

Technical Document Preparation Plan (TDPP)
For The
Preparation of System Requirements Documents

Revision 0

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TABLE OF CONTENTS

	Page
1. OBJECTIVES AND SCOPE	1
1.1 OBJECTIVES	1
1.2 SCOPE	1
1.3 REFERENCE	2
1.4 DEFINITIONS	3
1.5 BACKGROUND	11
2. RESPONSIBILITIES	13
3. DESCRIPTION OF THE TECHNICAL DOCUMENTS	16
3.1 REQUIREMENTS DOCUMENTS	16
3.2 ANNOTATED TABLE OF CONTENTS	16
3.2.1 Section 1 - Scope	16
3.2.2 Section 2 - Applicable Documents	17
3.2.3 Section 3 - Requirements	17
3.2.4 Section 4 - Conformance Verification	18
3.2.5 Section 5 - Preparation for Operations/Delivery	18
3.2.6 Section 6 - Notes	18
3.2.7 Appendices	18
4. TECHNICAL APPROACH	19
4.1 MAJOR ASSIGNMENTS AND STEPS IN PREPARING THE REQUIREMENTS DOCUMENT	19
4.1.1 System Function Identification	19
4.1.2 Functional Flow Diagrams	19
4.1.3 Requirements Allocation Sheets	19
4.1.4 Design Constraint Sheets	21
4.1.5 Issue Clarification and Derived Requirements Documentation Form	21
4.1.6 Issues List	26
4.1.7 Technical Document Input Control	26
4.1.8 Verification Matrix	26
4.1.9 Drafts of the Requirements Document	28
4.1.10 Description of Process	28
4.2 CRITERIA FOR REQUIREMENTS DOCUMENT ACCEPTABILITY	28
4.2.1 System Design Review	28
4.2.2 System Engineering Branch Review	28
4.2.3 QAP 6.2 Technical Review	29
4.2.4 Document Change Proposal	30

4.2.5	Training for Users	31
4.3	QUALITY ASSURANCE	31
4.3.1	Records	31
4.3.2	Revisions to the Preparation Plan	32
4.4	REQUIREMENTS INPUTS AND DOCUMENT PREPARATION	32
4.4.1	Basis for Requirements Specified as Part of the Functional Analysis	33
4.4.2	Document Familiarization	34
4.4.3	Preliminary Draft of Requirements Documents	35
4.4.4	Source Documents	35
4.4.5	Interfaces	35
5.	MILESTONES FOR THE REQUIREMENTS DOCUMENTS	36

LIST OF FIGURES

	Page
1-1. N ² Chart Definition	7
1-2. System Engineering Process (DOE 4700.1)	9
1-3. CRWMS Hierarchy	11
2-1. CRWMS and WA-SRD Requirements Task Force Organizations	14
4-1. Requirements Allocation Sheets (RAS)	21
4-2. Design Constraint Sheet (DCS)	22
4-3. Issue Clarification and Derived Requirements Documentation Form	24
4-3. Issue Clarification and Derived Requirements Documentation Form (Cont'd)	25
4-3. Issue Clarification and Derived Requirements Documentation Form (Cont'd)	26
4-4. Technical Document Input Control Form	27
5-1. Requirements Documents Development and Review Schedule	38

1. OBJECTIVES AND SCOPE

1.1 OBJECTIVES

This preparation plan provides guidance for the development of system requirements documents and interface specifications for the Civilian Radioactive Waste Management System (CRWMS) in accordance with DOE 4700.1 and OCRWM QAP 3.5. These documents will provide traceability between regulatory requirements and the physical system designs for CRWMS, Waste Acceptance, Transportation, Monitored Retrievable Storage (MRS), Mined Geologic Disposal System (MGDS), and Site Characterization, a subset of the MGDS.

This preparation plan outlines the activities involved in the preparation, review, and approval of the System Requirements Documents (SRDs) and the Interface Specifications (IFSs) and in the program management necessary to incorporate these documents as part of the program-level technical requirements baseline. This plan replaces the "Technical Document Management Plan (TDMP) for the Preparation of Requirements Documents", Revision 0, dated December 3, 1991.

Development of requirements documents and interface specifications in accordance with DOE 4700.1 and OCRWM QAP 3.5 will establish the technical requirements baseline. The Waste Management System Requirements (WMSR) documents and the Physical System Requirements documents are currently serving as the functional requirements baseline. References to "requirements documents" in this plan are considered as reference to "system requirements documents" and "interface specifications".

1.2 SCOPE

The CRWMS, Waste Acceptance, Transportation, MRS, and MGDS (including site characterization activities) Requirements Documents and the Interface Specifications will be program-level documents that describe the technical requirements. They will also allocate subfunctions to major subsystems and facilities and specify all methods (tests, inspections, demonstrations, analyses, etc.) required to verify the achievement of each requirement. Furthermore, the requirements documents will identify all design requirements arrived at through analyses, studies, and reviews of previously generated documents. The requirements documents will be reviewed during a series of management and technical reviews (see Section 1.4.H). Comments and changes occurring as a result of the reviews will be documented in accordance with QA procedures and will be included in updates to the requirements documents. The requirements documents will be reviewed in accordance with QAP 6.2, accepted by the Associate Director of Systems and Compliance and approved by the OCRWM Program Change Control Board (PCCB). The Systems Engineering Branch (SEB) will propose necessary changes to program technical baseline documents by preparing change requests for the PCCB to revise appropriate documents affected by incorporation of the System Requirements Documents and Interface Specifications in the technical baseline for the CRWMS.

1.3 REFERENCE

- A. *Quality Assurance Requirements Document (QARD)*, DOE/RW-0214
- B. *Quality Assurance Program Description Document (QAPD)*, DOE/RW-0215
- C. *Quality Assurance Controls Document (QACD)*, DOE/RW-0289
- D. QAAP 2.1, *Indoctrination and Training*
- E. QAAP 2.2, *Verification of Personnel Qualifications*
- F. QAAP 2.3, *Establishing Quality Assurance Program Controls*
- G. QAAP 3.3, *Peer Review*
- H. QAAP 6.1, *Document Control*
- I. QAAP 7.1, *Control of Purchased Services*
- J. QAAP 17.1, *QA Records Management*
- K. QAP 3.5, *Document Preparation*
- L. QAP 6.2, *Document Review*
- M. *Program Change Control Procedure*, DOE/RW-0223
- N. *Management Systems Improvement Strategy (MSIS)*, OCRWM, August 10, 1990
- O. *Program Management System Manual (PMSM)*, DOE/RW-0043
- P. *Waste Management System Description*, DOE/RW-0270P
- Q. *Waste Management System Requirements Document*, DOE/RW-0264, Volume I, (Yucca Mountain Project)
- R. *Waste Management System Requirements Document*, DOE/RW-0268P, Volume IV, MGDS Requirements
- S. *Physical System Requirements/Functional Analysis Management Plan*
- T. *Physical System Requirements - Overall System*, DOE/RW-0334P

- U. *Physical System Requirements - Exploratory Studies Facility*
- V. *Physical System Requirements - Store Waste, DOE/RW-0319*
- W. *Physical System Requirements - Dispose of Waste*
- X. *Site Characterization Plan Baseline, YMP-CM-011*
- Y. *Physical System Requirements - Transport Waste, DOE/RW-0352*
- Z. *Physical System Requirements - Accept Waste*
- AA *ESF Design Requirements, Volumes I and II, YM/CC-013*
- AB *OCRWM SEMP, DOE/RW-0051P*
- AC *MIL-STD-490A, Specification Practices*
- AD *DOE 4700.1, Project Management System*
- AE *DOE 6430.1A, General Design Criteria*
- AF *Waste Acceptance Preliminary Specifications (WAPS) for the Defense Waste Processing Facility High-Level Waste Form, DOE/RW-0260*
- AG *WAPS for the West Valley Demonstration Project High-Level Waste Form, DOE/RW-0261*

1.4 DEFINITIONS

- A. **Derived Requirement.** A derived requirement is a generic term for requirements which are derived from higher level requirements as requirements are given more detail and specificity.
- B. **Design Requirements Documents.** These project-level documents specify the requirements for the design or engineering development of products (configuration items) during the development period. Each design requirements document shall be in sufficient detail to describe effectively the performance characteristics that the configuration item is to achieve when the developed item evolves into a detailed design for construction or production.
- C. **Design Synthesis and Integration.** Design synthesis is the point in the systems engineering process at which a design concept is created to satisfy the stated requirements. All system elements should be considered in arriving at a design

concept. Requirements that have been allocated analytically are satisfied through design synthesis. The resulting subsystem and component-level details are then integrated into a consolidated overall design. Sufficient preliminary design is then accomplished to confirm and ensure completeness of the performance and design requirements allocated for detail design. Reallocation of requirements may be required.

