributes. This review revealed that the M&O has an adequately defined scope of work for Title II but needs better definition for Title III, that a project level schedule exists (but is not approved and baselined), that detailed control level schedules and systems and procedures for evaluating, controlling and reporting on work progress exist, that a budget for performing the work has not been established and that there is one Title II open work activity prerequisite (Reference Section 5.0 of this report).

The review identified two unique Open Items.

- Open Item ESF-006 - Revise the WBS and WBS Dictionary to clarify and better define the scope of Title III Design work. This is a Hold Point.
- Open Item ESF-007 - ESF Design Package 1A (or parts thereof) needs to be completed by RSN, transmitted to and accepted by the M&O.

### **5.2.17 Health and Safety**

Reference Section 5.0 for discussion on the Health and Safety areas.

The review identified no unique Open Items.

### **5.2.18 Environmental**

Reference Section 5.0 of this report for a discussion on the environmental areas.

The review identified no unique Open Items.

## **5.3 REPOSITORY ADVANCED CONCEPTUAL DESIGN**

The Repository ACD work is authorized under Work Authorization DB 01022 RW 19 Rev 00. The Activities Matrix is tabulated in Appendix B.

### **5.3.1 Organization**

The M&O's readiness to perform the Repository ACD scope of work was reviewed with respect to nine organizational attributes. This review revealed that the M&O has the required organizational structure in place, has adequate numbers of qualified personnel in each required discipline in place or plans to add such personnel on a schedule consistent with work requirements, and has the required facilities and subcontracts available or scheduled to be available when needed.

The review identified no unique Open Items.

### **5.3.2 QA Program**

The M&O has a DOE accepted Quality Assurance Program. DOE conditionally accepted the M&O Quality Assurance Program Description (QAPD) on July 25, 1991, authorized the M&O to perform work to the M&O QA Program on July 13, 1992, and accepted the M&O Computer Software Quality Assurance Plan (CSQAP) on September 8, 1992. With the acceptance of the M&O CSQAP, DOE unconditionally accepts the M&O QA Program.

The review identified no unique Open Items.

### **5.3.3 Design Control**

The M&O demonstrated readiness in the Design Process through proper inclusion of regulatory requirements in processes, providing adequate workplace conditions and including procedures for Reliability, Availability and Maintainability. Proper procedures are in place to verify correctness of design. Design Control measures are in place to cover responsibility changes in organizations and needed design process changes. Interfaces have matured such that the M&O organization functions as a team and not separate companies and that communication is taking place with other interfacing organizations. Appropriate procedures, programs and training are adequately in place. Design Control Attributes related to future regulatory and licensing activities and the successful attainment of a license for the repository were reviewed. The M&O programs and procedures which addressed these attributes were determined to be in place. Procedures are in place to document the rationale for design decisions as well as to track and identify assumptions utilized in the design process. With respect to the above identified attributes the M&O is ready to begin Repository ACD activities.

The review identified no unique Open Items.

### **5.3.4 Procurement Document Control**

Procedures are in place for QAW procurements and were reviewed during the April 1992 M&O QA Readiness Reviews. No QAW procurements are planned for the period reviewed.

### **5.3.5 Plans, Procedures and Drawings**

Review of M&O use of instructions, procedures and drawings in performing engineering activities was accomplished during interviews using the approved Attributes List. The M&O demonstrated the following:

- Quality affecting work activities are prescribed by and performed in accordance with appropriate documented instructions, procedures and drawings;
- Appropriate training is provided and documented on procedures, instructions and drawings prior to the start of quality affecting work; and

- Procedures are in place to assure that Quality Administrative Procedures and Line Procedures are reviewed by a knowledgeable individual on an acceptable frequency.

The review identified no unique Open Items.

#### **5.3.6 Control of Purchased Items and Services**

Procedures are in place for QAW procurements and were reviewed during the April 1992 M&O QA Readiness Reviews. No QAW procurements are planned for the period reviewed.

#### **5.3.7 Computer Software Design and Control**

In the course of the interview it was determined that this group functions mostly in a coordination and administrative role. Modeling and engineering calculations are done by other groups. This role is not anticipated to change until FY94. Approved QA Computer Software Procedures are in place (CSQAP, QAP 19-1 and QAP 19-2). The M&O Computer Software QA Plan has been approved by OCRWM.

The review identified no unique Open Items.

#### **5.3.8 Regulatory and Licensing**

Program control documents or procedures are in place to enable satisfaction of regulatory requirements associated with Repository ACD activities. Sufficient resources are available to enable detailed evaluation of the regulatory objectives and intent associated with the applicable regulations. Regulatory requirements are clearly identified in the document hierarchy including specific references to detailed regulatory considerations (Reference Section 5.0 of this report).

The review identified no unique Open Items.

### **5.3.9 Project Management**

The M&O's readiness to perform its Repository ACD scope of work was reviewed with respect to seven Project Management attributes. This review revealed that the M&O does not have an adequately defined scope of work, that a project level schedule exists (but is not approved and baselined), that detailed control level schedules and systems and procedures for evaluating, controlling and reporting on work progress exist, that a budget for performing the work has not been established and that there is one open work activity prerequisite (Reference Section 5.0 of this report).

The review identified two unique Open Items.

- Open Item ACD-001 - The Repository ACD scope of work with respect to the studies and evaluations to be performed needs to be better defined.
- Open Item ACD-002 - The Repository ACD Plan needs to be completed and approved.

### **5.3.10 Health and Safety**

Reference Section 5.0 of this report for a discussion on the Health and Safety areas.

The review identified no unique Open Items.

### **5.3.11 Environmental**

Reference Section 5.0 of this report for a discussion on the Environmental area.

The review identified no unique Open Items.

## **6. FINDINGS AND ACTIONS REQUIRED**

The Readiness Review Team findings are classified as Open Items. The review team analyzed these Open Items. Team members submitted Open Item Reports recommending Hold Points and actions to resolve them. The Readiness Team Leader approved the Open Item Reports.

There were fourteen Open Items identified; five were designated as Hold Points. Two of the five Hold Points are health and safety related. One is due to the lack of procedures and certified personnel to perform Title III Inspection work. The remaining two result from the unclear assignment of ESF Title III responsibility. YMPO is resolving this issue.

Work should not proceed in those areas designated as Hold Points until the appropriate actions are completed and release is obtained from the M&O General Manager.

Appendix C presents the Open Item List with the actions required to close the items.

## **7. CONCLUSIONS AND RECOMMENDATIONS**

The M&O is ready to start ESF Design, EBS/WP ACD and Repository ACD assigned scopes of work except for those tasks subject to Hold Points.

The Readiness Review Board makes these recommendations to the M&O General Manager:

- Work can proceed with EBS/WP ACD, ESF Title II and III Design, and Repository ACD activities not subject to Hold Points identified in this report.
- Work can proceed on activities subject to Hold Points when cleared by the M&O General Manager.
- The highest priority be assigned to closing the health and safety related Hold Points.

