ENGINEERING CHANGE NOTICE

Page 1 of 21. ECN **663928**Proj.
ECN

2. ECN Category (mark one)		3. Originator's Name, Organization, MSIN, and Telephone No.		4. USQ Required?	5. Date
Supplemental ☐		P. G. LeRoy		☒ Yes ☐ No	October 16, 2000
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Change ECN ☐		6. Project Title/No./Work Order No.		7. Bldg./Sys./Fac. No.	8. Approval Designator
Temporary ☐		Spent Nuclear Fuel Project		SNF Project	N/A
Standby ☐		9. Document Numbers Changed by this ECN (includes sheet no. and rev.)		10. Related ECN No(s).	11. Related PO No.
Supersedure ☐		HNF-3552, Revision 1		N/A	N/A
Cancel/Void ☐					
12a. Modification Work		12b. Work Package No.	12c. Modification Work Completed		12d. Restored to Original Condition (Temp. or Standby ECNs only)
☐ Yes (fill out Blk. 12b)		N/A	N/A		N/A
☒ No (NA Blks. 12b, 12c, 12d)			Design Authority/Cog. Engineer Signature & Date		Design Authority/Cog. Engineer Signature & Date
13a. Description of Change		13b. Design Baseline Document? ☐ Yes ☒ No			
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CVD-00-2143					
CSB-00-1351					
ISA-00-1018					
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Criteria Change ☒		Document has been updated to reflect current SNF Project activities and organization.			
Design Improvement ☐					
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Facility Deactivation ☐					
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Facilitate Const. ☐					
Const. Error/Omission ☐					
Design Error/Omission ☐					
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ENGINEERING CHANGE NOTICE

Page 2 of 2

1. ECN (use no. from pg. 1)

663928

16. Design Verification Required

☐ Yes

☒ No

17. Cost Impact

ENGINEERING

Additional ☐ \$ n/a

Savings ☐ \$

CONSTRUCTION

Additional ☐ \$ n/a

Savings ☐ \$

18. Schedule Impact (days)

Improvement ☐ n/a

Delay ☐

19. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 13. Enter the affected document number in Block 20.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	Tickler File	☐
Environmental Report	☐	Inspection Plan	☐	n/a	☒
Environmental Permit	☐	Inventory Adjustment Request	☐		☐

20. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision

Document Number/Revision

Document Number/Revision

n/a

21. Approvals

Signature

Date

Signature

Date

Design Authority n/a

Cog. Eng. P. G. LeRoy

Cog. Mgr. J. H. Wicks

QA n/a

Safety n/a

Environ. n/a

Other

Design Agent n/a

PE n/a

QA n/a

Safety n/a

Design n/a

Environ. n/a

Other

DEPARTMENT OF ENERGY

Signature or a Control Number that tracks the Approval Signature

ADDITIONAL

Spent Nuclear Fuel Project

Project Execution Plan

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

Fluor Hanford
P.O. Box 1000
Richland, Washington

HNF-3552

Revision 2

ECN 663928

Spent Nuclear Fuel Project

Project Execution Plan

PG LeRoy
Fluor Hanford, Inc.

Date Published
May 2000

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

Fluor Hanford
P.O. Box 1000
Richland, Washington

Release Approval

11-3-2000
Date

Release Stamp

RECORD OF REVISION		(1) Document Number HNF-3552		Page <u>1</u>
(2) Title Spent Nuclear Fuel Project Project Execution Plan				
Change Control Record				
(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release		
		(5) Cog. Engr.	(6) Cog. Mgr.	Date
0	(7) Initial Release EDT 625983	A.M Segrest	N.H. Williams.	<i>NAH 2/24/99</i>
0.A RS	1) Preface - Incorporated Configuration Management Process and Responsibilities.	W.C. Miller <i>WC Miller 2/17/99</i>	N.H. Williams	<i>NAH 2/24/99</i>
	2) Section 1.10 clarifies Project interface with external agencies.			
	3) Section 2.6.3 assigns Functional Area Manager responsibilities for APs.			
	4) Section 12.3.2 clarifies responsibilities for Performance Indicators.			
	5) Section 12.7 introduces a four level Integrated Management Assessment Program and adds Exhibits 12-1 and 12-2.			
	6) Sections 13.2 and 13.3 further emphasize the ISMS Program.			
	7) Section 13.10, Chemical Management, was added.			
	8) Updated Organization Charts and impacted Charters.			
	9) Exhibits 2-2, and 2-4 have been updated to indicate the status of active and inactive SNF Project management plans.			
	Additionally, a number of editorial changes were made and the page numbering format was changed to facilitate future revisions. Each chapter is now numbered separately.			
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2 RS	ECN 663928	P.G. LeRoy <i>P.G. LeRoy 10-26-00</i>	J.H. Wipks <i>J.H. Wipks</i>	