- D. **Evaluation and Optimization.** Desirable and practical tradeoffs among stated operational needs, engineering design, project schedule and budget, producability, constructability, supportability, affordability, and life cycle costs, as appropriate, should be continually identified and evaluated. Tradeoff studies should be accomplished at the various levels of functional or system detail or as specifically designated and approved by the project manager to support the decision needs.
- E. **Functional Allocation.** Each function and subfunction is assigned a set of technical requirements. Derived requirements (those from analyses or other studies not directly traceable to another source) should be stated in sufficient detail for allocation to facilities, hardware, software, personnel, and procedures. When necessary, special skills or peculiar requirements are identified. Allocated requirements should be traceable through the analysis by which they were derived to the system requirement they are designed to fulfill. A set of block diagrams or functional flow diagrams are used to "flow down" the functions and subfunctions until closure is reached at the hardware or procedure level.
- F. **Function Analysis.** Function analysis, at the system level, consists of two interrelated activities described below. A third activity, time requirements analysis or timeline analysis is an activity which may be performed as part of Functional Analysis, if required, at the design level. It is an analysis performed to determine the time requirements of functions or functional sequences in which time is critical to mission success, safety, utilization of resources, minimization of downtime, and/or increasing availability. Not all functional sequences require time analysis - only those sequences in which time is a critical factor. Time requirements analysis is outside the scope of this TDPP. The functional analysis activities performed at the system level are as follows:
 - 1. **Function Identification.** Analysis of system objectives to identify functions and subfunctions that should be performed to satisfy the system performance and design parameters.
 - 2. **Functional Performance Requirements.** Development of technical performance requirements for each function identified. These requirements define the input and output functions in sufficient detail for direct use as criteria for equipment design and operation, personnel skill development, computer programming, environmental, safety and health considerations,

logistics support, etc.

- G. **Interface Specifications.** System interfaces are identified using N² diagrams identified in the activities described in subparagraph 1.4.H. The output of this process results in interface requirements which are documented in system interface specifications. Due to the complexity of CRWMS and the phased approach to developing the system elements (e.g. Transportation, MRS, MGDS, Waste Acceptance) the decision was made to publish the element-to-element interface requirements as separate stand alone specifications. These interface specifications will be referenced in both system element requirements documents to which they apply, although they are published separately. The interface specifications will be developed using the same format as that for the system requirements documents.
- H. **Management-Technical Review (DOE 4700.1).** A series of non-QA management-technical reviews are conducted jointly by the department and other project participants to assess the degree of completion, the progress, and status of technical efforts related to technical baseline development. These non-QA reviews should not impact the independent review of technical documents required by NQA-1 and OCRWM. The number and type of reviews are determined by the DOE project office. The following technical reviews are normally utilized at the system level (see OCRWM System Engineering Management Plan (SEMP) for more detail).

1. **System (Conceptual) Design Review (SDR).**

This program level review is conducted to:

- a) Evaluate the system requirements for adequacy and risk;
- b) Ensure a mutual understanding among all program participants of the system requirements and the corresponding conceptual design;
- c) Assess the engineering process that produced the system requirements; and,
- d) Provide a forum to adjudicate comments.

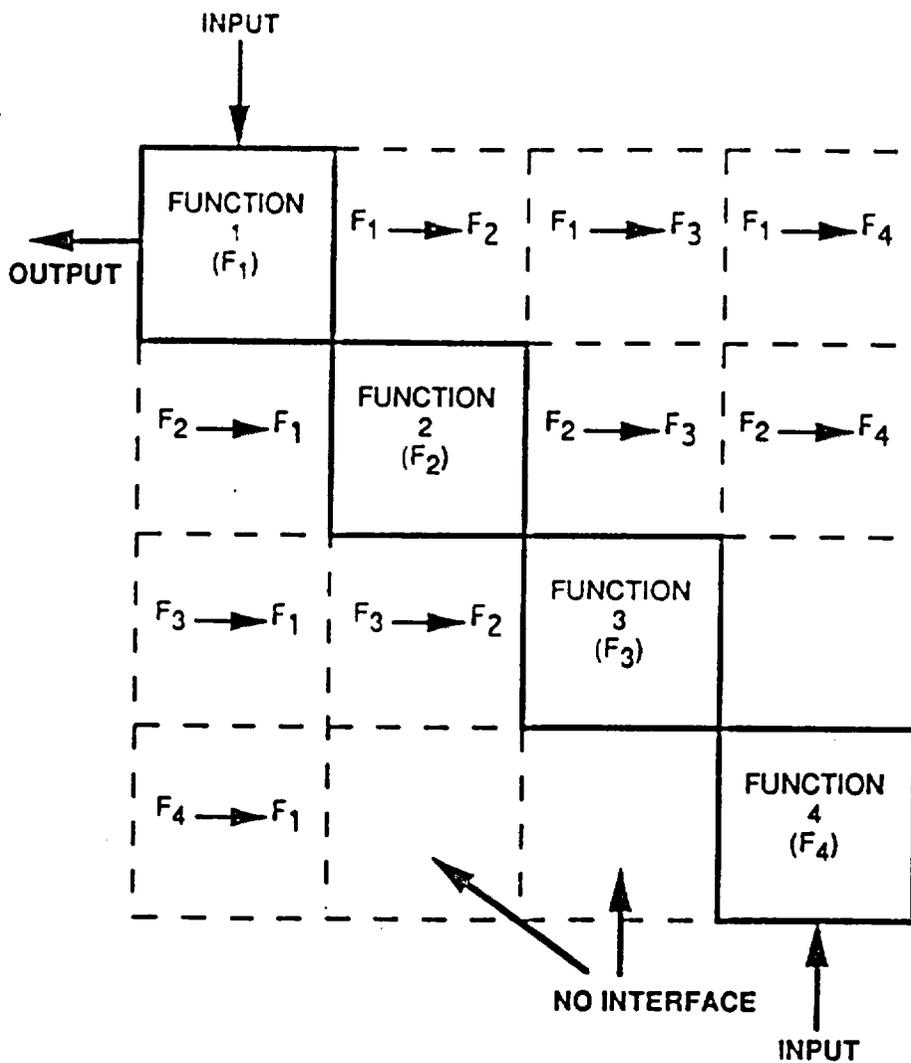
2. **System Requirements Review (SRR).**

This review is conducted to ascertain progress in defining system requirements. It also assesses the adequacy of mutual understanding across the program about these requirements. Management agreement on the set of system-level functions to be implemented is required prior to initiating the functional analysis and allocation process described in paragraphs 1.4.E and 1.4.F.

3. In-Process Review (IPR).

This review is conducted to inform management of the progress of the requirements definition or design process, as appropriate. The project or documentation status is briefed as is a schedule of major milestones and decision points.

- I. **N-Square (N^2) Diagrams.** The N^2 diagram has been used extensively to develop data interfaces. The system functions are placed on the diagonal of an N-by-N matrix. The remainder of the squares of the matrix represent interface inputs and outputs. Where a blank square exists there is no interface between the respective functions. N^2 diagrams are used in the requirements documents and interface specifications to develop and document system and system element interfaces. An example of N^2 diagrams is shown in Figure 1-1. The N^2 diagrams may also be used to document hardware-to-hardware interfaces where hardware items are placed on the diagonal and their interfaces shown in the remaining squares of the matrix. N-square diagrams, as a tool for identifying system interfaces, may be used to describe physical, functional, programmatic or data interfaces.
- J. **Performance Requirements.** Performance requirements generally provide an extension of the requirements for functions by expressing an acceptable level or range of performance for a function.
- K. **Physical System Requirements (PSR) Document.** As described in the Physical System Requirements Management Plan, the PSR documents "analyze, identify, and describe all necessary functions and their requirements for the Physical System ... and will serve as a basis for updating the technical baseline requirements for each of the physical system elements."
- L. **System Requirements Document (Type-A).** This document states the technical, mission, statutory and regulatory requirements for a system/system element as an entity, allocates those requirements to functional areas, documents design constraints, and defines the interfaces between or among the functional areas. Normally, the initial version of this document is based on parameters developed during the Concept Exploration phase. The requirements document (initial version) is used to establish the general nature of the system that is to be further defined and finalized during the conceptual design phase. The System Requirements Document reflects the system conceptual design and its approval provides the requirements for proceeding with preliminary (Title I) design.
- M. **Specialty Engineering Integration.** The timely and appropriate intermeshing of engineering efforts such as reliability, maintainability, logistics engineering, human factors, safety, value engineering, standardization, etc., to ensure their influence on design.