## **APPENDIX A**

### **Biographies**

#### **Readiness Review Board**

- Nathaniel T. Trembath - Chairman
- Raymond W. Godman
- Arthur B. Greenberg
- L. Dale Foust
- R. James Brackett
- Thomas R. Colandrea
- DOE Member, Robert Barton

#### **Readiness Review Team**

- |                         |  |
|-------------------------|--|
| • Arthur S. Kubo        | - Team Leader                              |
| • Thomas A. Farles      | - Team Coordinator                         |
| • Robert A. Morgan      | - Team Consultant                          |
| • Johnny L. Elliott     | - Team Support                             |
| • David D. Evans        | - ADP; Facilities and Equipment            |
| • James L. Tierney      | - QA                                       |
| • Charles T. Tankersley | - Environment, Safety and Health           |
| • Shem K. Blackley      | - Design Controls                          |
| • Wally A. Houston      | - Design Controls                          |
| • Richard J. Parker     | - Construction Management                  |
| • Michael E. Stern      | - Regulatory & Licensing and Environmental |
| • Henry A. Sindt        | - Project Management                       |
- 
- DOE Observers
    - Samuel D. Horton
    - Jaime Gonzalez
    - Robert Ramsgate
    - Steven Harris



BIOGRAPHIES ARE PRIVILEGED  
RECORDS AND ARE MAINTAINED  
IN ACCORDANCE WITH THE QAP 17- 1

**APPENDIX B**  
**TASK MATRIX**

- Waste Package ACD
- ESF Design
- Repository ACD

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# WASTE PACKAGE ACD ACTIVITIES MATRIX

Item Number	WBS 1.2.2	Activity Description	Authority	QAW	Non-QAW	Criteria Number	Responsible Manager
1	1.2.2	The M&O effective October 1, 1991, Assumed responsibility for the Waste Package/EBS design and scientific activities.	Work Authorization DB01022RW19	X	X*	1	H A Benton
2	.1	Waste Package Management & Integration WPP/WPIP and WPIP)	Work Authorization DB01022RW19		X*	1	HA Benton TW Deering RL Fish D Stahl
3	.2	Engineering and Scientific Direction of Near Field Environment Activities (Review Study Plans and Test Plan)	WPP/WPIP	X		3	TW Deering, RL Fish D Stahl
4	.3.1	Engineering and Scientific Direction of Waste Form Testing and Modeling Activities a) Spent Nuclear Glass Fuel (SIP & AP Reviews) b) High Level Glass(SIP & AP Reviews)	WPP/WPIP	X		3	RL Fish, D Stahl
5	3.1.2	Develop Component Performance Models for ACD EBS/WP	WPP/WPIP	X	X*	3	D. Stahl
6	.3.2	Engineering and Scientific Direction of Metallic Testing and Modeling Activities a) SIP and AP Reviews	WPP/WPIP	X		3	RL Fish, D Stahl
7	.3.4	Engineering and Scientific Direction of Radionuclide/EBS Interaction Testing and Modeling Activities a) SIP and AP Reviews	WPP/WPIP	X		3	D Stahl, RL Fish
8	.3.5	Engineering and Scientific Direction of Non-Metallic Barrier Concepts Activities	WPP/WPIP	X		3	RL Fish

\* Presently all EBS/WP Design Activities are included in the YMP Quality Activities List by direct inclusion. We expect that as a result of classification analyses performed during Early FY 1993 portions of the EBS/WP will no longer be considered Quality Affecting.

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**WASTE PACKAGE ACD ACTIVITIES MATRIX**

Item Number	WBS 1.2.2	Activity Description	Authority	OAW	Non-OAW	Criteria Number	Responsible Manager
9	.4.1	Perform ACD Design Evaluations a) Thermal b) Structural c) Shielding d) Criticality	WPP/WPIP	X	X*	3	TW Deering
10	.4.1	Prepare ACD Design Specifications	WPP/WPIP	X	X*	3	TW Deering
11	.4.1	Prepare ACD Design Drawings	WPP/WPIP	X	X*	3	TW Deering
12	.4.2	Engineering Development Tasks a) Remote WP Closure methods b) Remote and conventional ISI/NDE methods c) WP Stress minimizing methods d) Remote handling methods	WPP/WPIP	X	X*	3	TW Deering
13	.4.2	ACD Fabrication Specifications	WPP/WPIP	X	X*	3	TW Deering
14	.4.2	ACD Fabrication Drawing	WPP/WPIP	X	X*	3	TW Deering
15	.4.2	Development Task Direction	WPP/WPIP	X	X*	3	TW Deering
16	.4.3	Interface Specifications	WPP/WPIP	X	X*	3	TW Deering
17	.4.3	Interface Drawings	WPP/WPIP	X	X*	3	TW Deering
18	.4.3	Development Tasks Technical Direction	WPP/WPIP	X	X*	3	TW Deering
19	.4.1,2,3	ACD WP/EBS Concept Selection Criteria	WPP/WPIP	X		3	TW Deering

\* Presently all EBS/WP Design Activities are included in the YMP Quality Activities List by direct inclusion. We expect that as a result of classification analyses performed during Early FY 1993 portions of the EBS/WP will no longer be considered Quality Affecting.

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# ESF ACTIVITIES MATRIX

WBS	ACTIVITY DESCRIPTION	AUTHORITY	QAW	NON-QAW	CRITERION NUMBER	RESPONSIBLE MANAGER
1.2.6	<p><b>1. WORKSCOPE SUPPORT</b> (Tasks necessary to prepare to perform the workscope).</p> <p>The M&amp;O, effective October 1, 1992, will assume responsibility for all ESF design activities currently being performed by RSN.</p>	<ul style="list-style-type: none"> <li>TDL re. ESF dated 4/21/92.</li> <li>YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)</li> </ul>	X	X	N/A	Hahn
1.2.9	<b>A. Quality assurance (QA)</b> will be sufficient to conduct Title II and Title III QA engineering activities.	YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)	X		1, 2, 3, 5, 6, 10, 19	Taipale Engwall Hahn
1.2.6	<b>B. The M&amp;O</b> will prepare the FY93 Engineering Plan	YMP/CC-009 Design Plan		X	N/A	Taipale Engwall
1.2.6	<b>C. The M&amp;O</b> will provide trained engineering management personnel sufficient to start design activities	YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)	X		1	McKie Pimentel
1.2.1	<b>D. Systems engineering support</b> will be sufficient to support design activities	YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)		X	N/A	Cruz
1.2.6	<b>E. The M&amp;O</b> will prepare any supporting contracts and MOU's	YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)		X	N/A	Taipale Hahn
1.2.9	<b>F. The M&amp;O</b> will prepare a logistics support plan	YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)		X	N/A	Hahn
1.2.9	<b>G. Administrative support</b> will be sufficient to provide cost and schedule control, clerical and facilities support	YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)		X	N/A	Abel