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SPENT NUCLEAR FUEL PROJECT

PROJECT EXECUTION PLAN

HNF-3552

Revision 2

APPROVAL:

26 Oct 2000

J. H. Wicks, Project Director
Spent Nuclear Fuel Project

Date

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ACRONYMS / INITIALISMS

ACWP	Actual Cost of Work Performed
AE	Architect-Engineer
AI	Acceptance and Inspection
AJHA	Automated Job Hazard Analysis
ALARA	As Low As Reasonably Achievable
AP	Administrative Procedure
AVS	Acquisition Verification Services
BA	Budget Authority
BCWP	Budgeted Cost of Work Performed
BCWS	Budgeted Cost of Work Scheduled
BED	Building Emergency Director
BEP	Building Emergency Plan
BOE	Basis of Estimate
BTR	Buyer Technical Representative
CAA	Clean Air Act
CACN	Control Account Charge Number
CAM	Corrective Action Management
CAPN	Control Account Plan Number
CAT	Construction Acceptance Test
CCD	Construction Completion Document
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGI	Commercial Grade Item
CMS	Chemical Management System
COR	Contracting Officer's Representative
CPI	Continuous Performance Improvement
CPM	Critical Path Method
CR	Change Request
CRB	Change Review Board
CSB	Canister Storage Building
CTS	Commitment Tracking System
CV	Cost Variance
CVD	Cold Vacuum Drying
CWA	Clean Water Act

D&D	Decontamination and Decommissioning
DMST	Deputy Manager for Site Transition (RL)
DN	Deviation Notice
DNFSB	Defense Nuclear Facilities Safety Board
DOE	U.S. Department of Energy
DOE-HQ	U.S. Department of Energy - Headquarters
DTS	Deficiency Tracking System
DYN	DynCorp Tri-Cities Services, Inc.
EAC	Estimate at Completion
ECN	Engineering Change Notice
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ERO	Emergency Response Organization
ES&H	Environmental, Safety, and Health
ESL	Evaluated Supplier List
ETC	Estimate to Completion
EWP	Enhanced Work Planning
EZAC	Employee Zero Accident Council
FAM	Functional Area Manager
FAT	Factory Acceptance Test
FDC	Functional Design Criteria
FEB	Facility Evaluation Board
F&R	Functions and Requirements
FFTF	Fast Flux Test Facility
FH	Fluor Hanford, Inc.
FR	Facility Representatives
FRAM	Functions, Responsibilities, and Authorities Manual
FRS	Fuel Retrieval System
FSAR	Final Safety Analysis Report
FY	Fiscal Year
GAO	Government Accounting Office
GFE	Government Furnished Equipment
HAB	Hanford Advisory Board
HAMTC	Hanford Atomic Metal Trade Council
HFD	Hanford Fire Department
HGET	Hanford General Employee Training
HGU	Hanford Guards Union
HLAN	Hanford Local Area Network
HNF PRO	Hanford Procedure
HR	Human Resources

