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# Tank Waste Remediation System Immobilized High-Level Waste Storage Project Configuration Management Implementation Plan

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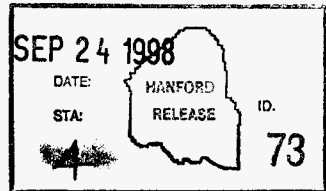
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**Abstract:** This Configuration management Implementation Plan was developed to assist in the management of systems, structures, and components, to facilitate the effective control and statusing of changes to systems, structures, and components; and to ensure technical consistency between design, performance, and operational requirements. Its purpose is to describe the approach Project W-464 will take in implementing a configuration management control, to determine the rigor of control, and to identify the mechanisms for imposing that control.

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# **TANK WASTE REMEDIATION SYSTEM IMMOBILIZED HIGH-LEVEL WASTE STORAGE PROJECT CONFIGURATION MANAGEMENT IMPLEMENTATION PLAN**

September 1998

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## LIST OF TERMS AND DEFINITIONS

CMIP	Configuration Management Implementation Plan
DOE	U.S. Department of Energy
CSB	Canister Storage Building
DIMC	Document/Information Management Center
DRD	Design Requirements Document
ECN	Engineering Change Notice
EDT	Engineering Data Transmittal
FDH	Fluor Daniel Hanford, Inc.
FY	Fiscal Year
HLW	High-Level Waste
HSTD	Hanford Site Technical Database
HVAC	Heating, ventilating, and air conditioning
ICD	Interface Control Document
LMHC	Lockheed Martin Hanford Corporation
MCA	Material Condition and Aging
MOA	Memoranda of Agreement
MYWP	Multi-Year Work Plan
NEPA	<i>National Environmental Protection Act of 1969</i>
OMM	Operations & Maintenance Manual
PA	Performance Agreement
PHMC	Project Hanford Management Contract
PHPP	Project Hanford Policies and Procedures
RL	U.S. Department of Energy--Richland Field Office
ROD	Record of Decision
SAR	Safety Analysis Report
SARP	Safety Analysis Report for Packaging
SC	Safety Class
SEL	Safety Equipment List
SNF	Spent Nuclear Fuel
S/RIDS	Standards/Requirements Identification Document
SS	Safety Significant
SSC	Systems, Structures, and Components
TBR	Technical Basis Review
TBSD	Technical Baseline Summary Description
TWRS	Tank Waste Remediation System
USQ	Unreviewed Safety Question
WBS	Work Breakdown Structure

**Should**--in this document denotes a guideline, a suggested practice that is not mandatory.

**Will**--in this document denotes a statement of fact, generally describing an action performed in

compliance with a requirement imposed by a referenced higher order document.

**Database Custodian**--An individual or organization assigned responsibility for establishing and maintaining configuration control of a database.

**W-464 Project Design Authority**--The person uniquely responsible and accountable for final acceptability of a structure, system, subsystem, or component, including its technical baseline and safe operation. (basis: AP 6-004) The W-464 Project Design Authority is responsible for all project technical requirements, and ensures the design authority responsibilities are distributed to the lowest practical level within the subprojects.

**Systems, Structures, and Components (SSCs)**--Systems are collections of components assembled to perform a function such as piping, cable trays, conduit, or HVAC. Structures are elements that provide support or enclosure such as buildings, free standing tanks, dikes, and stacks. Components are items of equipment such as pumps, valves, relays, or elements of a larger array such as computer software, lengths of pipe, elbow, or reducers. (basis: HNF-PRO-504).

**Technical Baseline**--A configuration identification document, or a set of such documents, formally designated and approved at a specific time. (The time need not be the same for each document in the set.) Technical baselines, plus approved changes to those baselines, constitute the current configuration identification. (basis: DOE 430.1)



## **TANK WASTE REMEDIATION SYSTEM IMMOBILIZED HIGH-LEVEL WASTE STORAGE PROJECT CONFIGURATION MANAGEMENT IMPLEMENTATION PLAN**

### **1.0 INTRODUCTION**

The Immobilized High-Level Waste (HLW) Storage Project (W-464) is the Tank Waste Remediation System (TWRS) project that provides interim storage capacity for the canisters of immobilized HLW produced during Phase 1. HLW canisters will be stored in Modules 2 and 3 of the Canister Storage Building (CSB). Project W-464 must interface with the Spent Nuclear Fuel (SNF) Project (W-379), which will utilize Module 1 of the CSB for SNF storage. As such, the configuration management of Project W-464 must be compatible with the configuration management approaches taken by both the TWRS Program and Project W-379. This plan defines Project W-464's approach and processes for configuration management, describes how the TWRS concept of configuration management will be implemented, and includes Project W-379 interface-specific considerations. Figure 1 summarizes the TWRS approach to configuration management, as adopted by Project W-464.

#### **1.1 PURPOSE**

This Configuration Management Implementation Plan (CMIP) was developed to assist in the management of systems, structures, and components (SSCs), to facilitate the effective control and statusing of changes to SSCs, and to ensure technical consistency between design, performance, and operational requirements. Its purpose is to describe the approach Project W-464 will take in implementing a configuration management program, to identify the products that need configuration management control, to determine the rigor of control, and to identify the mechanisms for imposing that control.

The responsibilities, actions, and tools defined in this plan will be used to establish and maintain technical consistency among design requirements, physical configuration, and related documentation, in accordance with the *Tank Waste Remediation System Configuration Management Plan*, HNF-1900 (Vann 1997).