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# ESF ACTIVITIES MATRIX

WBS	ACTIVITY DESCRIPTION	AUTHORITY	QAW	NON-QAW	CRITERION NUMBER	RESPONSIBLE MANAGER
1.2.6	<b>2. WORKSCOPE</b>  The M&O effective October 1, 1992, will assume responsibility for all ESF design activities currently being performed by RSN.	• TDL re. ESF dated 4/21/92 • YMP/92-20 Rev. 0 Section 2.0 (Scope of Work)	X	X	See Below	Taipale Engwall Hahn
1.2.6	A. Update Basis for Design	YMP/CC-0009 Design Plan	X		3	Taipale Engwall
1.2.6	B. Perform Classification & Grading	YMP/CC-0009	X		2, 3	Taipale Engwall
1.2.6	C. Prepare Calculations, Drawings & Specifications	YMP/CC-0009	X	X*	3, 19	Taipale Engwall
1.2.6	D. Conduct Design Reviews	YMP/CC-0009	X	X*	3	Hahn
1.2.6	E. Perform Trade-Off Studies	YMP/CC-0007	X	X*	3	Taipale Engwall
1.2.1	F. Perform Value Engineering Studies	DOE 4010.1 & YMP/91-26/8-91		X	N/A	Cruz
1.2.6	G. Perform Title III Activities	YMP/CC-0009 & YMP/92-20	X	X*	3, 10	Taipale Engwall
1.2.6	H. Industrial Safety Analyses & Update PSAR	YMP/CC-0009		X	N/A	Taipale Engwall
1.2.1	I. Perform Reliability, Availability, and Maintainability Analyses	YMP/CC-0007	X	X*	3	Cruz
1.2.1	J. Configuration Management	YMP/CC-0007	X		3	Cruz
1.2.6	K. Prepare Construction Cost Estimates	YMP/CC-0009		X	N/A	Taipale Engwall
1.2.6	L. Support YMP/ESF Branch with Status, Briefings, Reports, Reviews		X	X	3	Hahn

\* PRESENTLY MOST ESF DESIGN ACTIVITIES ARE INCLUDED IN THE YMP QUALITY ACTIVITIES LIST BY DIRECT INCLUSION. WE EXPECT THAT AS A RESULT OF CLASSIFICATION ANALYSES PERFORMED DURING EARLY FY93 PORTIONS OF THE ESF WILL NO LONGER BE CONSIDERED QUALITY AFFECTING.

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# **REPOSITORY ACD ACTIVITIES LIST**

WBS	SCOPE/ACTIVITY	QAW <sup>1</sup>	CRITERIA	NON QAW	RESPONSIBLE
1.2.1	A. Conduct engineering and trade studies to include rod consolidation, thermal loading, etc.	X	3,19	X*	Abhold
1.2.4.1	A. Support development of Repository Design Requirements Document (RDR) B. Develop and control basis for design document.	X	3		McKie/Pimentel McKie/Pimentel
1.2.4.2	A. Evaluate waste handling equipment operating envelopes and define dimensional constraints. B. Define design concepts for key equipment.	X X	3 3		McKie/Pimentel McKie/Pimentel
1.2.4.3	A. Prepare surface and subsurface general arrangements. B. Evaluate design options for shafts and ramps: includes siting, construction C. Evaluate design options for surface facilities including unitary WHB, WHB-portal colocation, etc. Evaluate design options for repository emplacement scenarios, including horizon, gradient, layout, and stability. D. Estimate the effect of areal power density on the repository design. Evaluate design options for ventilation, electrical systems, and other utilities. E. Define concepts for material handling system, backfill system, support systems, and monitoring and control systems.	X X X X X	3 3 3 3 3	X*  X* X* X*	McKie/Pimentel McKie/Pimentel McKie/Pimentel McKie/Pimentel McKie/Pimentel
1.2.4.4	A. Evaluate surface and subsurface operation control concepts. B. Develop a maintenance concept for the Repository.	X X	3 3	 X*	McKie/Pimentel McKie/Pimentel
1.2.4.5	A. Outline engineering evaluation and design studies for decommissioning.	X	3	X*	McKie/Pimentel
1.2.4.6	A. Evaluate seals and placement methods and placement technology.	X	3		McKie

\* Presently all design activities are included in the YMP Quality Activities List by direct inclusion. We expect that as a result of classification analyses performed during FY93 portions of the ESF will no longer be considered Quality Affecting.

## **APPENDIX C**

- **OPEN ITEMS LIST**
- **OPEN ITEM REPORTS**
  - **Common-affects all design areas**
  - **ESF**
  - **Repository ACD**



Civilian Radioactive Waste  
Management System

# INFORMATION ONLY

Readiness Review  
Open Item List

Management & Operating  
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Complete only applicable items.

Readiness Review: M&O NEVADA SITE / ESF DESIGN / ACD REPOSITORY / EBS WASTE PACKAGE

Page: 1 of 3

Open Item Number	Action Required	Responsibility	Estimated Completion Date	Date Closed	Closed by (Initials)
ESF - 003	TRAIN AND CERTIFY INSPECTORS . DEVELOP AND APPROVE CONSTRUCTION MANAGEMENT INSPECTION OVERSIGHT PROCEDURES .	M&O QA MANAGER / LAS VEGAS	11 - 15 - 92		
ESF - 004 *	(1) PREPARE ORGANIZATION CHARTS AND SUPPORTING INFORMATION AS REQUIRED TO CLEARLY DEFINE THE M&O'S ESF TITLE III DESIGN ORGANIZATION AND THE INTERFACES BETWEEN INTERNAL AND EXTERNAL ORGANIZATION UNITS .  (2) VERIFY THAT ATTRIBUTES 2 THRU 9 CAN BE CLOSED.	M&O MGDS MANAGER  M&O MGDS MANAGER AND READINESS REVIEW TEAM	09 - 30 - 92  09 - 30 - 92		
ESF - 005	COMPLETE VERIFICATION OF EDUCATION AND TRAINING FOR INDIVIDUALS .	M&O MGDS MANAGER	09 - 30 - 92		
ESF - 006 *	REVISE THE WBS AND WBS DICTIONARY TO BE CONSISTENT WITH DOE'S 8 - 25 - 92 LETTER AND CLARIFY THE M&O'S ESF TITLE III SCOPE OF WORK .	M&O NEVADA SITE MANAGER	09 - 30 - 92		
ESF - 007	(1) COMPLETE ESF DESIGN PACKAGE 1A OR FIRST PART THEREOF AND TRANSMIT IT TO THE M&O .  (2) REVIEW AND ACCEPT ESF DESIGN PACKAGE 1A OR FIRST PART THEREOF IN ACCORDANCE WITH TRANSITION PLAN PROCEDURES	M&O MGDS MANAGER  M&O MGDS MANAGER	09 - 30 - 92  10 - 30 - 92		

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Readiness Review  
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**INFORMATION ONLY**

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*Complete only applicable items.*

Readiness Review: M&O NEVADA SITE / ESF DESIGN / ACD REPOSITORY / EBS WASTE PACKAGE

Page: 2 of 3

Open Item Number	Action Required	Responsibility	Estimated Completion Date	Date Closed	Closed by (Initials)
ACD - 001	EXPAND THE SCOPE OF WORK IN THE WBS OR OTHER DOCUMENTS TO MORE CLEARLY DEFINE THE SCOPE OF WORK FOR STUDIES AND EVALUATIONS AND OBTAIN DOE APPROVAL .	M&O MGDS MANAGER	09 - 30 - 92		
ACD - 002	COMPLETE THE REPOSITORY ACD PLAN AND OBTAIN DOE APPROVAL .	M&O MGDS MANAGER	10 - 30 - 92		
M&OD - 001	DOE TO ISSUE AN INSTRUCTION TO THE M&O TO USE THE MISSION 2001 SCHEDULE ON AN INTERIM BASIS UNTIL THE ISSUANCE OF EITHER A NEW BASELINE SCHEDULE OR A REVISED INTERIM SCHEDULE .	M&O NEVADA SITE MANAGER	09 - 30 - 92		
M&OD - 002	PROVIDE FY 93 FUNDING AND INSTRUCTIONS REGARDING THE REQUIRED REVISIONS TO WORK SCOPES, SCHEDULES, AND BUDGETS .	M&O NEVADA SITE MANAGER	10 - 01 - 92		
M&OD - 003*	PREPARE AND IMPLEMENT AN APPROVED YMP - M&O HEALTH AND SAFETY PLAN WHICH MEETS APPLICABLE LAWS , REGULATIONS , AND DOE ORDERS .	M&O / YMP HEALTH AND SAFETY	10 - 30 - 92		
M&OD - 004 *	CONDUCT THE REQUIRED SAFETY ANALYSIS IN ACCORDANCE WITH APPROPRIATE DOE ORDERS .	M&O / YMP HEALTH AND SAFETY	11 - 15 - 92		
M&OD - 005	BASE THE ENGINEERING PLANS FOR THE ESF DESIGN , EBS WASTE PACKAGE ACD AND REPOSITORY ACD ON THE SAME APPROPRIATE SEMP OR JUSTIFY OTHER APPROACH .	M&O MGDS MANAGER	10 - 30 - 92		