IPA	Independent Program Assessment
IR	Industrial Relations
IRP	Independent Review Panel
ISMS	Integrated Environment, Safety, and Health Management System
ISA	Interim Storage Area
ITEM	Integrated Training Electronic Matrix
JCS	Job Control System
JTR	Joint Travel Regulations
LCAM	Life Cycle Asset Management
LLPOC	Lessons Learned Point-of-Contact
LMSI	Lockheed Martin Services, Inc.
MCO	Multi-Canister Overpack
MDS	Milestone Description Sheet
MIP	Maintenance Implementation Plan
MOU	Memorandum of Understanding
MSA	Management Self Assessment
MYWP	Multi-Year Work Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NOC	Notice of Construction
NRC	Nuclear Regulatory Commission
NSNF	National Spent Nuclear Fuel
OCRWM	Office of Civilian Radioactive Waste Management
OOD	Operations Oversight Division (RL)
OPE	Office of Performance Evaluation (RL)
ORR	Operational Readiness Review
OSHA	Occupational Safety and Health Act of 1970
OTP	Operational Test Procedures
P3	Primavera Project Planner
PAT	Pre-Operational Acceptance Test
PBS	Project Baseline Summaries
PEP	Project Execution Plan
PFP	Plutonium Finishing Plant
PHMC	Project Hanford Management Contract
PHMS	Project Hanford Management System
PI	Performance Incentives
PI&RS	Performance Improvement & Regulatory Services
PMBS	Project Master Baseline Schedule
PRC	Plant Review Committee
PUREX	Plutonium Uranium Extraction Facility

QA	Quality Assurance
QAPP	Quality Assurance Program Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act of 1976
RFP	Request for Proposal
RL	U.S. Department of Energy, Richland Operations Office
RMIS	Records Management Information System
RRT	Regulatory Requirements Team
ROD	Record of Decision
RWP	Radiation Work Permit
SAR	Safety Analysis Report
SC	Safety Class
SD	Supporting Document
SDWA	Safe Drinking Water Act
SEMP	Systems Engineering Management Plan
SER	Safety Evaluation Report
SFO	Office of Spent Nuclear Fuels
SNF	Spent Nuclear Fuel
SNM	Special Nuclear Material
SPI	Schedule Performance Index
SQS	Supplier Quality Surveillance
S/RID	Standards/Requirements Identification Document
SS	Safety Significant
SSC	Systems, Structures, and Components
SSE	Site Systems Engineering
SV	Schedule Variance
TAG	Technical Advisory Group
TIM	Training Implementation Matrix
TP	Technical Procedure
Tri-Party Agreement	Hanford Federal Facility Agreement and Consent Order
TSCA	Toxic Substances Control Act of 1976
TSR	Technical Safety Requirements
USQ	Unreviewed Safety Questions
VPP	Voluntary Protection Program
WBS	Work Breakdown Structure
WDOH	Washington State Department of Health
WMTS	Waste Management Technical Services
WPI	Work Process Improvement

PREFACE

HNF-3552, *Project Execution Plan* (PEP) supersedes WHC-SD-SNF-PMP-011, Spent Nuclear Fuel (SNF) Project, *Project Management Plan*, Revision 0, dated October 25, 1995, and the Spent Nuclear Fuel Project Manual, SNFP-1, dated August 12, 1998.

This PEP complies with the requirements of Project Hanford Management System (PHMS) Hanford Procedure (HNF-PRO)-1997, *Construction Program Overview*, for the establishment of a Project Execution Plan.

Spent Nuclear Fuel Project Mission

The SNF Project supports the Hanford Site Mission to cleanup the Site by providing safe, economic, environmentally sound management of Site spent nuclear fuel in a manner that reduces hazards by staging it to interim onsite storage and deactivates the 100 K Area facilities.

Background

In August 1993, the U.S. Department of Energy (DOE) performed a comprehensive baseline assessment of the environmental, safety, and health (ES&H) vulnerabilities associated with the current storage of spent nuclear fuel. The following ten individual fuel storage facilities at the Hanford Site were assessed in this effort:

- 105 K East Basin
- 105 K West Basin
- Building 324
- Building 325
- Building 327
- Fast Flux Test Facility (FFTF)
- 308 Building Annex
- T-Plant
- Plutonium Uranium Extraction Facility (PUREX)
- 200 West Burial Grounds

The Plutonium Finishing Plant (PFP) also contains spent fuel. Some of this fuel may require repackaging by the SNF Project. Security safeguards may dictate that this fuel remains in the PFP or be shipped offsite.