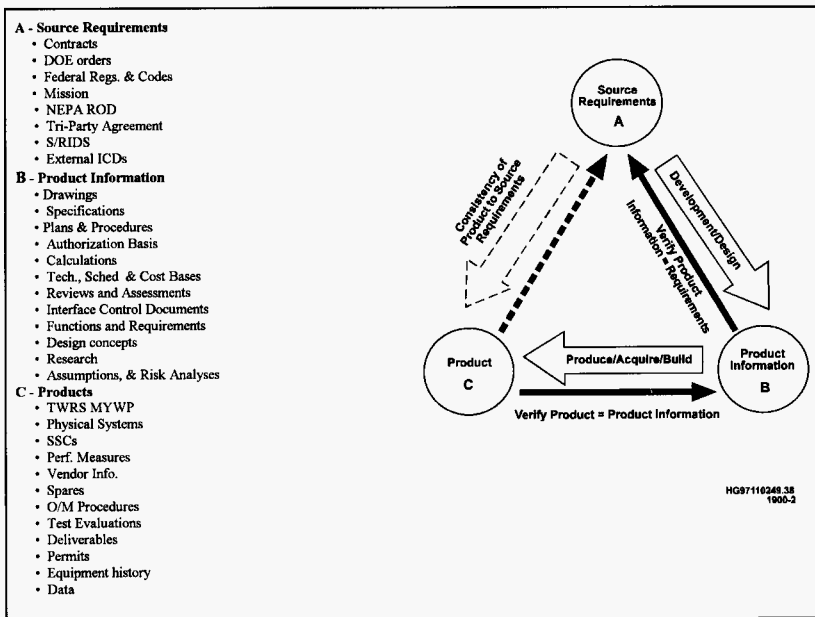
#### **1.2 SCOPE**

The scope of this CMIP provides for the necessary direction and monitoring of configuration management development and implementation for the life of Project W-464. It establishes the criteria for the scope of the configuration management program; defines configuration management concepts and terminology; identifies and controls configuration management organizational and programmatic interfaces; establishes the policy and criteria for

required information systems; and specifies configuration management procedures. This plan further describes how consistency among source requirements, product information, and the product will be maintained. This CMIP reflects those actions and responsibilities necessary to implement the requirements as a TWRS project. Information associated with the configuration management of items will be maintained as required, throughout the product's life cycle (design, acquisition, construction, operations, etc.). Assessments of configuration management implementation will be performed to determine its extent and quality and the need for program improvements.

Project W-464, its subprojects, subcontractors, and vendors will adopt this plan, and comply with it, as well as with the Project W-379 Configuration Management Plan.

Figure 1. Tank Waste Remediation System Configuration.



ICD = Interface Control Document.  
MYWP = Multi-Year Work Plan  
NEPA = National Environmental Policy Act of 1969  
S/RIDS = Standards/Requirements Identification Document

SSC = Systems, structures, and components  
Tri-Party Agreement = Hanford Federal Facility Agreement and Consent Order  
TWRS = Tank Waste Remediation System.

### 1.3 ROLES AND RESPONSIBILITIES

The W-464 Project Manager will ensure implementation of this configuration management program in accordance with the requirements of the *Tank Waste Remediation System Systems Engineering Management Plan*, HNF-SD-WM-SEMP-002 (Peck 1998) and the *Tank Waste Remediation System Configuration Management Plan*, HNF-1900 (Vann 1997), including their contractual imposition on all subcontractors and vendors. Additional responsibilities for the conduct of specific configuration management activities are defined in Appendix A of this document, and further defined in the engineering practices and procedures identified throughout this plan.

## 2.0 CONFIGURATION MANAGEMENT IMPLEMENTATION

Project W-464 will focus on three groups of tasks to implement configuration management, as follows:

1. Recovery tasks--work that includes design reconstitution and material conditioning and aging of existing facilities, labeling, and training
2. On-going implementation tasks--work inherent in ongoing activities, including documentation of design activities, document control, records management, product validation and test, procedure control, work packages, change implementation, as-built verification and validation, and closure; and
3. Information improvement tasks--work that includes implementation of work management tools to link information of the Project's facilities.

These tasks will be addressed in the TWRS Project work breakdown structure (WBS) elements, as defined in *Tank Waste Remediation System Fiscal Year 1998 Multi-Year Work Plan (MYWP) WBS 1.1*, HNF-SP-1230 (PHMC 1997).

A description of configuration management and the basic actions required to implement configuration management are provided in *Tank Waste Retrieval Configuration Management* HNF-IP-0842, Volume IV, Section 2.13 (LMHC 1997).

### 2.1 USE OF ESTABLISHED CONTROL MANUALS

Configuration management will be achieved through established Hanford Site processes, using existing controlled manuals and/or Project Hanford Policies and Procedures (PHPP) available through the Hanford Site Intranet. Key procedures are identified throughout the text of this document, and listed in Section 8.0, References. Requests for deviations, exceptions,

exemptions, and variances to policies, procedures, and requirements from PHPP, will be developed and processed per the *PHPP Processing Project Hanford Procedures*, HNF-PRO-589 (FDH 1998ai), or the *PHPP Exemptions and Equivalencies*, HNF-PRO-344 (FDH 1998q).