Civilian Radioactive Waste  
Management System

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**INFORMATION ONLY**

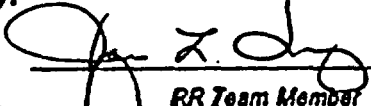
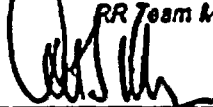
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*Complete only applicable items.*

Readiness Review: M&O NEVADA SITE / ESF DESIGN / ACD REPOSITORY / EBS WASTE PACKAGE

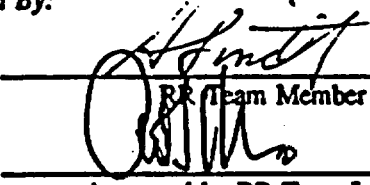

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Open Item Number	Action Required	Responsibility	Estimated Completion Date	Date Closed	Closed by (Initials)
M&OD - 006	PREPARE GUIDANCE DOCUMENT FOR DEVELOPING BFD'S .	M&O MGDS MANAGER	10 - 30 - 92		
M&OD - 007	DEVELOP AND IMPLEMENT A GENERIC PROCEDURE REQUIRING THAT IMPLEMENTS THE PROVISIONS OF 42 U. S. C. 5846 ( 10CFR21 ) .	M&O MGDS MANAGER	10 - 30 - 92		

<b>Readiness Review</b> M&O GSF DESIGN	<b>Attribute Number</b> 2.10, 2.10, 2.10 (CORRECTION)	<b>Open Item Number</b> ESF-003
<b>Description of Prerequisite:</b> DOE Letter dtd Aug 25, 1992 subj: M&O III Inspection of ESF Construction Work requires that the A/E will be responsible for inspection and surveillance of OC activities related to ESF.		
<b>Description of Open Item:</b> The M&O does not have trained and certified personnel to perform Construction Management Inspection Oversight nor do they have approved Construction Management Inspection Oversight procedure in place.		
<b>Action Required:</b> Train & certify inspectors develop and approve Construction Management Inspection Oversight Procedure.	<b>Responsibility:</b> M&O OA Las Vegas	<b>Estimated Completion Date</b> Nov 15, 1992
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             RR Team Member         </div> <div style="text-align: center;">           9-17-92            Date         </div> </div>		
<b>Approved By:</b> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             Approved by RR Team Leader         </div> <div style="text-align: center;">           Sept 18, 1992            Date         </div> </div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____	<b>Closed By:</b> _____ <div style="text-align: right;">RR Team Leader</div>	
<b>Closure Approved By:</b> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 20px;"> <div style="text-align: center;">           _____            M&amp;O General Manager         </div> <div style="text-align: center;">           _____            Date         </div> </div>		

Complete only applicable items.

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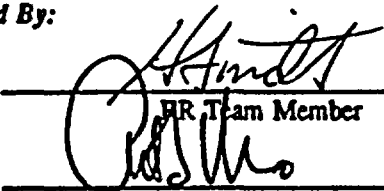

<b>Readiness Review</b> ESF Title III Design	<b>Attribute Number</b> Criterion 1 # 1-9	<b>Open Item Number</b> ESF-004
<b>Description of Prerequisite:</b>  Has the organizational structure for performing the work and for verifying its quality been defined and documented? Does the organization match the work to be performed?		
<b>Description of Open Item:</b>  The ESF Title III Design organization is not clearly defined at the present time. Consequently, it was not possible to evaluate the remaining organization attributes.		
<b>Action Required:</b> 1. Prepare organization charts and supporting information as required to clearly define the M&O's ESF Title III Design organization and the interfaces between internal and external organization units. 2. Verify that attributes 2-9 can be closed.	<b>Responsibility:</b> M&O M&OS MANAGER  M&O M&OS MANAGER READINESS REVIEW TEAM	<b>Estimated Completion Date</b> 9/30/92  9/30/92
<b>Hold Point Required?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Prepared By:</b>  <div style="display: flex; justify-content: space-between;"><div> RR Team Member</div><div><u>9/18/92</u> Date</div></div> <div style="display: flex; justify-content: space-between;"><div> Approved by RR Team Leader</div><div><u>Sept 19, 1992</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b>  _____ M&O General Manager  _____ Date		

Readiness Review  
Open Items Report

**INFORMATION ONLY**

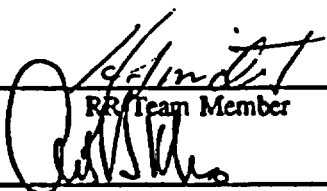

Complete only applicable items.

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<b>Readiness Review</b> ESF Title II Design ESF Title III Design	<b>Attribute Number</b> Criterion 1 # 5	<b>Open Item Number</b> ESF- 005
<b>Description of Prerequisite:</b>  Are adequate numbers of personnel to begin work in each required discipline suitably trained and qualified?		
<b>Description of Open Item:</b>  Verification of education and training has yet not been completed for L. A. Cuveas and C. Rivkin.		
<b>Action Required:</b> Complete verification of education and training for the above individuals.	<b>Responsibility:</b> M&O M&OS member	<b>Estimated Completion Date</b> 9/30/92
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b>  <div style="display: flex; justify-content: space-between;"><div> RR Team Member</div><div><u>9/18/92</u> Date</div></div> <div style="display: flex; justify-content: space-between;"><div> Approved by RR Team Leader</div><div><u>Sept 19, 92</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b>  <div style="display: flex; justify-content: space-between;"><div>_____ M&amp;O General Manager</div><div>_____ Date</div></div>		



Complete only applicable items.

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<b>Readiness Review</b> ESF Title III Design	<b>Attribute Number</b> Project Management # 1	<b>Open Item Number</b> ESF-006
<b>Description of Prerequisite:</b>  Is there a written scope of work for each of the subject activities which has been approved by the client?		
<b>Description of Open Item:</b> 1. The M&O's understanding of their scope of work is that they are responsible for all ESF Title III design activities (including Package 1A). This is in direct conflict with RSN's understanding that they are responsible for Package 1A Title III. 2. The M&O's scope as written in WBS 1.2.6.1.4 does not address as-built drawings and is not clearly defined.		
<b>Action Required:</b> Revise the WBS and WBS Dictionary to be consistent with DOE's 8/25/92 letter and clarify the M&O's ESF Title III scope of work.	<b>Responsibility:</b> <sup>ALA</sup> 9/24/92 <del>WFO Project Manager</del> M&O Nevada Site Manager	<b>Estimated Completion Date</b> 9/30/92
<b>Hold Point Required?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
<b>Prepared By:</b>  <div style="display: flex; justify-content: space-between;"><div> _____ RR Team Member</div><div><u>9/18/92</u> Date</div></div> <div style="display: flex; justify-content: space-between;"><div> _____ Approved by RR Team Leader</div><div><u>Sept 19, 1992</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b>  <div style="display: flex; justify-content: space-between;"><div>_____ M&amp;O General Manager</div><div>_____ Date</div></div>		

Complete only applicable items.