The fuel onsite differs in condition and levels of vulnerability and is stored in both wet and dry configurations. Environmental concerns voiced by the Hanford Advisory Board (HAB), regional tribal nations, the Defense Nuclear Facilities Safety Board (DNFSB), and others make the risks associated with the spent nuclear fuel stored in pools of water at the K Basins, located in the 100 Area along the shore of the Columbia River, the top priority for resolution by the SNF Project. The Project supports DNFSB Recommendation 94-1, *Hanford Site Integrated Stabilization Management Plan*. The highly corroded fuel stored in the K Basins will continue to degrade as long as it remains wet. Since wet storage is more costly to maintain than dry storage, placing the K Basin fuel in dry storage is the desired outcome of this Project. The risk associated with the spent nuclear fuel at the other facilities will be mitigated in accordance with the Project objectives in Section 1.8, *Key Project Objectives*, of this PEP.

The overall responsibility for management of spent nuclear fuel at the Hanford Site lies with the U.S. Department of Energy, Richland Operations Office (RL); Fluor Hanford, Inc. (FH) is the integrating contractor.

Applicability

This PEP is applicable to the elements and phases of the SNF Project, including fuel movement and transition to the Environmental Restoration (ER) phase.

Project Execution Plan Purpose and Approval

This PEP defines the methods and project management elements used to manage the execution of the SNF Project. It establishes the execution philosophy and defines the organization, delineates roles and responsibilities, sets project management policy, and establishes systems necessary for management of the Project. The SNF Project Director approves this PEP.

Configuration Management

Requirements

The Performance Improvement & Regulatory Services (PI&RS) Manager maintains this PEP under configuration control and controls electronic distribution. A controlled electronic "read only" version is provided on a shared network directory for access by Project personnel. Copies made from this electronic controlled version are considered "uncontrolled".

Managers are responsible for the accuracy and control of their respective section of the PEP consistent with RL requirements and the Project scope of facilities and services, in concert with the other Project team members. They are also responsible for ensuring that their sections remain current and consistent with project practices and the baseline. Changes are identified with shadowed text, except in the case of extensive revisions, which are described as a “total revision.” Shadowed text is removed for subsequent revisions, in accordance with SNF Project Administrative Procedure (AP) MS-1-002, *Administration of Administrative Procedures*.

Responsibilities

Performance Improvement & Regulatory Services Manager

- Designate a PEP Coordinator
- Periodically review the PEP for currency and compliance
- Manage the revision process when multiple sections are being revised
- Simultaneously coordinate revisions with SNF Project Senior Managers for review and concurrence.
- Secure the SNF Project Director’s approval of revisions.

Managers

- Ensure content accuracy of designated section
- Notify PEP Coordinator when revision is required
- Prepare draft revision for internal coordination
- Coordinate draft revision with appropriate senior managers and counterparts, or provide to PEP Coordinator for circulation and comment
- Address and resolve comments with reviewers to their mutual satisfaction.

Procedures Group

- Maintain the PEP on the Project file server (AP012\SNF-PROJ\APP-VER\INF-ONLY\PEP)
- Perform final formatting and technical editing of revisions

Managers are responsible for the following Chapters, sections, and key focus areas of the PEP:

1.0	Execution Approach Overview	Project Director
2.0	Project Management	Project Director
3.0	Organization and Staffing	Project Director
4.0	Project Controls	Project Controls Manager
5.0	Change Management	Project Controls Manager
6.0	Automation	PI&RS Manager
7.0	Engineering	Engineering Manager
8.0	Contracting	Contracts Manager
9.0	Material Management	Contracts Manager
10.0	Management of Projects	Manager of Projects
11.0	External Interface and Communications	PI&RS Manager
12.0	Quality Assurance	Quality Assurance Manager
13.0	Continuous Performance Improvement	PI&RS Manager
14.0	Safety, Health, Emergency Planning, and Environment	SH&EP Manager
15.0	Startup Testing, Turnover, and Acceptance	Startup Manager
16.0	Operations	Operations Manager
17.0	Radiological Control	Radiological Control Manager
18.0	Project Turnover and Closeout	Project Director

1.0 EXECUTION APPROACH OVERVIEW

1.1 Client

RL is the FH Client on the SNF Project. Formal matters relating to the execution of this Project will be coordinated directly by the SNF Project Director with the RL Project Director, Office of Spent Nuclear Fuels (SFO).