## 2.2 CONFIGURATION PLANNING

Project W-464 will develop an implementation schedule for its configuration management, which will be statused and maintained by the planning group. Specific items and associated information (status, dates, etc.) in the configuration management schedule will vary as configuration management implementation progresses. This schedule will be provided to the Project W-464 Design Authority for concurrence.

## 2.3 EQUIPMENT SCOPE CRITERIA

The TWRS Project Technical Baseline establishes the design bases for the functional and physical characteristics of configuration items. Criteria for selection of configuration items and configuration information are provided in the *Tank Waste Remediation System Configuration Management Plan*, HNF-1900 (Vann 1997). The criteria and methodology provided in *Safety Structures, Systems, and Components*, HNF-PRO-516 (FDH 1998ac), will be used by Project W-464 to determine the identification and safety classification of each SSC and in the development of the Project's Safety Analysis Report (SAR) and its Safety Analysis Report for Packaging (SARPs).

Computer software used in quality affecting activities (e.g., analyses, engineering design, environmental applications, hardware and facility operations and management information) within the scope of Project W-464 will meet the requirements of *Project Hanford Quality Assurance Program Requirements*, MRP-MP-599 (FDH 1998an), *Control of Computer Software*, HNF-PRO-309 (FDH 1998o), and *Software Control*, HNF-PRO-464 (FDH 1998y).

## 2.4 CONFIGURATION MANAGEMENT CONCEPTS AND TERMINOLOGY

Project W-464 will use the concepts and terminology defined in *Document Control*, HNF-PRO-224 (FDH 1998d), *Quality Assurance Records*, HNF-PRO-222 (FDH 1998c), and the PHPP Glossary, which reflect the standard Hanford Site terminology, initialisms, and acronyms, thereby assuring consistency between Project W-464 and other Hanford Site organizations (e.g., Safety, Quality Assurance, Procurement).

## 2.5 INTERFACE CONTROL

Project W-464 will identify and control its interfaces in accordance with *Interface Control Requirements*, HNF-PRO-243 (FDH 1998m), and *TWRS Administration*, HNF-IP-0842 (LMHC 1997). This includes all internal (subproject to subproject) and external (Project W-464 to external and subproject to external) interfaces. This requires the following:

- Establish technical agreements by interfacing elements.
- Prepare supporting documentation.
- Administrate control of the documented agreements.

Interface control documents (ICDs) will be developed to record technical requirements and design solutions across physical interface boundaries that exist between two or more system elements. Programmatic interfaces between projects, operations, etc. will be controlled and documented by either Memoranda of Agreement (MOAs) for internal (LMHC) interfaces, or by contract modifications for non-LMHC interfaces. It should be noted that ICDs are reserved for technical interface control, while MOAs and contract modifications are used for programmatic interfaces. Physical interfaces internal to subprojects will be developed and controlled in an informational format and will be available for turnover to operations.

## 2.6 DATABASES

Project W-464 requirements will be maintained and controlled using the Hanford Site Technical Database (HSTD). (See Section 3.2 for a more detailed description of this requirement.) Informational databases created within Project W-464 will be developed and maintained using the best management practices, i.e., one official database copy, identification of the database custodian, and full file backup on a routine basis.

## 2.7 PROCEDURES

Procedures written for the W-464 Project will be developed, issued, and maintained as supporting documents, per *Supporting Document Requirements*, HNF-PRO-439 (FDH 1998r), *Processing Project Hanford Procedures*, HNF-PRO-589 (FDH 1998ai), and *Processing Unclassified Information Products*, HNF-PRO-697 (FDH 1998ak). Signature approval will be in accordance with *Review and Approval of Documents*, HNF-PRO-233 (FDH 1998g).

## 2.8 PROJECT FILE DEVELOPMENT AND MAINTENANCE

A Project W-464 file will be developed and maintained to capture project related information, including, but not limited to, incoming/outgoing correspondence, delegation of authorities, internal memos, electronic mail, Engineering Data Transmittals, Engineering Change Notices (ECNs), conference notes, supporting documents, design drawings, meeting

minutes, activity reports, telecons, and trip reports.

## **2.9 CONFIGURATION MANAGEMENT IMPLEMENTATION PLAN TRAINING**

Training on the concepts and processes of this CMIP will be presented to Project W-464 personnel, including vendors and subcontractors, as determined by Project W-464 management. Records of attendance and session materials will be maintained in the project files. Refresher training will be conducted periodically as necessary.

## **2.10 PERFORMANCE AGREEMENTS**

Performance Agreements (PAs) will be controlled as part of the contractual baseline. During the course of working a PA, impacts may occur that could require changes to the scope of work and the completion criteria. Changes to the Programmatic Baseline resulting from PA changes are controlled via the *TWRS Baseline Change Control*, HNF-IP-0842, Volume VIII, Section 1.1 (LMHC 1997).

## **2.11 CONFIGURATION IDENTIFICATION**

Project W-464 management is responsible for ensuring that items and information important to the success of the project mission are identified and placed under configuration management control. These are known as configuration items and configuration information. The products of Project W-464 will be evaluated against the configuration management Scope Criteria (see Section 2.3) to identify those products that will be configuration controlled. Control of changes to these items and information is further described in Section 5.0 of this plan. Figure 2 provides an overview of the application of configuration management to Project W-464 products and services.