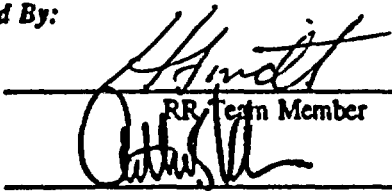

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<b>Readiness Review</b> <b>ESF Title II Design</b>	<b>Attribute Number</b> <b>Project Management # 6d</b>	<b>Open Item Number</b> <b>ESF-007</b>
<b>Description of Prerequisite:</b> Has RSN transmittal of ESF Design Package 1A been accepted by the M&O?		
<b>Description of Open Item:</b> RSN has not yet completed ESF Design Package 1A.		
<b>Action Required:</b> 1. Complete ESF Design Package 1A or first part thereof and transmit it to the M&O. 2. Review and accept ESF Design Package 1A or first part thereof in accordance with Transition Plan procedures.	<b>Responsibility:</b> <i>RM ajakir</i> <del>RSN</del> <i>M&amp;OS manager</i>  M&O <i>M&amp;OS manager</i>	<b>Estimated Completion Date</b> 9/30/92  10/30/92
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b> <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">             RR Team Member              Approved by RR Team Leader         </div> <div style="text-align: center;"> <i>9/17/92</i>            Date  <i>Sept 17, 1992</i>            Date         </div> </div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____	<b>Closed By:</b> _____ RR Team Leader	
<b>Closure Approved By:</b> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="text-align: center;">           _____            M&amp;O General Manager         </div> <div style="text-align: center;">           _____            Date         </div> </div>		



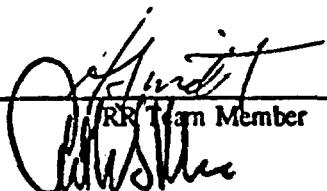
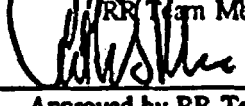
Complete only applicable items.

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Readiness Review Repository ACD	Attribute Number Project Management # 1	Open Item Number ACD-001
<b>Description of Prerequisite:</b>  Is there a written scope of work for each of the subject activities which has been approved by the client?		
<b>Description of Open Item:</b> The scope of work as defined in WBS 1.2.4.3.1 and 2 does not adequately define the scope of work for the studies and evaluations which are to be performed.		
<b>Action Required:</b> Expand the scope of work in the WBS or other documents to more clearly define the scope of work for studies and evaluations and obtain DOE approval.	<b>Responsibility:</b> M&O M&OS manager	<b>Estimated Completion Date</b> 9/30/92
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b>  <div style="display: flex; justify-content: space-between;"><div> RR Team Member</div><div><u>9/18/92</u> Date</div></div> <div style="display: flex; justify-content: space-between;"><div> Approved by RR Team Leader</div><div><u>Sept 21, 1992</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b>  <div style="display: flex; justify-content: space-between;"><div>_____ M&amp;O General Manager</div><div>_____ Date</div></div>		


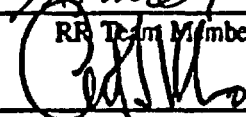
Complete only applicable items.

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Readiness Review Repository ACD	Attribute Number Project Management # 6b	Open Item Number ACD-002
<b>Description of Prerequisite:</b> Has the Repository ACD Plan been approved by all required signatories and issued?		
<b>Description of Open Item:</b> The Repository ACD Plan has not yet been completed and issued for DOE approval.		
<b>Action Required:</b> Complete the Repository ACD Plan and obtain DOE approval.	<b>Responsibility:</b> M&O M&O Manager	<b>Estimated Completion Date</b> 10/30/92
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b> <div style="display: flex; justify-content: space-between;"><div> _____ RR Team Member</div><div><u>9/12/92</u> Date</div></div> <div style="display: flex; justify-content: space-between;"><div> _____ Approved by RR Team Leader</div><div><u>Sept 21, 1992</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b> <div style="display: flex; justify-content: space-between;"><div>_____ M&amp;O General Manager</div><div>_____ Date</div></div>		

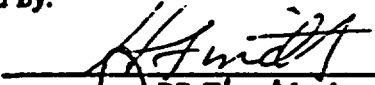
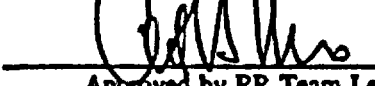
Complete only applicable items.

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<b>Readiness Review</b> ESF Title II Design ESF Title III Design EBS ACD Repository ACD	<b>Attribute Number</b>  Project Management # 2	<b>Open Item Number</b>  MEOB-001
<b>Description of Prerequisite:</b>  Is there a project level schedule for each of the subject activities which is consistent with the above scope of work and which has been approved by the client?		
<b>Description of Open Item:</b> The "Mission 2001" project level schedule is being used by all project participants interviewed even though it is not consistent with the current approved project baseline schedule, has not been formally approved for such use by DOE and is not scheduled to be baselined until January 1993.		
<b>Action Required:</b> DOE to issue an instruction to the M&O to use the Mission 2001 schedule on an interim basis until the issuance of either a new baseline schedule or a revised interim schedule.	<b>Responsibility:</b> <sup>PM</sup> 9/14/92 <del>YMPG Project Manager</del> M&O NEVADA SITE MANAGER	<b>Estimated Completion Date</b> 9/30/92
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b> <div style="display: flex; justify-content: space-around; align-items: flex-end;"><div style="text-align: center;"> _____ RR Team Member</div><div style="text-align: center;"><u>9/18/92</u> Date</div></div> <div style="display: flex; justify-content: space-around; align-items: flex-end;"><div style="text-align: center;"> _____ Approved by RR Team Leader</div><div style="text-align: center;"><u>Sept 19, '92</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b> <div style="display: flex; justify-content: space-around; align-items: flex-end;"><div style="text-align: center;">_____ M&amp;O General Manager</div><div style="text-align: center;">_____ Date</div></div>		

Complete only applicable items.