BASIC RULES

- ALL FUNCTIONS ARE ON DIAGONAL
- ALL OUTPUTS ARE HORIZONTAL (LEFT OR RIGHT)
- ALL INOUTS ARE VERTICAL (UP OR DOWN)
- ALL NONFUNCTION SQUARES DEFINE ONE WAY INTERFACES BETWEEN ASSOCIATED FUNCTIONS

Figure 1-1. N² Chart Definition

- N. **System.** For purposes of clarity and consistency within the system requirements documents, the use of "system" refers to the CRWMS which, in turn, is composed of system elements, e.g., Waste Acceptance, Transportation, MRS, MGDS.
- O. **System Definition.** The performance, configuration, and arrangement of a chosen system and its elements are portrayed in suitable forms which may include schematic diagrams, physical and mathematical models, computer simulations, layouts, detailed drawings, and similar engineering graphics. These portrayals illustrate system and item interfaces, permit traceability between the elements at various levels of system detail, and provide means for complete and comprehensive change control.
- P. **System Element.** One of the physical elements of the CRWMS (e.g., Waste Acceptance, Transportation, MRS, MGDS). This differs from a "project" that may be initiated by DOE to manage and control development of one or more System Elements (e.g., the Yucca Mountain Project or the MRS Project).
- Q. **Systems Engineering.** Systems engineering encompasses management of the engineering and technical effort required to transform the project objectives into an operational system. It includes the engineering required to define the system performance parameters and the configuration to best satisfy the project objectives. It also includes the planning and control of technical tasks, integration of the engineering specialties, and the management of a totally integrated design effort to meet cost, schedule, and technical objectives of the systems engineering process.
- R. **Systems Engineering Process.** The systems engineering process is an iterative one encompassing changes at any point in the process. Possible impacts of change to the system should be analyzed during the conduct of the project. These impacts should be examined for validity, consistency, desirability, and attainability with respect to current technology, physical resources, human performance capabilities, life-cycle costs, and other constraints. The output of this analysis should either verify the existing requirements or lead to the development of new requirements that are more appropriate for the mission (see Figure 1-2).
- S. **System Hierarchy.** For the sake of standardization and to provide common naming conventions for the various parts that comprise the CRWMS, a system hierarchy has been developed. Below the system element level, the hierarchy is divided between hardware and software. Figure 1-3 depicts the CRWMS hierarchy which is used in the system requirements documents.
- T. **System Integration (or Engineering Integration).** The integration of engineering specialties and the management of a totally integrated effort of design engineering, specialty engineering, and production (or construction) engineering to ensure their influence on design.

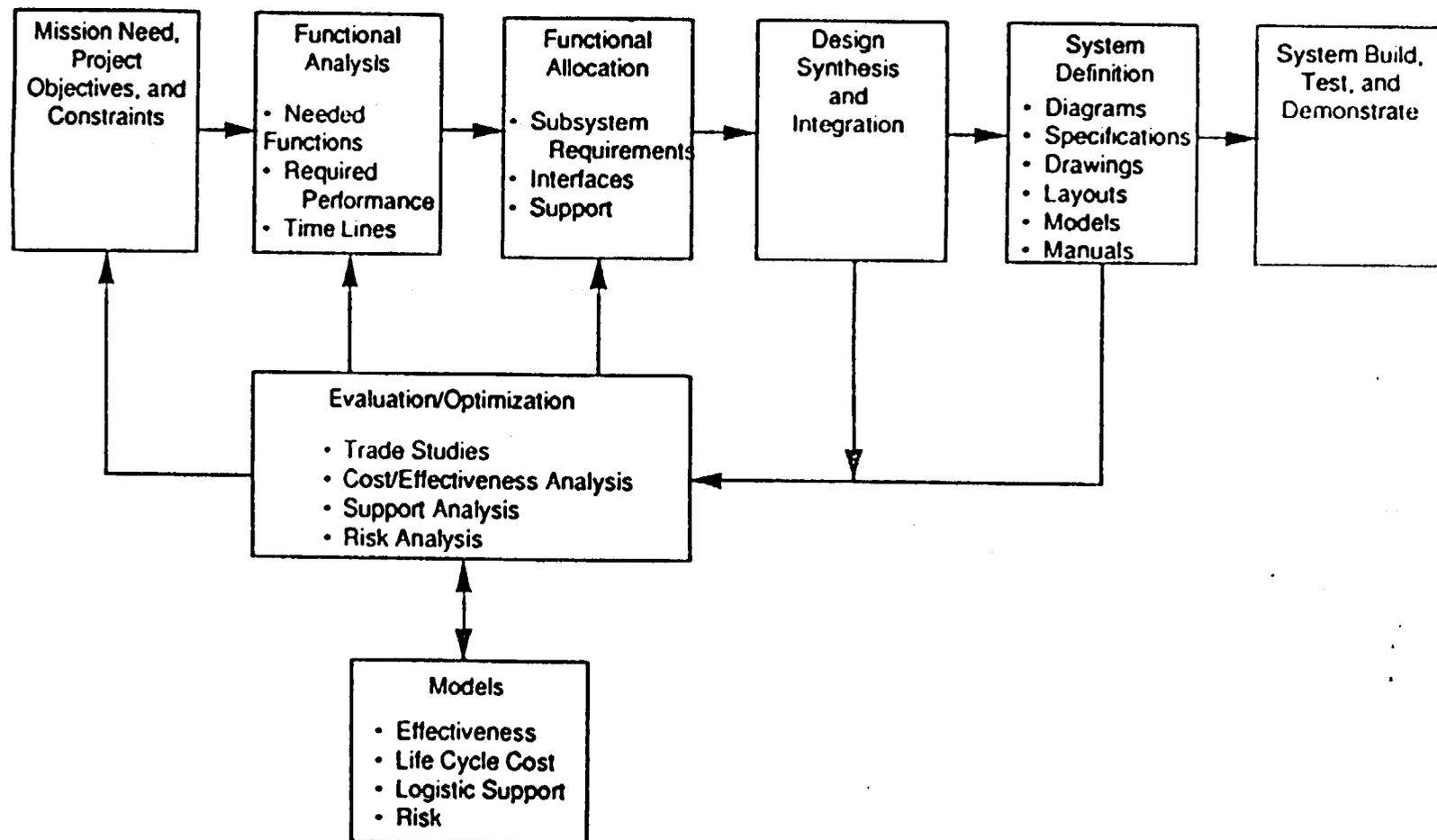


Figure 1-2. System Engineering Process (DOE 4700 1)