### **2.11.1 Configuration Item Selection and Control**

Items are products produced and/or used by Project W-464, including physical items (e.g., CSB vault modification, procured goods), software, documents, data, systems, structures, or components. Configuration items are the subset of all project related products selected for configuration management. Items will be selected for configuration management control by the Project Manager, based on their importance to Project W-464's mission and on the risks resulting from product inadequacy. These risks include potential impacts to programmatic and technical baselines, deliverables, and related SSCs. These items and their dependencies will be identified as configuration items by examining their uses and relationships in program logics, and by comparisons against the selection criteria listed in the *Tank Waste Remediation System Configuration Management Plan*, HNF-1900 (Vann 1997).

As candidate configuration items are identified, information related to those items will be examined to determine which items require control. Documentation justifying a decision to not control an item must be maintained.

### **2.11.2 Configuration Information Selection and Control**

Configuration information is documentation that defines, provides a basis for, or otherwise has an important relationship to a configuration item or other configuration information. This includes design drawings, engineering procedures, specifications, system design descriptions, processes, safety analysis reports, operations and maintenance procedures and manuals, as-built drawings, equipment and component lists, analyses and calculation reports, systems engineering documents and vendor information. It is controlled to maintain those relationships. Configuration information is the subset of all information related to configuration management items. The cognizant engineer determines the types of documents to be included in the configuration management program, based upon the criteria provided in this plan. Selected documents, etc. will identify the cognizant engineer, and will be identified (numbered) in accordance with *Engineering Document Identification*, HNF-PRO-227 (FDH 1998e), to facilitate control and retrieval.

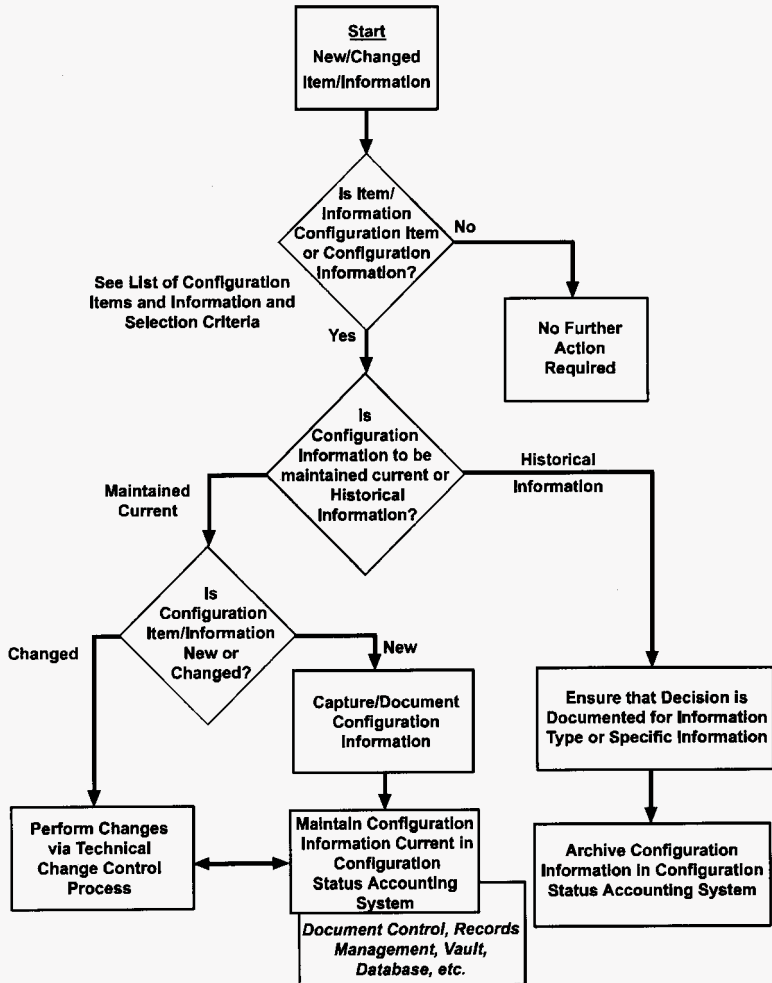
The Project will control technical, schedule, and cost data used to acquire, build, operate, and otherwise support the item throughout its life cycle. This includes information received as an input to the project, as well as information derived internally by the project. It further includes current information maintained to support the Project, as well as information that will be archived. The design basis will be identified and maintained traceable to the configuration item and related design documents. Changes to the design basis will be evaluated to determine impacts and required design changes.

## **2.12 INTEGRATED BASELINE--ALLOCATION OF REQUIREMENTS**

The HSTD establishes the top-level functional requirements that define the Hanford Site cleanup mission. The baseline allocates requirements to the TWRS Project, which in turn allocates requirements to its projects, defines primary interfaces, and bounds the mission of the TWRS Project. The Projects requirements, interface data and traceability data will be maintained in the HSTD.

Project W-464 work activities are defined through Level 1 Logics (FDH 1998ao) and associated Technical Basis Reviews (TBRs), down to Work Breakdown Structure (WBS) Level 7. The TBR package also includes a level which further defines the work scope at WBS Level 8. This documentation recognizes the current fiscal year (FY) 1998 configuration while establishing the framework for configuration maturation of the work scope in accordance with schedules defined by the finalized privatization contract. The WBS describes the budgeted scope needed to support the critical path schedule.

Figure 2. Configuration Management Process Flow.