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Readiness Review	Attribute Number	Open Item Number
ESF Title II Design ESF Title III Design EBS ACD Repository ACD	Project Management # 4	M&O D - 002
<b>Description of Prerequisite:</b>  Is there a client approved budget for planning purposes which is consistent with the above scopes and schedules?		
<b>Description of Open Item:</b> The "Mission 2001" budget has not been approved for use by DOE and there is no plan to do so prior to establishment of a budget for FY93.		
<b>Action Required:</b> Provide FY93 funding and instructions regarding the required revisions to work scopes, schedules and budgets.	<b>Responsibility:</b> DOE Contracting Officer and MPO RA 912492 MID NEXAC SITE MANAGER	<b>Estimated Completion Date</b> 10/01/92
<b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
<b>Prepared By:</b>  <div style="display: flex; justify-content: space-between;"><div> _____ RR Team Member</div><div><u>9/12/92</u> Date</div></div> <div style="display: flex; justify-content: space-between;"><div> _____ Approved by RR Team Leader</div><div><u>Sept 19, 1992</u> Date</div></div>		
<b>Assignments of Hold Points:</b>		
<b>Actions Completed Date:</b> _____		<b>Closed By:</b> _____ RR Team Leader
<b>Closure Approved By:</b>  <div style="display: flex; justify-content: space-between;"><div>_____ M&amp;O General Manager</div><div>_____ Date</div></div>		

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Readiness Review <b>M&amp;O (YMP)</b>	ESF ACD EBS	Attribute Number <b>SAFETY: HEALTH</b> 1,2,4,5,6,7,8,9,10	Open Item Number Per 9/2/92 <del>EST-001</del> M&O-003
Description of Prerequisite: <b>Health and Safety Protection Plan as required by DOE order 4700.1, attachment II-4 and more specifically by DOE order 5480.1B</b>			
Description of Open Item: <b>M&amp;O Contractor does not have an approved health and safety plan.</b>			
Action Required: <b>prepare and implement an approved YMP-M&amp;O health and safety plan which meets applicable laws, regulations and DOE orders</b>		Responsibility: <b>M&amp;O-YMP</b> <b>HEALTH &amp; SAFETY</b>	Estimated Completion Date <b>Oct 30, 1992</b>
Prepared By: <b>Charles Parkersley</b>		Hold Point Required? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> <b>9/18/92</b>	
Approved By: <b>Adviser</b>		Date <b>Sept 18, 1992</b>	
Assignments of Hold Points: <b>An approved M&amp;O Health and Safety Protection Plan shall be implemented prior to start of ESF Construction.</b> <b>ask 9/18/92</b>			
Actions Completed Date: _____		Closed By: _____ RR Team Leader	
Closure Approved By:  _____ M&O General Manager _____ Date			

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Open Items Report

Complete only applicable items.

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Readiness Review <i>M&amp;O YMP</i> ESF ACD EBS	Attribute Number <i>3 / SAFETY &amp; HEALTH</i>	Open Item Number <i>Rev 9/2/92</i> <del>ESF-002</del> <i>M&amp;O D-004</i>
Description of Prerequisite: <i>as required by DOE orders 4700.1, 5481.1B and 5480.1B</i>		
Description of Open Item: <i>M&amp;O Contractor has no evidence of the required safety analysis documentation.</i>		
Action Required: <i>Conduct the required safety analysis in accordance with appropriate DOE orders</i>	Responsibility: <i>M&amp;O YMP</i> HEALTH & SAFETY	Estimated Completion Date <i>November 15, 1992</i>
Prepared By: <i>[Signature]</i> RR Team Member		Hold Point Required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Approved By: <i>[Signature]</i> Approved by RR Team Leader		Date <i>Sept 18, 1992</i> Date
Assignments of Hold Points:		
Actions Completed Date: _____		Closed By: _____ RR Team Leader
Closure Approved By:  _____ M&O General Manager		
_____ Date		

INFORMATION ONLY

Readiness Review <i>ESF Design Activities/A&amp;D for EDS/WP and Repository</i>	Attribute Number <i>Criteria 3 - Design Control 1b</i>	Open Item Number <i>M&amp;O - 005</i>
Description of Prerequisite: <i>Incorporate the applicable Systems Engineering Management Plan (SEMP) factors into design schedules and related planning documents.</i>		
Description of Open Item: <i>Engineering Plans for ESF Design, EDS/Waste Package A&amp;D and Repository A&amp;D do not comply with the same SEMF. The ESF plan and the EDS/Waste Package A&amp;D plan are based on the <del>current</del> SEMF while the Repository A&amp;D is based on the M&amp;O SEMF. <sup>YMPD</sup> <sup>9/18/92</sup></i>		
Action Required: <i>Base the Engineering Plans for ESF Design, EDS/Waste Package A&amp;D and Repository A&amp;D on the same appropriate SEMF or justify other approach</i>	Responsibility: <i>M &amp; O MGDS manual</i>	Estimated Completion Date <i><del>F&amp;D</del> <sup>RA</sup> 9/24/92 10/30/92</i>
Prepared By: <i>WA Houston / G. Blackley</i>		Hold Point Required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Approved By: <i>[Signature]</i>	RR Team Member <i>[Signature]</i>	Date <i>9/17/92</i>
Approved by RR Team Leader <i>[Signature]</i>		Date <i>Sept 18, 1992</i>
Assignments of Hold Points:		
Actions Completed Date: _____		Closed By: _____ RR Team Leader
Closure Approved By:  _____ M&O General Manager		
_____ Date		

<p><b>Readiness Review</b></p> <p>EBS ESF Design Activities ACD</p>	<p><b>Attribute Number</b></p> <p>Criteria 3 - Design Control 2 b</p>	<p><b>Open Item Number</b></p> <p>M&amp;O D-006</p>
<p><b>Description of Prerequisite:</b></p> <p>Appropriate measures in place to assure that design inputs are specified and approved on a timely basis and to a level of detail necessary to permit the design activity to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification measures, and evaluating design changes. 9/17/92</p>		
<p><b>Description of Open Item:</b></p> <p>There is no guidance document describing the format or level of detail for writing Basis for Design Documents (BFD).</p>		
<p><b>Action Required:</b></p> <p>Prepare guidance document for developing BFDs</p>	<p><b>Responsibility:</b></p> <p>M&amp;O M&amp;OS manager</p>	<p><b>Estimated Completion Date</b></p> <p>7-8-92 PCH 10/30/92 9/20/92</p>
<p>Hold Point Required? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
<p><b>Prepared By:</b></p> <p>UA Houston / K. Blackman 9/17/92</p>		
<p><b>Approved By:</b> <i>[Signature]</i> RR Team Member Date Sept 18, 1992</p> <p style="text-align: center;">Approved by RR Team Leader Date</p>		
<p><b>Assignments of Hold Points:</b></p>		
<p><b>Actions Completed Date:</b> _____</p>		<p><b>Closed By:</b> _____</p> <p style="text-align: right;">RR Team Leader</p>
<p><b>Closure Approved By:</b></p> <p style="text-align: center;">_____ M&amp;O General Manager Date</p>		



**Civilian Radioactive Waste  
Management System**

Management & Operating  
Contractor

**Readiness Review  
Open Items Report**

**INFORMATION ONLY**

Complete only applicable items.