1.2 Project Description

The Hanford SNF Project has been established to manage the safe storage of spent nuclear fuel at the Hanford Site in anticipation of future final disposition. The scope of the SNF Project covers the maintenance and preparation of the K Basins for removal, safe storage, and disposal of the spent nuclear fuel, debris, sludge, and water, as necessary, and operation of new systems and facilities to condition and store the fuel prior to final disposition; relocation of the K Basin spent nuclear fuel (via the Multi-Canister Overpack [MCO] and cask/transportation system) to the interim storage facility; removal of the K Basin sludge for disposal; consolidation of the spent nuclear fuel from other Hanford locations (except the Low Level Burial Ground and PFP spent fuel inventories) at the 200 East Area Interim Storage Area (ISA) or the Canister Storage Building (CSB); and deactivation of the 100 K Area facilities (includes basin water removal) that are under the purview of the SNF Project for eventual decontamination and decommissioning (D&D) by the ER program.

The SNF Project also executes responsibilities for spent nuclear fuel stored at Hanford facilities other than the K Basins and for "National Program" activities. "National Program" activities include integrating Hanford SNF management activities with DOE complex-wide SNF management activities. Additionally, the SNF Project is responsible for certain K Basins sludge management activities that occur at T Plant. These activities involve integration with other site programs and application of unique requirements during execution of work for those facilities. The subproject managers for these activities report to the Manager of Sludge and Site-Wide SNF. These subprojects are managed under the general provisions of this PEP, except where indicated by the respective subproject project management plans, HNF-SD-SNF-PMP-018, *Site-Wide Spent Nuclear Fuel Management Plan*, and HNF-SD-PMP-002, *Sludge Management Plan*.

1.3 Justification of Mission Need

The Hanford SNF Project Mission Analysis Report, EP-0790, the Hanford Spent Nuclear Project Recommended Path Forward Document, EP-0830, its approval memoranda, and subsequent supporting documentation provide the necessary function of a Justification of Mission Need for the SNF Project:

- Memorandum, *Approval of Path Forward for N Reactor Spent Nuclear Fuel Interim Storage*, November 9, 1994
- Memorandum, *Status on K Basins Path Forward*, December 28, 1994
- Memorandum, *Agreement on Path Forward for K Basin SNF between RL and WHC*, February 14, 1995
- 95-AMW-003, *Approval of Spent Nuclear Fuel (SNF) Path Forward Recommendation*, February, 14, 1995
- 95-NMD-081, *K Basins Path Forward Approval of Mission Need*, June 13, 1995.

1.4 Authorization Agreement

DNFSB/TECH-19, *Authorization Agreements for Defense Nuclear Facilities and Activities*, April 1998 provides a recommendation for “a documented agreement between DOE and the contractor for hazard category 1 and 2 facilities, incorporating the results of DOE’s review of the contractor’s proposed authorization basis for a defined scope of work.” An Authorization Agreement for the K Basin’s SNF Project has been incorporated into the FH contract by modification. The Authorization Agreement is amended and reissued as required.

1.5 Contractual Basis and Terms

Prime Contract: Between RL and FH, Contract Number DE-AC06-96RL13200, dated August 6, 1996.