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## **2.13 INTEGRATED BASELINE SCHEDULE**

Each level of the baseline schedule is built to mirror the appropriate levels of the Project W-464 Technical Baseline. Relationships (predecessor/successor) and duration of activities have been identified and documented. Changes that affect the appropriate levels of the baseline schedule will be processed in accordance with *Program Administration*, HNF-IP-0842, Volume VIII, Section 1.1, "TWRS Baseline Change Control" (LMHC 1997).

## **2.14 BASELINE BUDGET PLAN**

Baseline costs are established by resource loading the technical work scope identified in detailed schedules that drive the W-464 Project Master Baseline Schedule. The specific costs resulting from this resource loading are based on the units (e.g., labor hours) of detail planning assigned to the work and the values (e.g., labor rates) assigned to these units. The Baseline Budget Plan (P3 Schedule System) and supporting Financial Data System are configuration items. Changes to these configuration items, the elements that make up these items (e.g., Financial Data System rate structure), or the elements these items support (e.g., MYWP), will be controlled in accordance with *Program Administration*, HNF-IP-0842, Volume VIII, Section 1.1, "TWRS Baseline Change Control" (LMHC 1997).

# **3.0 DESIGN REQUIREMENTS**

## **3.1 ESTABLISHMENT OF DESIGN REQUIREMENTS**

The Project is migrating from a Design Requirements Document (DRD) generated by a word processing software to an HSTD generated Level 1 Specification. This document is the requirements basis for the project, developed using a systems engineering approach per the *Systems Engineering Management and Implementation Plan for Project W-464, Immobilized High-Level Waste Storage*, HNF-2579 (Kasper and Weeks 1998). Project W-464 will develop and maintain its technical baseline functions and requirements, to a project level of detail appropriate to the project's scope, as determined by the Project Manager.

The basis for design requirements will be established for each of the SSC identified as noted above in Section 2.3. The SSC equipment list will include reference to design requirements documentation.

The body of technical information (e.g., requirements and design basis, reflected in drawings, specifications, process flow diagrams, vendor information, supporting documents, engineering studies, analyses) associated with systems under development, operation, modification or deactivation will be developed, verified and managed in accordance with the appropriate Hanford procedures (HNF-PROs).

Applicable sections of *Engineering Practices Guidelines*, HNF-PRO-504 (FDH 1998z), will be implemented throughout the design process, as determined by the cognizant engineer and his management. Design verification (both for final design and subsequent changes/revisions) will be in accordance with *Design Verification Requirements*, HNF-PRO-445 (FDH 1998w). All engineering drawings initiated by or prepared for Project W-379 will be prepared, approved, released, and revised per manual *Engineering Drawing Requirements*, HNF-PRO-242 (FDH 1998k), with the exception of vendor drawings. Vendor drawings will be controlled by *Vendor Information Requirements*, HNF-PRO-444 (FDH 1998v). Field verification will be in accordance with *Engineering Drawing Requirements*, HNF-PRO-242 (FDH 1998k).

### **3.2 REQUIREMENTS TRACKING**

Project W-464 requirements will be maintained and controlled using the HSTD.

### **3.3 SYSTEM AND PROCESS BOUNDARIES**

Each system or process will be established to contain the components necessary to satisfy the design requirements for that system or process. The boundaries for each system or process will be defined and documented by controlled supporting documents, drawings, or specifications.

### **3.4 ASSIGNMENT OF STRUCTURES, SYSTEMS, AND COMPONENTS SAFETY GRADES**

The *PHPP Safety Structures, Systems, and Components*, HNF-PRO-516 (FDH 1998ac), will be used to identify if SSCs are safety class (SC) or safety significant (SS). The safety class will be used as the basis for the degree of control imposed on the SSC.

### **3.5 SAFETY EQUIPMENT LISTS**

Based on the safety classification assigned to each SSC, a Safety Equipment List (SEL) will be developed in accordance with *Compiling the Safety Equipment List*, HNF-PRO-516, Section 3.2 (FDH 1998ac). If the subproject has or will develop a master equipment list, the SEL may be part of the larger list.

#### 4.0 DOCUMENT CONTROL AND STATUS ACCOUNTING

Project W-464 related documents containing design related information will be developed, reviewed, and released into the Hanford Site document control system by use of an Engineering Data Transmittal, and processed by an authorized Document/Information Management Center (DIMC), in accordance with the document and record management procedures described in Section 3.1 above, and *Records Management*, HNF-PRO-208 (FDH 1998a); *Document Control*, HNF-PRO-224 (FDH 1998d); and *Project and Task Document Management*, HNF-PRO-232 (FDH 1998f). Authorized signature levels will be determined in accordance with *Review and Approval of Documents*, HNF-PRO-233 (FDH 1998g).

Project configuration documents will be controlled in accordance with applicable procedures. Only currently approved revisions of configuration documents are used to conduct work. Project W-464 will have a designated DIMC that will process and maintain its documents. A project file will also be established within its DIMC to retain programmatic, project, sub-element, and subcontractor information and will be maintained through guidance from Project W-464 management. The document control and records management systems will further comply with *Records Management Program*, HNF-PRO-210 (FDH 1998b), and *Document Control*, HNF-PRO-224 (FDH 1998d).