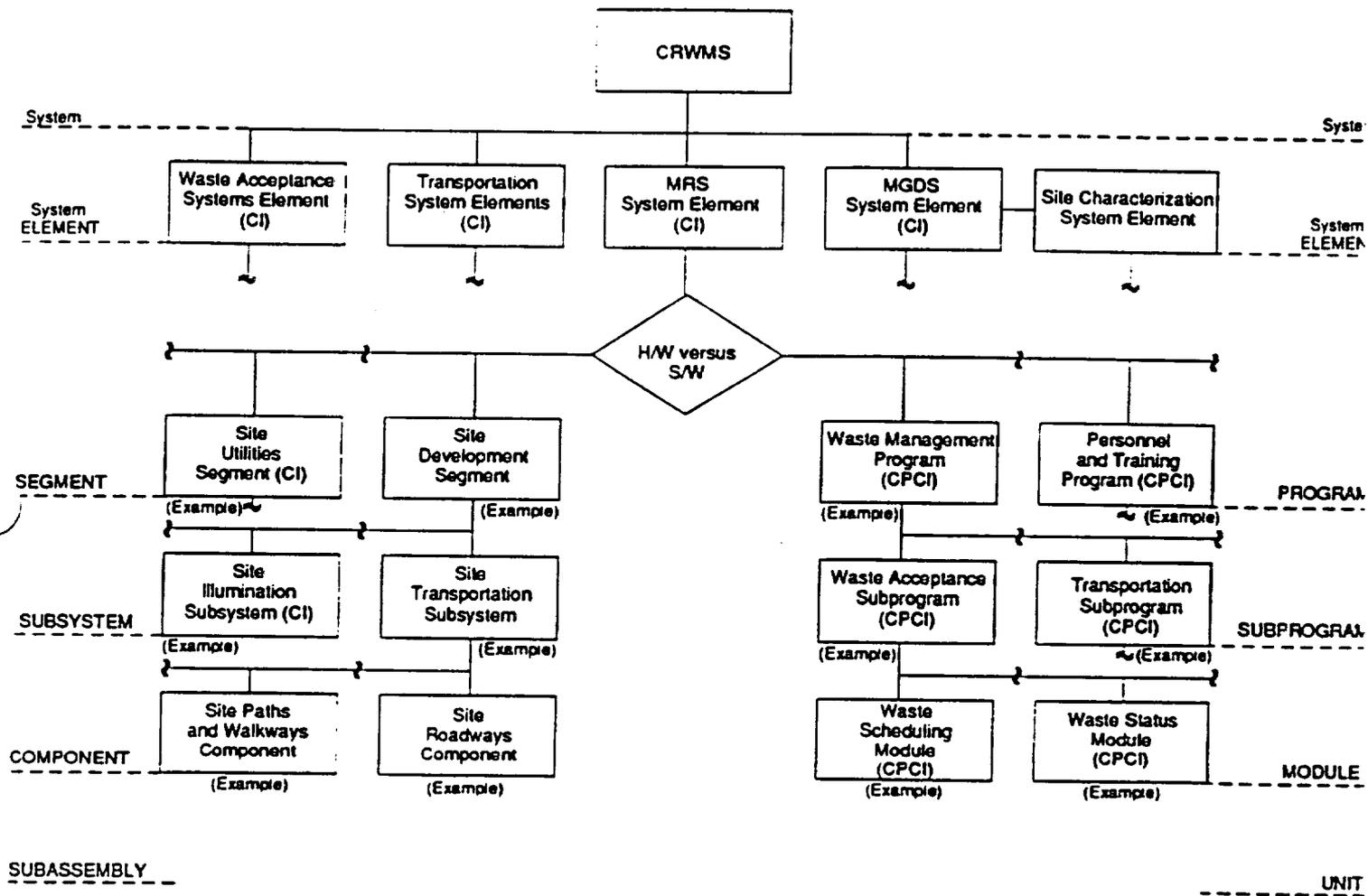


Figure 1-3. CRWMS Hierarchy

- U. **Traceability.** The capability to track system requirements from the higher-level system functional analysis document or other source to all elements of the system that, collectively or individually, perform the function (e.g., an element of the system to all functions that it performs; or a specific requirement to a specific source analysis or constraint which originated the requirements). Traceability also includes the capability to trace from an element of the system back to the source.

For a listing of other quality assurance-related definitions, please refer to DOE/RW-0214, QARD (Reference 1.3.A), Appendix E, Glossary.

1.5 BACKGROUND

The Nuclear Waste Policy Act of 1982 (NWPAA) assigned to the Department of Energy (DOE) the responsibility for managing the disposal of spent nuclear fuel (SNF) and high-level nuclear waste (HLW) and established the Office of Civilian Radioactive Waste Management (OCRWM) for that purpose. The mission of the CRWMS is to permanently isolate SNF and HLW in a geologic repository in a timely manner that protects the health and safety of the public and maintains the quality of the environment. In order to accomplish this mission, DOE is developing a waste management system that will accept, transport, store, and dispose of SNF and HLW. The management and control of this system is provided by the OCRWM Program.

For planning, systems analysis, and conceptual design purposes, the CRWMS has been identified as having four major functions which are Accept Waste, Transport Waste, Store Waste, and Dispose of Waste.

To accomplish the above functions, four physical elements have been planned. The Waste Acceptance system element will have the responsibility of interfacing the CRWMS with the user community at the nuclear reactor and waste sites. Responsibilities of Waste Acceptance will be to maintain records of the CRWMS waste capacity, maintain records of the waste locations and characteristics, verify that the waste has been properly described, and finally accept title to the waste from the user community or producers.

The radioactive waste will then be handed over to the Transportation element that will be responsible, under the Transport Waste function, for transporting the waste to the MRS or the MGDS as appropriate. The Transportation element will also have the responsibility for developing and maintaining the transportation casks.

The Monitored Retrievable Storage (MRS) facility (Store Waste function) will act as a temporary retention site for waste with the intention to recover such waste for subsequent disposal. The Mined Geologic Disposal System (MGDS) facility (Dispose of Waste function) will permanently emplace waste in an isolated geologic medium in such a manner that such waste may be retrieved, if necessary, in accordance with 10CFR60.111. All of these facilities and systems will operate to fulfill a variety of functional requirements intended to make the storage and transport

of waste environmentally safe and allow appropriately documented traceability of the trail of the waste from initial acceptance to closure of the MGDS.

Site characterization, a subset of the MGDS element, is an activity that will develop data necessary to assess the suitability of the disposal site and support the MGDS licensing and design processes.

To document and summarize regulatory requirements applicable to these top-level functions, OCRWM is developing a series of Physical System Requirements documents that will serve as references for the development of the System Requirements documents (SRDs) and Interface Specifications (IFSs) addressed in this plan. The SRDs will serve as the link for traceability and direction between regulatory requirements and Design Requirements to be developed at the project level.

2. RESPONSIBILITIES

In order to facilitate the preparation of the technical baseline system requirements documents for the CRWMS, two separate task forces have been established (see Figure 2-1).

The CRWMS Requirements Task Force has been formed by the M&O to facilitate internal M&O coordination and cooperation in the development and review of system and design requirements documents and is co-chaired by the AGM Systems and the AGM Operations. This M&O task force will develop the System Requirements Documents and Interface Specifications (IFSs) for the overall Civilian Radioactive Waste Management System (CRWMS), the Monitored Retrievable Storage (MRS) Facility, the Transportation System, and the Mined Geologic Disposal System (MGDS).

A separate Waste Acceptance System Requirements Task Force has been established to develop the System Requirements Document for the Waste Acceptance Process. It is co-chaired by OCRWM's Chief, Systems Planning and Integration Branch and the M&O's Manager of Systems Planning and Integration.

- 2.1 **The Associate Director, Office of Systems and Compliance (OSC)** has overall responsibility for this Technical Document Preparation Plan and for the Program Requirements Documents.
- 2.2 **The Division Director, Systems Engineering and Program Integration Division (SEPID)** is responsible for approval of this Technical Document Preparation Plan and its revisions.
- 2.3 **The Chief, Systems Engineering Branch (SEB)**, is responsible for reviewing change requests to the Requirements Documents submitted by the M&O for approval by the OCRWM PCCB.
- 2.4 **Other OCRWM Offices and Divisions** will be responsible for designating appropriate technical experts to participate in the review and resolution of comments on the resulting Requirements Documents. Reviewers must be independent of those who prepare the documents.
- 2.5 **Co-chairmen, CRWMS Requirements Task Force** are responsible for executive direction of completion of the documents assigned to each individual task force, provision of resources required by each individual task force and closure of issues which an individual task force cannot resolve. The co-chairman and the individual task forces will be supported in the areas of OCRWM Document Hierarchy, format and policy, by the Manager, Systems Engineering. No change will occur in the responsibilities for document preparation discussed in sub-paragraph 2.7.