Page: of

<p><b>Readiness Review</b> ENGINEERED BARRIER SYSTEM ACD ESF Title II Design/RESERVATORY ACD</p>	<p><b>Attribute Number</b> 1 through 4 / <u>REGULATORY</u></p>	<p><b>Open Item Number</b> <u>M&amp;O-007</u> RA <u>ESF-008</u> 9/25/92</p>
<p><b>Description of Prerequisite:</b></p> <p>42 U.S.C. §5846 requires the reporting of defects which could create a substantial safety hazard to the NRC. The statute applies to any facility or activity otherwise regulated pursuant to the Atomic Energy Act as amended. 10 C.F.R. Part 21 implements this requirement of the statute for NRC licensees, however the scope of the statute is not limited by the jurisdiction of the NRC as applied to licensed facilities. OCRWM's Regulatory Compliance Plan §4.2.4 asserts that DOE will establish procedures responsive to 10 C.F.R Part 21 by the initiation of ESF construction.</p>		
<p><b>Description of Open Item:</b></p> <p>Implement procedures which are responsive to the requirements of 42 U.S.C. §5846 are required to ensure that discovery of defects in basic components (including safety related design, analysis, inspection, testing, fabrication, parts, components, or consulting service) which could create a substantial safety hazard is reported to the NRC.</p>		
<p><b>Action Required:</b></p> <p>Develop and implement a generic procedure requiring that implement the provisions of 42 U.S.C. §5846 (10CFR21)</p>	<p><b>Responsibility:</b></p> <p>M&amp;O'S MANAGER</p>	<p><b>Estimated Completion Date</b></p> <p>10/30/92</p>
<p style="text-align: right;"><b>Hold Point Required?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>		
<p><b>Prepared By:</b> <u>M. J. Stun</u> RR Team Member</p> <p><u>[Signature]</u> Approved by RR Team Leader</p>	<p><u>9/18/92</u> Date</p> <p><u>Sep 18, 92</u> Date</p>	
<p><b>Assignments of Hold Points:</b></p>		
<p><b>Actions Completed Date:</b> _____</p>		<p><b>Closed By:</b> _____ RR Team Leader</p>
<p><b>Closure Approved By:</b></p> <p style="text-align: center;">_____ M&amp;O General Manager _____ Date</p>		