#### 4.1 DOCUMENT/INFORMATION CONTROL SYSTEMS AND FACILITIES

Project W-464 will utilize its designated DIMC to receive and transmit documentation and information associated with the Project W-464 mission. The DIMC will provide a document management and digitizing (electronic imaging) process to help reduce the volume of paper and enable automating and streamlining the business process, and will provide the technology and services to manage both internal and externally created documents so that information is readily accessible across the enterprise. This documentation and information process will be defined in desk instructions and procedures to be developed by Project W-464.

The DIMC will provide document scanning, indexing, document release, document clearance, distribution, storage, records disposition and transfer, commitment tracking and other services as required. Project W-464 documentation will be stamped and logged as it is processed through the DIMC. Documents not stamped by DIMC should be forwarded to DIMC for processing. DIMC will further perform a quality control check for Project generated documents and make distribution of the documents. The originators of Project W-464 correspondence and documents will obtain letter and document numbers from DIMC. A document numbering convention will be developed for documents and information that provides a tie to the Work Breakdown Structure. The DIMC document and information process flow is described in *Tank Waste Remediation System Configuration Management Plan*, HNF-1900 (Vann 1997).

Information systems utilized to implement this configuration management program are identified in the *Configuration Management Information Systems Plan* (Gneiting 1996). Improvements, upgrades, or replacements of Project W-464's information systems will occur on an as-needed basis or through site-wide initiatives, such as the HANDI 2000 initiative. Project W-464 configuration management information systems must comply with requirements contained and referenced in this CMIP.

## **4.2 CONFIGURATION STATUS ACCOUNTING**

Status accounting of configuration items utilizes the above described information system to list and status configuration items and associated configuration information, including the item/information identifier, ownership (functional organization), and associated WBS element. The configuration status accounting system will identify baseline documents and their supplements; including interface documents such as the MYWP, PAs, and permits. As configuration items and information are identified, they will be entered into the configuration status accounting system. The system will evolve and its contents will be updated to provide a history and status throughout the configuration items' life cycle. Configuration items and information will be deleted from the system by the appropriate change board as they are decommissioned, dismantled, discarded, destroyed, voided or superseded. A procedure is being developed by the TWRS configuration management organization to address the removal of controlled configuration items and information from the configuration status accounting system.

## **5.0 CHANGE CONTROL**

Control of baseline changes is described in *TWRS Change Control*, LMH-MD-004 (Rosenberry 1997). The "A/B/C" change board system will be used by the Project W-464 for baseline management at the project/subproject level of the Work Breakdown Structure. Thresholds and change board membership are defined in Table 1 of the *Tank Waste Remediation System Configuration Management Plan* (HNF-1900) (Vann 1997).

## **5.1 PROGRAMMATIC CHANGE CONTROL**

Changes that affect the Integrated Baseline will be processed and dispositioned in accordance with HNF-IP-0842, Volume VIII, Section 1.1, "TWRS Baseline Change Control" (LMHC 1997). This procedure applies to changes affecting the lower tier data that roll up to the technical, work scope, cost, and schedule baseline elements contained within the MYWP. Where MYWP changes impact the Baseline, changes will be processed in accordance with the change control process.

## 5.2 TECHNICAL CHANGE CONTROL

The current change control process incorporates front-end screening of proposed technical changes to evaluate potential impacts to cost and schedule baselines, establish levels of change control, and integrate the various change control processes. The approved configuration, changes, and departures are contained and tracked in the configuration status accounting system.

Changes that affect technical products or technical information under configuration management will be controlled using this process. Project W-464 configuration management will be further defined by developing project-specific implementing procedures.

## 5.3 IDENTIFICATION OF CHANGES

### 5.3.1 Physical Changes

Changes to physical configuration, design information, and documentation will be managed through the ECN process as stated in *Engineering Drawing Requirements*, HNF-PRO-440 (FDH 1998s).

ECNs will be prepared according to *Engineering Document Change Control Requirements*, HNF-PRO-440 (FDH 1998s) preparation instructions. The ECN blocks for the Project Title/No., Work Order No., Justification and Cost Impact, Schedule Impact, Change Impact and Other Affected Documents will be included, as a minimum release requirement, for all ECNs affecting physical configuration or design information.

### 5.3.2 Cost and Schedule Changes

Project baseline management and change control will be managed by the Change Request process by the Project Baseline Control organization in accordance with *Baseline Management*, HNF-PRO-523 (FDH 1998ad); *Change Control*, HNF-PRO-533 (FDH 1998ae); and *Baseline Change Control*, HNF-PRO-569 (FDH 1998ah). The implementation of the Hanford Site Management Control System ensures changes to the project baselines (cost, schedule, or scope change) are reviewed and approved by the appropriate level of management.

## 5.5 TECHNICAL REVIEWS

Proposed changes affecting SSC and facility documentation will have technical reviews, and signature approvals consistent with *Review and Approval of Documents*, HNF-PRO-233 (FDH 1998g).

Technical reviews will verify that design basis and design requirements remain consistent and not compromised; that all safety and mission impact requirements have been identified; that acceptance testing, operational, and maintenance specifications have been developed or modified; and that affected/interfacing SSC and documentation be modified or reconciled.

Technical reviews should be given the same organizational considerations as the document received at initial release.

## **5.6 MANAGEMENT REVIEWS**

ECN approvals should be given the same organizational considerations as the document received at initial release, per *Review and Approval of Documents*, HNF-PRO-233 (FDH 1998g). Signature will indicate that the change is necessary, of beneficial use, and conforms to this CMIP.