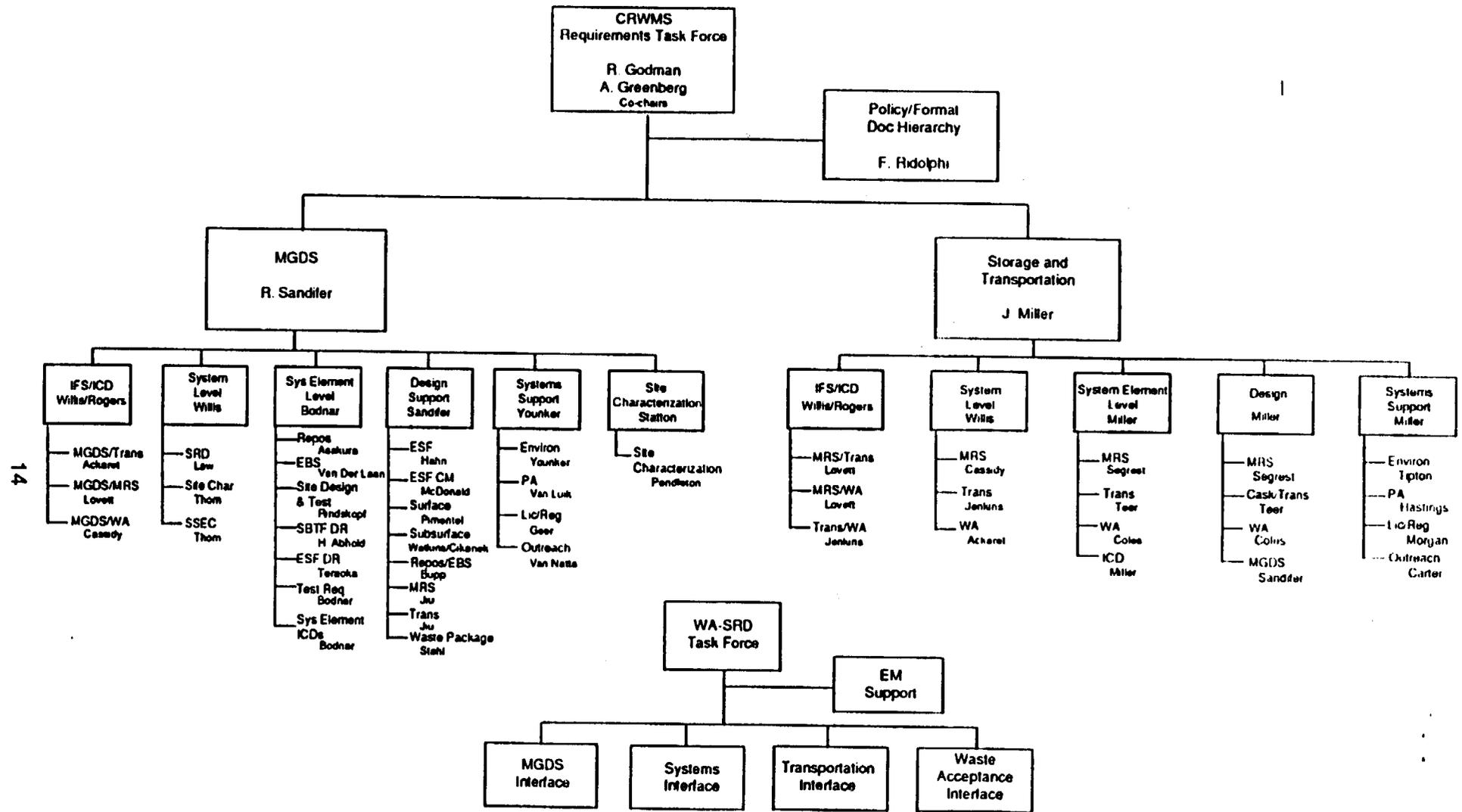


Figure 2-1 CRWMS and WA-SRD Requirements Task Force Organization

- 2.6 **Co-chairmen. Waste Acceptance System Requirements Task Force** are responsible for the management and development of the Waste Acceptance Requirements document. This document is to be based on the applicable regulations from the Physical System Requirements - Accept Waste document and derived performance requirements developed from other applicable documents.
- 2.7 **The Management and Operations (M&O) organization** is responsible for the preparation of this plan, for the development and implementation of the Requirements Documents, for conducting SRRs and SDRs, as required, and for conducting QAP 6.2 reviews for the requirements documents.
- 2.8 **The M&O Systems Integration Manager** is responsible for managing the effort to identify derived requirements and for evaluating the quality and completeness of the requirements research effort.
- 2.9 **The M&O System Integration Task Manager** is responsible for the preparation of the requirements document for submittal to the Chief, Systems Engineering Branch (SEB), coordination and evaluation of the inputs from the designated OCRWM and M&O technical experts, and the technical quality of the final requirements documents. The M&O Task Manager is responsible for identifying and interpreting physical and design requirements/constraints applicable to the CRWMS program or to one of the program elements. The Task Manager is responsible for coordinating necessary interfaces between the M&O and OCRWM to obtain information pertaining to the definition and interpretation of system requirements. The definition and interpretation of requirements shall be conducted in consonance with ongoing program efforts under Design, Regulatory and Licensing, Performance Assessment and System Analysis. Requirements which address major operational or licensing decisions will be stated only after an OCRWM review and decision has been conducted. The Task Manager is also responsible for coordinating review comments, ensuring approved review comments are included in requirements updates, for coordinating required design reviews, and for preparing change requests for submission to the OCRWM Systems Engineering Branch for review.
- 2.10 **The M&O staff and Requirements Document Task Team** are responsible for providing information as requested by the Task Manager, preparing appropriate quality records, transmitting those records to the SEB, preparing comment response forms, and incorporating comment resolution changes into the final Requirements Documents. It is the responsibility of the Task Manager to oversee the conduct of these activities.
- 2.11 **Waste Acceptance System Requirements Task Force** members are representatives from OCRWM, YMPO, the Office of Environmental Restoration and Waste Management (EM) and the M&O, who are knowledgeable in the area of Waste Acceptance and appropriate established interfaces. These personnel will develop and document the necessary regulatory and performance requirements, and are considered preparers of the Waste Acceptance System Requirements Document.

3. DESCRIPTION OF THE TECHNICAL DOCUMENTS

3.1 REQUIREMENTS DOCUMENTS

In accordance with Section 5.2 of QAAP 2.3, the SRDs and IFSs are considered to be quality affecting technical documents. Therefore, they will be prepared, reviewed, controlled, and documented in accordance with those reference documents in Section 1.3.

In addition to quality assurance preparation, review, and control procedures, each of the Requirements Documents shall be reviewed by the Office of Systems and Compliance. Upon completion of this review, and after incorporation of review comments, the Requirements Documents will undergo QAP 6.2 review. The documents will then be submitted to the OCRWM Program Change Control Board and, upon approval, will be placed under configuration control.

The Requirements Documents, once approved, document the technical requirements, including interpretations of requirements from source documents, and the conceptual design as the controlling documents in the CRWMS technical baseline. They include performance, and specialty engineering requirements, as well as a description of the configuration items (physical elements) that constitute the conceptual design. For the purposes of requirements development, technical requirements are the requirements for facilities to be built or modified and for items to be developed or procured for the program. These may include manufactured products, facilities, software, technical manuals, etc. Technical requirements may also describe the numbers and skills of people required to manage and operate the system.

Programmatic requirements describe processes and procedures that may occur at any phase of the program. The programmatic requirements will be addressed in plans and procedures, many of which will be developed during the design and construction phases and implemented during the operations phase. The various plans and procedures are to be identified in the Program Management System Manual (PMSM) and in the System Engineering Management Plan (SEMP).

3.2 ANNOTATED TABLE OF CONTENTS

The format for the Requirements Documents described herein have been adapted from MIL-STD-490A (Type A Specification) to conform to the requirements of the CRWMS Program. The general outline of the Requirements Documents is described below. Sections which do not apply to a specific requirements document may be modified or deleted.

3.2.1 Section 1 - Scope

- A. **Identification.** Information is provided which properly identifies the document and its relation to the CRWMS.
- B. **Document Purpose.** The purpose of the document is defined.

- C. **System Overview.** The mission, background, concept, and top-level functions of the system or system element are defined.
- D. **Document Organization and Description.** This section gives a brief overview of the requirements document, including a brief discussion of the document organization.

3.2.2 Section 2 - Applicable Documents

This section lists all documents that are included by reference.

3.2.3 Section 3 - Requirements

- A. **System Definition.** A brief description of the system element to which this requirements document applies is provided. Major functions are identified as is the top-level architecture.
- B. **Characteristics.** This section describes the system performance requirements, physical characteristics, and interfaces.
- C. **Design and Construction.** Minimum design and construction criteria and standards are specified. DOE 6430.1A is referenced for applicable design criteria.
- D. **Documentation.** Documentation requirements/standards are specified.
- E. **Logistics.** Logistics considerations and requirements applicable to the operational system are specified.
- F. **Personnel and Training.** Requirements are specified to identify the number and skills of personnel as well as special training required to meet operational and safety standards.
- G. **Segment Requirements.** For each segment identified in the System Definition Section, the purpose, segment performance, design requirements, and interfaces are specified. As appropriate, the system-level requirements of the Characteristics, Design and Construction, Documentation, Logistics, and Personnel and Training sections are also specified, by reference, to each segment.
- H. **Precedence.** The order of priority or precedence of requirements is given.
- I. **Qualification/Quality Assurance.** General validation requirements are stated as are special tests, test methods, test constraints, and test equipment. Test responsibilities are defined.

3.2.4 Section 4 - Conformance Verification

This section defines how the requirements are to be satisfied/verified at the system level. In each requirements document, a Verification Matrix is provided that cross-references requirements to verification methods. Separate verification matrices, applicable to the design phase, should be contained in project-level Design Requirements documents.

3.2.5 Section 5 - Preparation for Operations/Delivery

Special requirements, if any, required in order to meet licensing or operational needs are specified in this section.

3.2.6 Section 6 - Notes

General information which is nonbinding on the physical system configuration is presented. This may include programmatic requirements that control development activities but are not a part of the design basis.

3.2.7 Appendices

Drawings, diagrams and oversize figures may be included in appendices for convenience and to reduce the complexity of the basic document. Other requirements, because of the nature of their complexity or degree of specialty, may also be included as appendices. Requirements contained in appendices are mandatory and may not be changed except through the document change control procedure.

In the case of the MGDS requirements, two additional appendices, the Site Characterization System Requirements and the Site Suitability Evaluation Criteria are included in the System Requirements document. Development of these appendices of the MGDS Requirements document will follow the guidelines stipulated herein for development of their requirements documents.

The Site Characterization System Requirement (SCSR) appendix will summarize requirements which must be met by the Site Characterization Program. It will serve as the basis for the development of the detailed test requirements at the project level and will provide program control to ensure issues are addressed.