1.6 Project Baseline

The baseline represents the “roadmap” for executing the Project scope. The purpose of the baseline is to measure progress and assess performance. The overall framework for the baseline is the work breakdown structure (WBS), which provides a consistent basis for gathering scope, schedule, and cost information. The SNF Project baseline is maintained under baseline control, as discussed in Section 5.0, *Change Management*. At the higher level it is integrated with the Site baseline. The Project baseline is defined below:

- The Technical Baseline is the composite of project technical criteria and requirements that provides the basis for the definition of Project scope, cost, and schedule estimates. Its foundation is the SNF Project WBS and consists of a defined set of technical information. The documents where this technical baseline information resides are specified in Appendix A, *SNF Project Technical Baseline Definition*, and are maintained in the Hanford Document Control System. They are available electronically on the Hanford Local Area Network (HLAN).
- The Scope Baseline is the description of the work scope to be performed at the subproject and control account plan number (CAPN) levels of the WBS which satisfies the technical requirements defined in the technical baseline. The scope baseline is documented in the SNF Project Baseline Basis of Estimate (BOE) database.
- The Schedule Baseline is an integrated set of activities, with estimated durations and milestones, necessary to perform the defined scope of work that reflects the logical relationship between activities. The schedule is aligned with the scope and cost baselines via the WBS. The schedule baseline is documented in the Primavera Project Planner (P3) database.
- The Cost Baseline is the estimated cost to perform the defined scope of work as documented in the Multi-Year Work Plan (MYWP) for the "function" level of the WBS. Cost baseline details by CAPN are documented and maintained in the SNF Project BOE database and integrated with the schedule activities maintained in P3 to form the Project's resource loaded schedule baseline.

1.7 Scope of Work

The SNF Project Scope of Work is defined at the function level in the SNF Project MYWP, HNF-SP-1104, Section 2.2.2, WBS Dictionary. The Project scope of work at the subproject and CAPN levels of the WBS are described and maintained under change control in the SNF Project BOE database.

1.8 Key Project Objectives

The following key project objectives have been established for the project:

- **Technical Objectives:** To consolidate Hanford spent nuclear fuel in the 200 Area in safe, cost effective, environmentally sound interim storage pending national decisions on ultimate disposition and have K Basins cleaned sufficiently to transition to D&D.
- **Cost Objectives:** To perform the defined work scope within or below the approved cost baseline.
- **Schedule Objectives:** To complete the SNF Project on or ahead of the baseline schedule. This baseline was developed and shall be maintained consistent with the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) milestones.

1.9 Execution Strategy

Architect-Engineering design, construction management services, and equipment fabrication are managed predominantly by subcontract.

The SNF Project Director executes the Project by management of the following major activities:

- Engineering of processes, equipment, and facilities based on the best technology available consistent with the technical baseline scope
- Procurement and construction of equipment and facilities essential for the safe fuel movement, processing, and interim storage
- Operation of nuclear facilities and equipment consistent with nuclear industry and DOE practices and requirements
- Preparation for the start up of nuclear facilities and fuel movement operations
- Safe handling and movement of spent nuclear fuel
- Removal of debris, sludge, and water from the K Basins
- Transition of deactivated 100 K Area facilities to ER for D&D.

The SNF Project Director and the RL Director actively seek to introduce management innovations. As guiding principles, they:

- Exercise established delegations of authority to achieve timely decisions
- Foster close working relationships and efficient decisions through teaming and alignment
- Minimize overall Project risk through application of low-cost, commercially available and proven technical solutions that meet DOE requirements
- Pursue waivers to DOE Order requirements which are determined to be unnecessary and could impede progress
- Enhance efficiencies by outsourcing, where appropriate.

1.10 Oversight of SNF Project

The SNF Project receives oversight from a number of agencies and organizations. This oversight ranges from guidance and recommendations by external groups, such as the DNFSB and expert panels to formal regulatory oversight by the U.S. Environmental Protection Agency (EPA). Key interfaces pertaining to regulatory oversight and guidance are discussed in Section 11.

1.11 Requirements

1.11.1 Requirements Management

This section provides an overview of SNF Project requirement flow from origination through implementation. The SNF Project ultimately implements requirements via procedures, authorization envelope documentation, and technical baseline products. Requirement origination and implementation is graphically depicted in Figure 1-1, *Requirements Flow Down and Relationships*.

The SNF Project requirement analysis uses a top-down allocation of requirements from the primary sources of laws, regulations, DOE direction and Orders, etc. These requirements are passed on to the SNF Project via the Project Hanford Management Contract (PHMC). The requirement flow can take one of three separate paths associated with technical, management, and/or ES&H requirements. Throughout this process, requirement applicability or implementation can be challenged through PHMS procedure HNF-PRO-2824, *Challenging Requirements Implementation*.