## **5.7 POST MODIFICATION TESTING**

Released ECNs will be incorporated at the completion of required testing, maintenance and operations checkout, in accordance with *Testing Requirements*, HNF-PRO-446 (FDH 1998x); and *Engineering Drawing Requirements*, HNF-PRO-440 (FDH 1998s); to determine if the equipment meets design requirements. As-building required for SSCs will be in accordance with *Engineering Drawing Requirements*, HNF-PRO-242 (FDH 1998k).

## **6.0 CONFIGURATION MANAGEMENT ASSESSMENTS**

### **6.1 PROGRAMMATIC ASSESSMENTS**

The TWRS Project Configuration Management organization and the TWRS Project Quality Assurance organization will perform assessments for compliance to the configuration management program. Assessments will be performed for each configuration management element to determine if the upgraded programs and procedures address identified weaknesses, are effective in accomplishing the configuration management functions, and are workable. Assessments will be planned to determine the strengths and weaknesses of existing configuration management-related programs and procedures with regard to determining where upgrade actions and resources are necessary.

### **6.2 PROJECT LEVEL CONFIGURATION MANAGEMENT ASSESSMENTS**

To ensure facility specific physical configuration, an initial assessment will be conducted to ensure the establishment and maintenance of technical consistency among design requirements, physical configuration and documentation. Facility specific plans may choose to implement the assessment process by use of *Standard Operating Practices*, HNF-PRO-559 (FDH 1998ag).

### **6.3 PHYSICAL CONFIGURATION ASSESSMENTS**

Physical configuration assessments, or walkdowns, will be performed for a representative sample of systems, structures, and components to determine the degree of agreement between the physical configuration and the configuration depicted in the facility document. The TWRS Project has initiated a Drawing and Labeling program that is identifying and labeling Tank Farm equipment and updating the essential drawings of the Tank Farms where they are being as-built and ECNs are being incorporated. This effort can be considered as an ongoing configuration management assessment, but the TWRS Project configuration management planning schedule will identify additional assessments.

### **6.4 PERIODIC EQUIPMENT PERFORMANCE MONITORING**

The performance of SSC identified in the SEL will be assessed by the *Work Management Manual*, IP-1217 (FDH 1998am), and will be analyzed by the cognizant engineer to determine any required recommendations relative to repair and/or replacement.

## **6.5 MATERIAL CONDITIONING AND AGING MANAGEMENT**

Material condition and aging (MCA) will be identified for SSCs on the SEL. MCA information will be available for inclusion in operations and maintenance manuals (OMM). MCA information for SSCs on the Master Equipment List(s) should be considered for inclusion to routine maintenance manuals and OMMs.

## **7.0 SUMMARY**

As a project under TWRS, Project W-464 is responsible for controlling its portion of the TWRS Project baseline and enhancing configuration management implementation within the program. Procedures will be developed, as described here-in, to ensure configuration control of the baseline and subsequent changes to it. As such, this plan was developed as a sub-tier document to the TWRS Configuration Management Plan. It should be further noted that because of the interface between TWRS and the SNF Project, due consideration was given to ensuring compatibility with both Configuration Management Plans.



## 8.0 REFERENCES

### Database

Hanford Site Technical Baseline Database, database maintained by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

### Standard

DOE-STD-1073-93, *Guide for Operational Configuration Management Programs, Including the Adjunct Programs of Design Reconstitution and Material Condition and Aging Management*, U.S. Department of Energy, Washington, D.C.

### Procedures

FDH, 1998a, *Records Management*, HNF-PRO-208, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998b, *Records Management Program*, HNF-PRO-210, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998c, *Quality Assurance Records*, HNF-PRO-222, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998d, *Document Control*, HNF-PRO-224, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998e, *Engineering Document Identification*, HNF-PRO-227, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998f, *Project and Task Document Management*, HNF-PRO-232, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998g, *Review and Approval of Documents*, HNF-PRO-233, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998h, *Design Analysis Report Requirements*, HNF-PRO-239, Fluor Daniel Hanford, Inc., Richland, Washington.

FDH, 1998i, *Engineering TADs/HOLDS*, HNF-PRO-240, Fluor Daniel Hanford, Inc., Richland, Washington.

- FDH, 1998j, *Engineering Specification Requirements*, HNF-PRO-241, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998k, *Engineering Drawing Requirements*, HNF-PRO-242, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998m, *Interface Control Requirements*, HNF-PRO-243, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998n, *Engineering Data Transmittal Requirements*, HNF-PRO-244, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998o, *Control of Computer Software*, HNF-PRO-309, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998p, *Engineering Release and Approval Requirements*, HNF-PRO-317, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998q, *Exemptions and Equivalencies*, HNF-PRO-344, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998r, *Supporting Document Requirements*, HNF-PRO-439, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998s, *Engineering Document Change Control Requirements*, HNF-PRO-440, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998t, *Engineering Procurement Waiver Requirements*, HNF-PRO-441, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998u, *Design Control Requirements*, HNF-PRO-442, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998v, *Vendor Information Requirements*, HNF-PRO-444, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998w, *Design Verification Requirements*, HNF-PRO-445, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998x, *Test Requirements*, HNF-PRO-446, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998y, *Software Control*, HNF-PRO-464, Fluor Daniel Hanford, Inc., Richland, Washington.