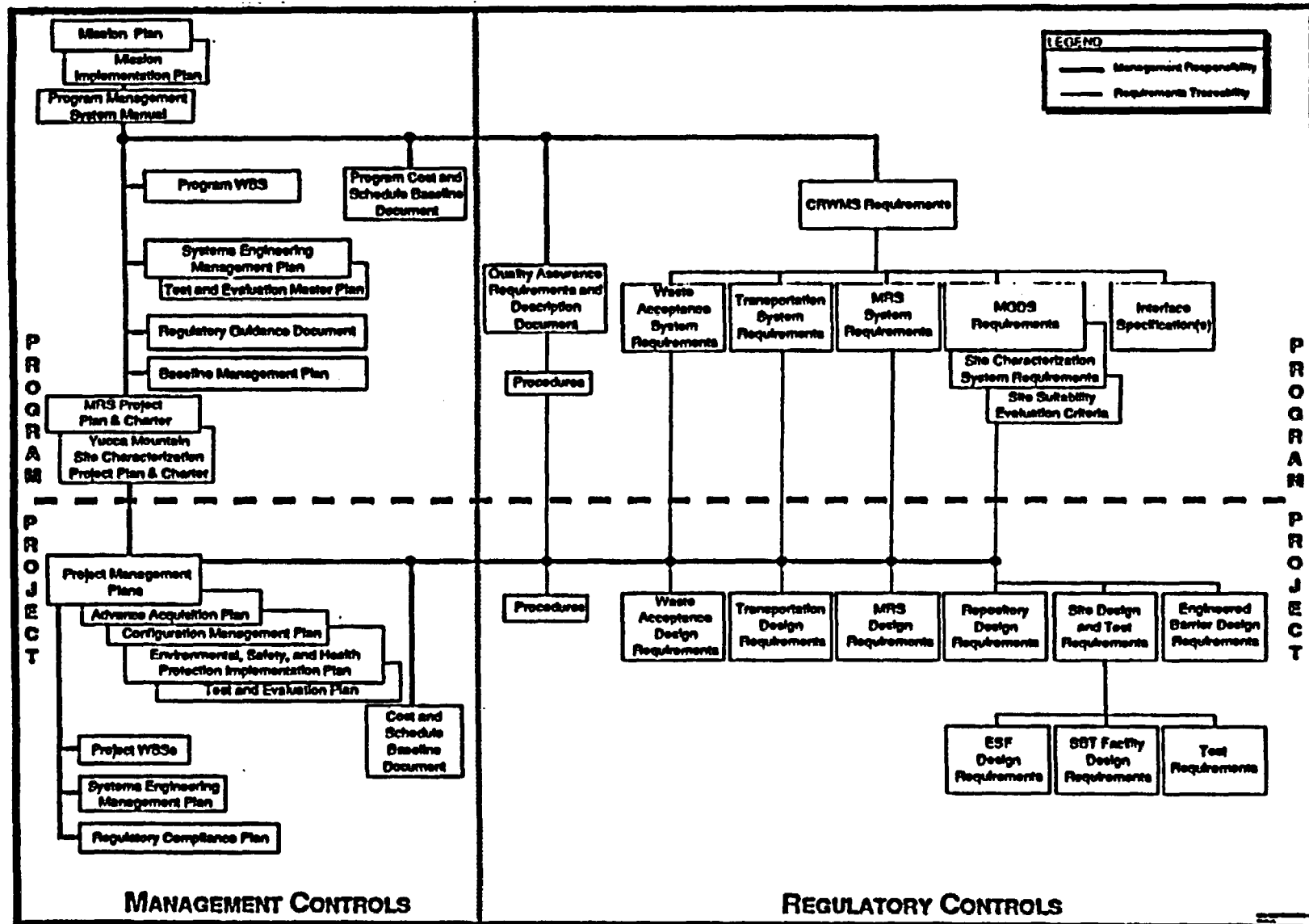
**ATTACHMENT I**

**CRWMS Document Hierarchy**

# Civilian Radioactive Waste Management System

Management & Operating Contractor

## Hierarchy of Documents



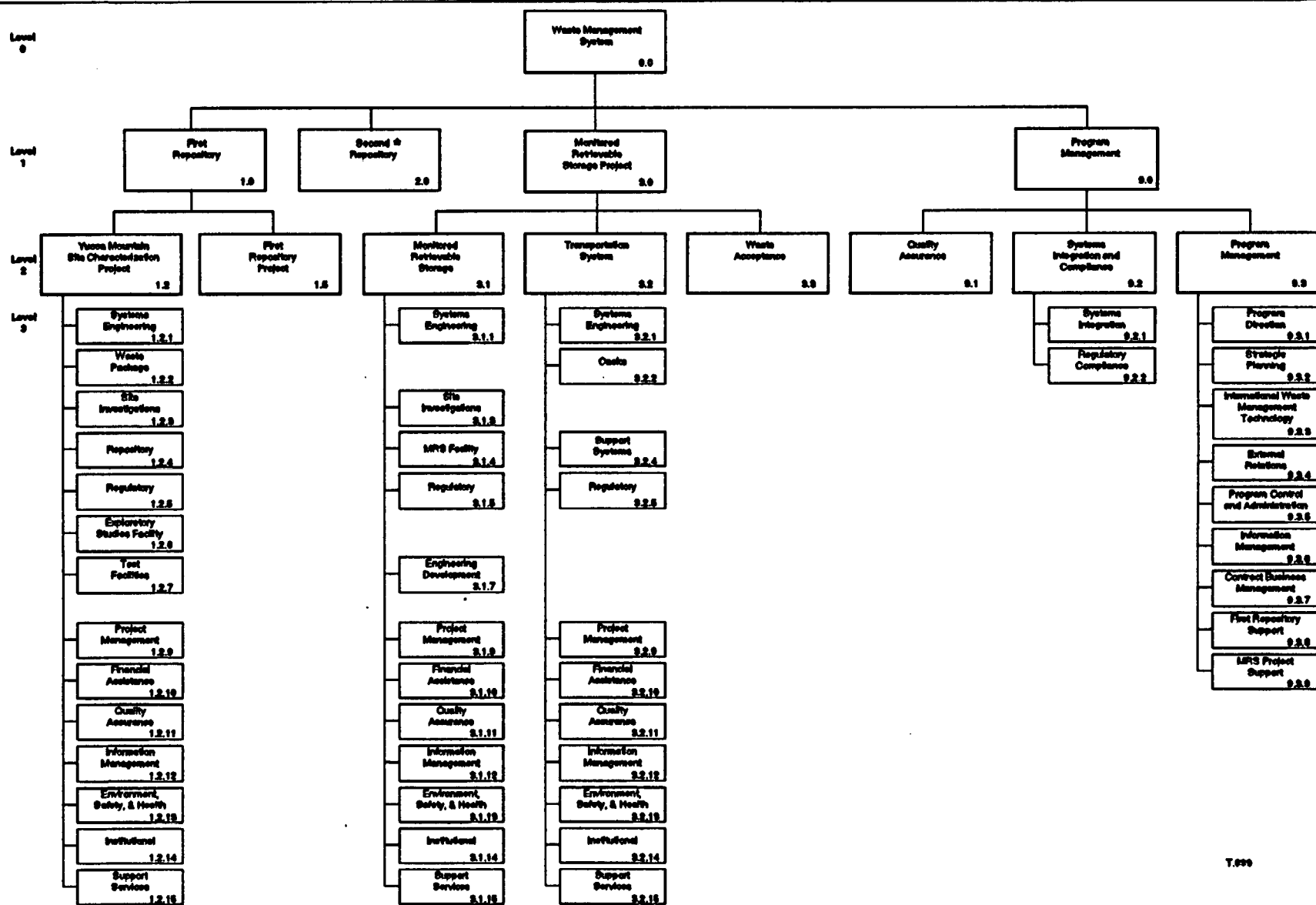
## **ATTACHMENT II**

### **Work Breakdown Structure**

# Civilian Radioactive Waste Management System

Management & Operating Contractor

## Program Work Breakdown Structure



\* Indicate Future Element

**ATTACHMENT III**

**Readiness Review IOC 9/9/92**

**Interoffice Correspondence**  
**TRW Environmental Safety System Inc.**

**TRW**

**Subject:**  
**Readiness Review**

**Date:**  
**September 9, 1992**  
**VA.SS.TAF.9/92.003**

  
**From:**  
**R. L. Robertson**

**To:**  
**Distribution**

**cc:**  
**N. Trembath**

**Location/Phone**  
**TES1/8588**  
**(703) 204-8600**

**This directive supercedes my instructions dated August 26, 1992.**

**In accordance with the provisions contained in the CRWMS M&O QAPD, dated June 14, 1991, and QAP-2-6 (Rev. 1), Readiness Review, dated July 15, 1992, I am directing a series of Readiness Reviews as follows:**

<u><b>Review</b></u>	<u><b>Location</b></u>	<u><b>Date</b></u>
<b>Exploratory Studies Facility (ESF) Title II Design</b>	<b>Las Vegas</b>	<b>September 16, 1992</b>
<b>Repository Advanced Conceptual Design</b>	<b>Las Vegas</b>	<b>September 17, 1992</b>
<b>Engineered Barrier System/ Waste Package</b>	<b>Las Vegas</b>	<b>September 17, 1992</b>
<b>Monitored Retrievable Storage/ Safety Analysis Review</b>	<b>Charlotte</b>	<b>October 13, 1992</b>

**The reviews will address all activities, both QA and non-QA, necessary to execute work responsibilities in each respective area. I have appointed Nat Trembath to serve as Chairman of the Readiness Review Board and Art Kubo as the Review Team Leader. Enclosed is a list of participants.**

**The review will verify satisfaction of all M&O work activity prerequisites; verify that detailed implementing documents are available and approved; and that adequate members of personnel in each required discipline have been suitably trained and qualified. The findings of Readiness Reviews at both the Nevada Site and MRS as well as the M&O Readiness Reviews (both QA and Management Controls), along with other QA program audits and surveillances, are to be reviewed and evaluated as part of these Readiness Reviews. Particular attention will be paid to the status of Open Items identified during previous respective Readiness Reviews.**

**Interoffice Correspondence**  
**TRW Environmental Safety System Inc.**



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September 9, 1992  
VA.SS.TAF.9/92.003  
Page Two

The Readiness Review Team Leader is responsible for determining the prerequisites for readiness in accordance with QAP-2-6, Rev. 1, and consistent with the defined scope of work.

TAF:cm

Enclosures

1. M&O Readiness Reviews Participants
2. ESF Design RR Schedule
3. EBS/WP ACD and Repository ACD Readiness Review Schedule
4. MRS/SAR Readiness Review Schedule

Distribution:

R. J. Brackett  
J. O. Cowles  
L. D. Foust  
R. W. Godman  
A. B. Greenberg  
A. S. Kubo  
R. J. White  
R. G. Vawter



**M&O Readiness Reviews  
September/October 1992  
List of Participants**

**Readiness Review Team**

**Art Kubo  
Tom Faries  
Dave Evans  
R.J. Parker  
Hank Sindt  
Shem Blackley  
Wally Houston  
Charles Tankersley  
Jim Tierney  
Mike Stern  
DOE Observers**

**Team Leader  
Team Coordinator**

**Readiness Review Board**

**Nat Trembath  
Ray Godman  
Art Greenberg  
Jim Brackett  
Dale Foust  
DOE Member**

**Chairman**

**M&O Readiness Review  
Exploratory Studies Facility  
Title II Design**

**Develop Readiness Review Plan . . . . . August 26, 1992**

**Readiness Review Board Chairman Approve Plan . . . August 31, 1992**

**Develop Attribute Lists . . . . . August 18-27, 1992**

**Conduct Readiness Review . . . . . September 16, 1992**

**Develop Readiness Review Report . . . . . September 18-29, 1992**

**Readiness Review Board Meeting . . . . . September 30, 1992  
Las Vegas**

**General Manager Decision . . . . . September 30, 1992**

**M&O Readiness Review  
Engineered Barrier System/Waste Package ACD  
Repository ACD**

**Develop Readiness Review Plan . . . . . August 26, 1992**

**Readiness Review Board Chairman Approve Plan . . . August 31, 1992**

**Develop Attribute Lists . . . . . August 18-27, 1992**

**Conduct Readiness Review . . . . . September 17, 1992**

**Develop Readiness Review Report . . . . . September 18-29, 1992**

**Readiness Review Board Meeting . . . . . September 30, 1992  
Las Vegas**

**General Manager Decision . . . . . September 30, 1992**

**M&O Readiness Review  
Monitored Retrievable Storage/  
Safety Analysis Review Design**

**Develop Readiness Review Plan . . . . . August 26, 1992**

**Readiness Review Board Chairman Approve Plan . . . August 31, 1992**

**Develop Attribute Lists . . . . . August 18-27, 1992**

**Conduct Readiness Review . . . . . October 13, 1992**

**Develop Readiness Review Report . . . . . October 13-21, 1992**

**Readiness Review Board Meeting . . . . . October 22, 1992  
Charlotte**

**General Manager Decision . . . . . October 30, 1992**

**ATTACHMENT IV**

**Readiness Review Flow Chart**

# READINESS REVIEW PROCESS