The Site Suitability Evaluation Criteria (SSEC) appendix will summarize the requirements of which must be addressed by the MGDS project in developing its recommendations on the suitability of a site to be developed as a repository.

4. TECHNICAL APPROACH

4.1 MAJOR ASSIGNMENTS AND STEPS IN PREPARING THE REQUIREMENTS DOCUMENT

4.1.1 System Function Identification

System functions will initially be based on functions as identified in the Physical System Requirements documents. These functions will be reanalyzed and modifications or amendments will be proposed where appropriate.

4.1.2 Functional Flow Diagrams

Functional Flow Diagrams for the Requirements Documents will be developed from the functions identified in Section 4.1.1. These will graphically illustrate the functional process of the system, ensure all functions are addressed, and depict relationships among functions. The Functional Flow Diagrams will be incorporated in the Requirements Documents.

Once the relationships among functions have been identified using the functional flow diagrams, N² diagrams will be used to describe the nature of the interfaces. Intra-element interfaces will be documented in the element requirements document to which they pertain. Both functional and physical interfaces will be developed using this process. This process is to be further described in Interface Specifications to be developed.

Physical interfaces between CRWMS segments and systems external to CRWMS (e.g., local electrical, water or sewerage utilities) will be documented in the appropriate element Design Requirements documents at the project level. Management or programmatic-type interfaces will be documented in procedures, contracts, memoranda of understanding or other management documents. These programmatic interfaces are outside the scope of this TDPP.

4.1.3 Requirements Allocation Sheets

A Requirements Allocation Sheet (RAS), Figure 4-1, will be developed for each function identified in Section 4.1.1. Requirements pertaining to each function will be maintained on the RAS as a permanent record of requirements traceability. These requirements will be allocated to physical elements of the system and allocated to the appropriate section of the requirements document. The RAS will serve as a tool for consolidating requirements under the appropriate function and for maintaining traceability of functions and requirements. They will serve as a permanent QA record of a requirement's source, interpretation and allocation. The function description on the RAS will be reviewed by the engineering task leader and initialized in column 5. Approval of the description as stated in engineering terminology will be indicated by signature on the bottom of the form by the appropriate manager.

RAS are developed for the functions the system is to perform and incorporate the requirements on those functions. The functions, each defined on a separate RAS, define what is to be done-

REQUIREMENTS ALLOCATION SHEET (RAS)			Requirement Allocation	
Name and Number (1)	Rev (2)	Functional Description and Requirements (3)	Item (4)	Revw* (5)
		Description:		

* Signature in column 5 shows review of the restatement of the requirement into engineering terms.

Approved: _____ Date: _____

Figure 4-1. Requirements Allocation Sheets (RAS)

requirements indicate how well they are to be done. The RAS are then used to allocate the functions and requirements to physical items that perform the functions. The physical items and their allocated functional requirements appear in section 3.7 of the system requirements document. The RASs shall be submitted for System Engineering Branch (SEB) and QAP 6.2 reviews.

4.1.4 Design Constraint Sheets

The Design Constraint Sheets (DCSs) address requirements associated with specialty engineering and similar constraints which usually address the design, construction, etc. of the system architectural elements, rather than how they perform their functions. These include human factors, construction standards, safety, etc. and appear in sections 3.2 through 3.6 of the system requirements document. There are no basic differences between the RAS as discussed in section 4.1.3 and the DCS except in their use. In order to easily identify functions and their associated requirements and to maintain separation between these requirements and others which are primarily associated with specialty engineering, the DCS has been chosen as a means of maintaining this separation and clarification.

Functions are defined and requirements are allocated to system segments using the RAS as discussed in Section 4.1.3. Other requirements will be documented as "engineering constraints" and allocated to the appropriate section of the requirements document using Design Constraint Sheets (DCS), Figure 4-2. These design constraint requirements are typically those pertaining to human factors, safety, logistics, and other engineering specialties. Their development is based on standard engineering analytical approaches. In addition, the DCS will be used to document the requirements for each interface described in the Interface Specifications. A member of the system engineering staff will review each constraint and initial column 5. The appropriate manager from System Integration will approve each sheet. The DCSs shall be submitted for the SEB and QAP 6.2 reviews.

4.1.5 Issue Clarification and Derived Requirements Documentation Form

The Issue Clarification and Derived Requirements Documentation form, Figure 4-3, will be used to document technical decisions and derived requirements that have resulted from studies, analyses or peer reviews of issues from the Issues List (Section 4.1.6) or from reviews of the draft requirements document.

This form will also be used to document the engineering consensus resulting from analyses to interpret regulatory or legal requirements or otherwise to remove "To be Resolved" (TBR) or "To be Determined" (TBD) entries in the Requirements Documents. The Issue Clarification form will be signed by one of the system engineers from the staff and approved by the appropriate manager from Systems Integration.

DESIGN CONSTRAINT SHEET (DCS)			Constraint Applicability	
Requirement Number and Title (1)	Source Ref. (2)	Constraint or Design Criteria (3)	Item (4)	Follow-up (5)

* Signature in column 5 shows review of the restatement of the requirement into engineering terms.

Approved: _____ Date: _____

Figure 4-2. Design Constraint Sheet (DCS)

**ISSUE CLARIFICATION AND DERIVED
REQUIREMENTS DOCUMENTATION FORM**
(Please Print Clearly)

Page of

Date: _____	Serial Number: _____	QA: No <input type="checkbox"/> Yes <input type="checkbox"/>								
<p>1. Document Title and Paragraph:</p> <p>2. Issue/Requirement Short Title:</p> <p>3. Statement of Issue:</p> <p>4. Discussion: (Background (how was the issue raised?), Alternatives/disadvantages/risks considered; other decision/documents affected by this issue)</p> <p>5. Conclusion: (See RAS/DCS/FFBD/Technical Document Input Control form attached) (annotate attachments with the serial number of this document)</p> <p>6. Staff Engineers: _____</p> <p style="margin-left: 100px;">_____</p> <p>7. Coordination:</p> <p>_____</p> <p>_____</p> <p>_____</p>										
<p>Status Change (See back of form):</p> <table style="width: 100%; border: none;"><tr><td style="width: 25%; border: none;">_____</td><td style="width: 25%; border: none;">_____</td><td style="width: 25%; border: none;">_____</td><td style="width: 25%; border: none;">_____</td></tr><tr><td style="border: none; text-align: center;">Submitted</td><td style="border: none; text-align: center;">Date</td><td style="border: none; text-align: center;">Approved</td><td style="border: none; text-align: center;">Date</td></tr></table>			_____	_____	_____	_____	Submitted	Date	Approved	Date
_____	_____	_____	_____							
Submitted	Date	Approved	Date							

Figure 4-3. Issue Clarification and Derived Requirements Documentation Form

ISSUE CLARIFICATION AND DERIVED
REQUIREMENTS DOCUMENTATION FORM (Con't)

Page of

Serial No. _____

Item	Continuation

Figure 4-3. Issue Clarification and Derived Requirements Documentation Form (Cont'd)

ISSUE CLARIFICATION AND DERIVED
REQUIREMENTS DOCUMENTATION FORM (Con't)

Page of

Serial No. _____

NOTES:

1) The serial number of this form consists of:

(a) system designator

CR	CRWM System-Level
WA	Waste Acceptance
TRAN	Transportation
MRS	Monitored Retrievable Storage
MGDS	Mined Geological Disposal System
WA/TRAN	Interface Between WA and TRAN
TRAN/MRS	Interface between TRAN and MRS
TRAN/MGDS	Interface between TRAN and MGDS
MRS/MGDS	Interface between MRS and MGDS
WA/MRS	Interface between Waste Acceptance and MRS
WA/MGDS	Interface between Waste Acceptance and MGDS

(b) Six-digit (yymmdd) date representing two-digits each for year, month, and day.

(c) Two-digit number, reset to 01, each day for the first form initiated, 02 for the second, etc.

EXAMPLE: MGDS-920106-02 (This is the second MGDS form initiated on January 6, 1992)

2) Mark QA/Not QA depending upon whether the decision is quality affecting.

Figure 4-3. Issue Clarification and Derived Requirements Documentation Form (Cont'd)

4.1.6 Issues List

The Issues List will be developed and maintained as a working document throughout the development of the Requirements Document in order to document items requiring resolution or decision consensus.

The Issues List will be provided to the Systems Analysis Section of the M&O and, periodically to the OCRWM Systems Engineering Branch. A systems study plan will be developed for the resolution of primary issues. The issues list will be used as a management tool to maintain the status of items requiring resolution.