- FDH, 1998z, *Engineering Practices Guidelines*, HNF-PRO-504, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998aa, *PHPP Safety Analysis Process*, HNF-PRO-509, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ab, *PHPP Hazard Classification of Facilities and Segments*, HNF-PRO-511, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ac, *Safety Structures, Systems, and Components*, HNF-PRO-516, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ad, *Baseline Management*, HNF-PRO-523, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ae, *Change Control*, HNF-PRO-533, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998af, *Project Control*, HNF-PRO-552, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ag, *Standard Operating Practices*, HNF-PRO-559, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ah, *Baseline Change Control*, HNF-PRO-569, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ai, *Processing Project Hanford Procedures*, HNF-PRO-589, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998aj, *Managing Data and Information*, HNF-PRO-656, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998ak, *Processing Unclassified Information Products*, HNF-PRO-697, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998am, *Work Management Manual*, IP-1217, Fluor Daniel Hanford, Inc., Richland, Washington.
- FDH, 1998an, *Project Hanford Quality Assurance Program Descriptions*, MRP-MP-599, Fluor Daniel Hanford, Inc., Richland, Washington.

## Logic Diagrams

FDH, 1998ao, *Logic Diagrams*, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

## Documents

Acree, C. D., Jr., 1998, *Tank Waste Remediation System Mission Analysis Report*, HNF-SD-WM-MAR-008, Rev. 2, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

Gneiting, B. C., 1996, *Configuration Management Information Systems Plan*, HNF-SD-TWR-CSWD-001, Rev. 0, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

Kasper, J. R., and M. Weeks, 1998, *Systems Engineering Management and Implementation Plan for Project W-464, Immobilized High-Level Waste Storage*, HNF-2579, Rev. 0, Parsons Infrastructure and Technology Group, Inc., Richland, Washington.

LMHC, 1997, *TWRS Administration*, HNF-IP-0842, Fluor Daniel Hanford, Inc., Richland, Washington.

*National Environmental Protection Plan of 1969*, Public Law, 42 USC 4321 et seq.

Peck, L. G., 1998, *Tank Waste Remediation System Systems Engineering Management Plan*, HNF-SD-WM-SEMP-002, Rev. 1, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

PHMC, 1997, *Tank Waste Remediation System Fiscal Year 1998 Multi-Year Work Plan*, HNF-SP-1230, Rev. 0, Project Hanford Management Contractor, Richland, Washington.

Rosenberry, M. W., 1997, *TWRS Change Control*, LMH-MD-004, Rev. 0, Lockheed Martin Hanford Corporation, Richland, Washington.

Vann, J. M. 1997, *Tank Waste Remediation System Configuration Management Plan*, HNF-1900, Rev. 0, prepared by Lockheed Martin Hanford Corporation for Fluor Daniel Hanford, Inc., Richland, Washington.

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## **APPENDIX A**

### **PROJECT W-464 CONFIGURATION MANAGEMENT ROLES AND RESPONSIBILITIES**

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## APPENDIX A

### PROJECT W-464 CONFIGURATION MANAGEMENT ROLES AND RESPONSIBILITIES

#### W-464 Project Manager

The W-464 Project Manager will ensure the provisions of this plan are implemented by doing the following:

1. Serve as or appoint a program design authority, responsible for ensuring the adequacy of engineering design processes and design documentation produced by that process.
2. Implement and manage the configuration management program in accordance with this plan.
3. Ensure that complete, accurate, and valid engineering documentation (drawings, text documents and vendor information) is developed and maintained, consistent with physical configuration, using a graded approach.
4. Maintain overall control of all W-464 engineering documentation.
5. Ensure cognizant adequate engineering support is provided in accordance with the engineering process guidelines of HNF-PRO-504, *Engineering Practice Guidelines*, and of this plan.
6. Ensure change control procedures are used to maintain technical consistency among the requirements, physical configuration, and documentation.
7. Ensure the necessary approvals and reviews are obtained for appropriate engineering documents.
8. Ensure assessments are conducted to measure the adequacy of specific configuration management functions and the effectiveness of the configuration management process in establishing and maintaining basic technical relationships.

#### Cognizant Engineer/Technical Leads

In addition to the duties identified in *Engineering Practice Guidelines*, HNF-PRO-504 (FDH 1998z), the cognizant engineer will do the following:

1. Ensure appropriate approvals and reviews are obtained for original designs and subsequent changes.
2. Assist in the development and maintenance of the approved technical SSC scope.
3. Identify and manage technical boundaries and interface characteristics.

### **Quality Assurance**

Quality Assurance will do the following:

1. Develop audit plans, checklists and assessment criteria, and conduct periodic assessments of the configuration management requirements and their implementation.
2. Verify that procedures related to Configuration management are implemented in accordance with DOE, PHMC, and LMHC and TWRS requirements and procedures.
3. Participate in the configuration management process for change control and design verification through inspections, audits, and surveillance.

### **W-464 Configuration Management Lead**

The W-464 Lead for configuration management will do the following:

1. Develop W-464 Project specific configuration management plans, procedures and documentation upgrade processes, including processes for field verification and design reconstitution.
2. Ensure new or revised DOE, LMHC, TWRS, and SNF Project requirements are properly integrated within this project configuration management program.
3. Ensure compatibility between the Project W-464 configuration management program, and the SNF Project and TWRS configuration management programs.
4. Ensure the recording and reporting status for technical documents and associated changes are adequately addressed and maintained in appropriate procedures and databases.
5. Conduct or participate in configuration management assessments.



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