4.1.7 Technical Document Input Control

In accordance with NQA-1, inputs used in the preparation of technical documents and in changes to inputs shall be documented, reviewed and maintained as part of the QA record. The Technical Document Input Control Form, Figure 4-4, shall be used to assist in maintaining a list of inputs used in developing and changing the requirements document.

The potential input (new or change) shall be documented by filling out the Technical Document Input Control Form. This form shall identify and describe the potential input and the appropriate reviews and approvals. The form shall include at least the following:

- A. A description of the inputs or change to inputs and the estimated impact of the change.
- B. A list of the requirements documents that are affected by this input.
- C. A list of the QA controls that were used in developing the input, and the QA controls that are required for the technical documents.
- D. Indication of whether the QA controls used for the input are adequate or if any actions are required to be able to accept the input.
- E. Whether the input will be included or excluded (provide rationale) and whether an immediate change to the technical document is needed.

4.1.8 Verification Matrix

The data on the RAS and the Design Constraint Sheets will be incorporated into the format of Section 3 of this plan. A Verification Matrix will be prepared for each requirements document except the CRWMS Requirements that lists each requirement separately. The verification method (e.g., analysis, inspection, test, or demonstration) will be determined for each requirement and entered in the matrix. In addition, any special test requirements will be documented in Section 3 of the requirements document and reflected on the Verification Matrix, if appropriate.

4.1.9 Drafts of the Requirements Document

Preliminary drafts of each Requirements Document may be produced for periodic review as required. Later versions of such preliminary drafts will be submitted to SEPID for review and comment.

Following the SEPID review, an updated draft will be distributed. The M&O shall be responsible for conducting the QAP 6.2 review and, after comment resolution, the requirements document will be reviewed again for PCCB action. Following PCCB review, the final requirements document will be published incorporating all resolved comments.

The SRR and SDR are reviews identified in DOE 4700.1. They are intended as management reviews of technical activities. As appropriate, they will be conducted in addition to the reviews described above.

4.1.10 Description of Process

The entire process of developing the Requirements Documents will be conducted in a close working relationship with the M&O team performing the system element designs. For development of the Waste Acceptance SRD, close coordination between RW and EM will be maintained to ensure consistency with lower-level compliance and qualification documents.

4.2 CRITERIA FOR REQUIREMENTS DOCUMENT ACCEPTABILITY

4.2.1 System Design Review

A System Design Review (SDR) will be held for the MGDS, MRS and Transportation SRDs as described in paragraph 1.4.H and the OCRWM SEMP.

4.2.2 System Engineering Branch Review

The Systems Engineering Branch will review the draft requirements documents for functional breakdown adequacy and program policy compliance, prior to the QAP 6.2 review. The Systems Engineering Branch will use the criteria below to guide its evaluation of the requirements document.

- A. All identified functions, interfaces, and requirements are appropriate
- B. The definition of each function, interface, and requirement is clear and excludes duplication
- C. The Requirements Document is consistent with this Technical Document Preparation Plan

- D. Overall content is consistent with program policy
- E. Flowdown and interpretation of functions and requirements from the regulatory requirements is documented.

4.2.3 QAP 6.2 Technical Review

Subsequent to completion of the System Engineering Branch review requirements documents will be reviewed and comments documented in accordance with QAP 6.2. Each requirements document will be accepted by the Associate Director, OSC. It will then be submitted to the Project Change Control Board (PCCB) for final approval.

A QAP 6.2 technical review package will accompany each document submitted for review. The following review criteria will be adapted or amended as necessary and shall be included in each review package.

A. All Reviewers

1. Review in accordance with QAP 6.2
2. Review document(s) for technical adequacy to meet top-level CRWMS technical baseline requirements
3. Review for completeness and need for additional requirements
4. Review for correct interpretation of requirements
5. Verify that assumptions are explicit and reasonable
6. Verify that a means is stated for adjudicating conflicting requirements
7. Review for organization and format (editorial comments are not mandatory)

B. System Engineering Area of Expertise

1. Review for consistency with this TDPP
2. Verify that functions have been properly identified and allocated in the function hierarchy
3. Ensure requirements (functional, technical or interface) are properly identified and allocated to appropriate document sections.
4. Review requirements for accuracy, traceability and flow down

5. Ensure inputs and input sources are current, correct and usable

C. Element Interfaces Area of Expertise

1. Ensure system and element interfaces are properly identified and allocated to appropriate Interface Specification for definition.
2. Ensure that physical and functional top-level interfaces are identified, are accurate and meet system-level requirements for the CRWMS technical baseline.

D. Regulatory Licensing and Compliance Area of Expertise

1. Review for compliance with prior commitments
2. Review for compliance with regulations
3. Review Conformance Verification Matrices for correctness and completeness.

E. Design, Technology, and Nuclear Engineering Areas of Expertise

1. Ensure that system and element functions are properly identified and allocated
2. Ensure that system requirements (functional, technical, interface) have been properly identified, interpreted and allocated to proper section of the document.
3. Ensure that physical system segments and subsystems are adequate for addressing CRWMS technical baseline requirements.
4. Ensure that source document(s) requirements have been properly identified, interpreted and allocated.
5. Ensure that top-level interfaces have been identified, are accurate and have been allocated to appropriate interface specification for definition.
6. Review Conformance Verification Matrices for technical accuracy and completeness.

4.2.4 Document Change Proposal

Upon acceptance of the Requirements Documents by the Associate Director, OSC, the Requirements Document will undergo a management review against all program impacts by the PCCB in accordance with Reference O. If required, a Document Change Proposal will be prepared by the Associate Director, OSC, to update the technical baseline documents.

4.2.5 Training for Users

All document preparers and reviewers shall be furnished a copy of this TDPP and it shall be included on I&T matrices for all document developers and reviewers conducting reviews under QAP 6.2.

4.3 QUALITY ASSURANCE

The preparation and review of the Requirements Documents are subject to the OCRWM QA program as defined in the OCRWM QARD and QAPD. The quality assurance controls that will be applied will be those specified in the OCRWM QAPD. In summary, the analysis and document preparation and/or revision will be in accordance with:

- A. QAAPs 2.1, 2.2, 2.3, and 3.3 to assist in the preparation of the requirements document
- B. QAAP 7.1 for procurement of services, if applicable
- C. QAAP 6.1 for document control
- D. QAAP 17.1 for records management
- E. QAPs 3.5 and 6.2 for document preparation and review

4.3.1 Records

Records resulting from the implementation of this management plan are to be maintained in accordance with the requirements specified in QAAP 17.1. As a minimum the following records shall be considered QA records:

- A. The Technical Document Preparation Plan and any revisions thereto
- B. The draft Requirements Document submitted for QAP 6.2 review, and all documentation associated with the QAP 6.2 review
- C. The final Requirements Document used as basis for Document Change Proposal
- D. Document Change Proposal
- E. Technical Document Input Control forms in accordance with NQA.1, QAP 3.5 and this TDPP (see Section 4.1.7).

- F. Education and Experience Verification Forms, per QAAP 2.2, and Indoctrination and Training matrices, in accordance with QAAP 2.1, for all Task Team members
- G. Draft Requirements Document after QAP 6.2 review with incorporation of all resolved comments
- H. Draft Requirements Document submitted for PCCB review and all associated documentation
- I. Final Requirements Document after PCCB review with incorporation of all resolved comments
- J. Requirements Allocation Sheets (RAS) and Design Constraint Sheets (DCS) used to develop the Requirements Documents (see Section 4.1.3 and 4.1.4)
- K. Issue Clarification and Derived Requirements Documentation Form (see Section 4.1.5)

4.3.2 Revisions to the Preparation Plan

Any changes to this preparation plan found to be necessary during the conduct of the conceptual design will be documented through revision, including appropriate review and approval of this plan, in accordance with QAP 3.5.

Schedules for production of the requirements documents and for various reviews, if revised, will be promulgated as revisions to this Technical Document Preparation Plan.

4.4 REQUIREMENTS INPUTS AND DOCUMENT PREPARATION

The CRWMS, MRS Facility, MGDS and Transportation System Requirements Documents and each Interface Specification will be prepared by the Requirements Document Task Team that consists of the Task Manager and selected M&O staff members. All members of the team will be qualified technical personnel with documented knowledge of items A-AE of Section 1.3 and all technical documents described in Section 4.4.2. Education and experience shall be verified in accordance with QAAP 2.2, and QA indoctrination and training shall be documented in accordance with QAAP 2.1. Education and Experience Verification and Indoctrination and Training forms shall be included in the QA record.

The Waste Acceptance System Requirements Document will be prepared by the Waste Acceptance Requirements Task Force. All members of this Task Force will be qualified technical personnel with documented knowledge of items D, E, K, L, T, Z, AF and AG of Section 1.3 and items A, B, E, I and L in the document list described in Section 4.4.2. Education and experience shall be verified in accordance with QAAP 2.2, and QA indoctrination and training shall be documented in accordance with QAAP 2.1. Education and Experience Verification and Indoctrination and Training forms shall be included in the QA record.

4.4.1 Basis for Requirements Specified as Part of the Functional Analysis

Requirements will be based on:

- A. Current Federal Laws pertaining to the management of high-level radioactive waste material**
- B. Federal regulations derived from laws pertaining to high-level radioactive waste management**
- C. Federal laws and regulations that are applicable to the operation of nuclear facilities and systems needed to manage high-level waste**
- D. Federal laws and regulations pertaining to protection of the environment and of public and worker health and safety**
- E. Selected DOE Orders and OCRWM approved policies and decisions (i.e., Mission Plan, etc.)**
- F. State of Nevada and other state and local laws and regulations as appropriate**
- G. Physical System Requirements, references 1.3-T, 1.3-U, 1.3-V, 1.3-W, 1.3-Y, and 1.3-Z**
- H. Site Characterization Plan Baseline, reference 1.3-X**
- I. Other standards and criteria as appropriate**

Relevant NRC regulatory guides, technical staff positions, NUREGs and other NRC publications will be reviewed to help interpret requirements during the development of the requirements documents. This does not infer, however, that other requirements will not be identified by reading the source documents or through discussions with personnel outside the M&O Task Team developing requirements documents. Specifically for the Waste Acceptance SRD, consideration shall be given to existing waste production facility designs. The use of such requirements, however, will require concurrence of a Requirements Document Task Team engineer and approval by the Task Manager.

In addition to interpretation of statutory, regulatory, and other requirements as described above, the Task Teams will develop derived and performance requirements to meet the mission and support the constructability of the system. These will be based on engineering and other analyses, inputs from peer reviews, calculations, etc. Those processes will be documented and concurred in by more than one engineer from the Requirements Document Task Teams and approved by M&O management. This documentation, together with supporting data, will serve as the source documentation for the requirement.

4.4.2 Document Familiarization

Specifically, the M&O Requirements Document Task Team must be thoroughly familiar with applicable primary source documents for the system requirements. These include as a minimum, references in Section 3 and the following documents:

- A. *Nuclear Waste Policy Act of 1982 (NWPA)*
- B. *Nuclear Waste Policy Act Amendments of 1987 (NWPAA)*
- C. *OCRWM Quality Assurance Requirements Document*
- D. *10 CFR 960, General Guidelines for the Recommendation of Sites for Nuclear Waste Repositories*
- E. *10 CFR 961, Standard Contract for Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste*
- F. *Occupational Safety and Health Act (OSHA), 29 USC 651*
- G. *10 CFR 20, Standards for Protection Against Radiation*
- H. *40 CFR 191, Environmental Radiation Protection Standards for Management and Disposal of Spent Fuel, High-Level and Transuranic Radioactive Wastes*
- I. *10 CFR 71, Packaging and Transportation of Radioactive Material*
- J. *10 CFR 72, Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste*
- K. *10 CFR 73, Physical Protection of Plants and Material*
- L. *10 CFR 60, Disposal of High-Level Radioactive Wastes in Geologic Repositories*
- M. *DOE/RW-0005, Mission Plan for the Civilian Radioactive Waste Management Program (CRWM), OCRWM, DOE, June 1985, Volume I, Part 1*
- N. *OCRWM Mission Plan Amendments*

The Waste Acceptance Requirements Task Force must be thoroughly familiar with the documents identified in Section 4.4.

4.4.3 Preliminary Draft of Requirements Documents

Requirements Documents may be discussed with selected individuals for comments and technical input. Interactions with OCRWM branches, project offices, or other program participants will facilitate development of the technical approach, identify and resolve potential issues, and avoid potential conflicts. Such interactions, although not formally scheduled or required in this management plan, will be undertaken at the discretion of the Task Manager, on an as needed basis, during document development. Preliminary drafts of the requirements documents may be developed to support those interactions.

4.4.4 Source Documents

Source documents (documents from which requirements have been derived or which support requirement definition) will be documented, approved, and controlled using the criteria in Section 4.4.1 of this plan. This will include documenting each source document on a Technical Document Input Control Form (see Section 4.1.7). The M&O Task Manager will ensure that copies of the referenced source documents are maintained and that these copies are the most current versions.

Those requirements that are derived from laws, regulations, DOE Orders, and policy decisions will not be subject to qualification through use of quality assurance controls. However, to ensure that configuration control is maintained, these inputs will also be documented on the Technical Document Input Control Forms.

Where a primary source document, e.g. DOE 6430.1A, contains other sources, reference to the primary document as a source shall be taken to infer inclusion of all sources contained within the primary document unless exception is taken and such exception is noted and approved in the source input control form.

Requirements that are included in the requirements documents as "to be resolved" (TBR) or "to be determined" (TBD) will be qualified in accordance with appropriate QA procedures. Each such requirement shall be qualified by engineering analyses, document research, peer review, or other appropriate means. The results of each qualification will be appropriately documented in accordance with QA procedures.

4.4.5 Interfaces

Inter-element interfaces (e.g. Waste Acceptance-Transportation; MRS-Transportation, MGDS-Transportation; MGDS-MRS; Waste Acceptance-MRS and Waste Acceptance-MGDS) will be identified through functional analysis as described in Sections 4.1.1. and 4.1.2. Additionally, interface identification may be facilitated by an interface group composed of technical experts from the interfacing elements.

For each inter-element interface, an Interface Specification (IFS) will be developed. Each IFS will be referenced in both system element requirements documents to which they apply; however, they will be written as stand alone documents.

5. MILESTONES FOR THE REQUIREMENTS DOCUMENTS

Schedules for development and review of requirements documents which have been identified in this plan are presented in Figure 5-1. Revisions to these dates will be processed in accordance with Section 4.3.2 procedures.

DELIVERABLES

COMPLETION DATE

CRWMS Requirements

- RW-30 Review Draft 5/15/92
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 3 weeks after receipt of QAP 6.2 comments
- Final Document 4 weeks after receipt of PCCB comments

Waste Acceptance Requirements

- RW-30 Review Draft 8/17/92
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 2 weeks after receipt of QAP 6.2 comments
- Final Document 1 week after receipt of PCCB comments

Waste Acceptance-Transportation Interface Specification

- RW-30 Review Draft 2/9/93
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 3 weeks after receipt of QAP 6.2 comments
- Final Document 4 week after receipt of PCCB comments

Waste Acceptance-MRS Interface Specification

- RW-30 Review Draft 5/15/92
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 3 weeks after receipt of QAP 6.2 comments
- Final Document 4 week after receipt of PCCB comments

Waste Acceptance-MGDS Interface Specification

- RW-30 Review Draft 9/25/92
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 2 weeks after receipt of QAP 6.2 comments
- Final Document 3 week after receipt of PCCB comments

Transportation System Requirements

- RW-30 Review Draft 12/9/92
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 3 weeks after receipt of QAP 6.2 comments
- Final Document 4 week after receipt of PCCB comments

MGDS-Transportation Interface Specification

- RW-30 Review Draft 9/25/92
- QAP 6.2 Review Draft 2 weeks after receipt of RW-30 comments
- PCCB Review Draft 3 weeks after receipt of QAP 6.2 comments
- Final Document 4 week after receipt of PCCB comments

Figure 5-1. Requirements Documents Development and Review Schedule

DELIVERABLES

COMPLETION DATE

MRS-Transportation Interface Specification

- RW-30 Review Draft
- QAP 6.2 Review Draft
- PCCB Review Draft
- Final Document

5/15/92
2 weeks after receipt of RW-30 comments
3 weeks after receipt of QAP 6.2 comments
4 week after receipt of PCCB comments

MRS System Requirements

- RW-30 Review Draft
- QAP 6.2 Review Draft
- PCCB Review Draft
- Final Document

5/15/92
2 weeks after receipt of RW-30 comments
3 weeks after receipt of QAP 6.2 comments
4 week after receipt of PCCB comments

MGDS-MRS Interface Specification

- RW-30 Review Draft
- QAP 6.2 Review Draft
- PCCB Review Draft
- Final Document

7/1/92
2 weeks after receipt of RW-30 comments
2 weeks after receipt of QAP 6.2 comments
3 week after receipt of PCCB comments

MGDS System Requirements

- RW-30 Review Draft
- QAP 6.2 Review Draft
- PCCB Review Draft
- Final Document

7/1/92
2 weeks after receipt of RW-30 comments
2 weeks after receipt of QAP 6.2 comments
3 week after receipt of PCCB comments

Figure 5-1. Requirements Documents Development and Review Schedule (continued)