The SNF Project is subject to the full range of applicable local, state, and Federal laws and regulations, as required by contract. These are captured in the SNF Project technical baseline as well as requirements that result from other engineering activities. Technical requirement flow starts with the Hanford Site Environmental Management Specification, the Hanford Site Technical Database, and into the SNF Project MYWP. Requirements from these documents are captured in the SNF Project technical baseline and documented in various SNF Project Technical Basis Description Documents, subproject Functions and Requirement (F&R) or Functional Design Criteria (FDC), and subsequently to requirement specifications, in accordance with the Systems Engineering Management Plan (SEMP).

PHMC management requirements are captured in PHMS Procedures (HNF-PROs), SNF Project controlled plans, procedures, manuals, and documents that implement these regulatory requirements, standards and codes. The requirements source documents also establish the requirements for safety analysis, environmental permitting, and operation. ES&H requirements are implemented through policies, plans, and procedures. These are documented in the facility Standards/Requirements Identification Document (S/RID), Safety Analysis Reports (SARs), Technical Safety Requirements (TSRs), and permits. Environmental permits are obtained as necessary to support design, construction, and operational activities.

Requirements are passed on to subcontractors providing facilities, systems, equipment, and supporting analyses, documentation, etc, via Statements of Work and subcontract requirements specifications. These requirements are flowed down to sub-tier subcontractors by the SNF Project and Contracts organizations.

There is interaction between these three pathways in fulfilling requirements due to the top-down allocation and development process.

Figure 1-1
Requirements Flow Down and Relationships

1.11.2 Standards/Requirements Identification Document

A S/RID contains the ES&H requirements to be implemented for a facility or activity. These requirements are appropriate to the life-cycle phase of the facility to achieve an adequate level of protection for worker and public health and safety, and for the environment during design, construction, operation, D&D, and ER. S/RIDs are controlled documents to be revised appropriately based on change in the site's or facility's mission or configuration, a change in the facility's life-cycle phase, or a change to the applicable standards/requirements. S/RIDs encompass health and safety, environmental, and safety-related safeguards and security standards/requirements for the functional areas listed in the DOE ES&H Configuration Guide. When approved by RL, the S/RID becomes part of the contract document between RL and FH.

The DOE ES&H Configuration Guide is a document issued by DOE Headquarters (DOE-HQ) to ensure structural consistency in the development of S/RIDs throughout the DOE complex. The ES&H guide identifies 20 functional areas, each divided into elements, sub-elements, and sub-sub-elements, under which the standards/requirements applicable to the specific facility or activity for which the S/RID is being prepared are to be grouped. Seventeen of the 20 functional areas apply to the SNF Project.

The SNF Project maintains a single S/RID applicable to its fuel management and relocation activity mission. Documents applicable to managing the S/RID are:

- HNF-PRO-265, *Standards/Requirements Identification Document (S/RID) Process*
- AP MS-1-010, *S/RID Self Assessments*
- HNF-1721, *S/RID Implementation Plan*

Implementation and adherence assessments verify that each S/RID requirement is implemented in a procedure and ensure requirement adherence through a continuing cycle of field assessments.

The SNF Project assigns a functional manager to each of the 17 applicable functional area chapters and to the requirement source documents relevant to that chapter. This responsibility ensures that each functional area contains only the necessary and sufficient ES&H requirements and that each applicable requirement of a source document is adequately implemented in an administrative document. SNF Project line management has the ultimate responsibility to ensure that Project personnel understand and adhere to the ES&H requirements in the S/RID by complying with the procedures through which the requirements are implemented.

1.11.3 Permits

Environmental permits are required for water discharge, air emissions, and solid waste handling. Application for permits for the SNF Project are managed by the SNF Environmental Protection organization according to applicable PHMS procedures in Topical Area, *Environmental Protection*, and in accordance with AP EP-5-009, *Environmental Permitting*. This organization also prepares and oversees implementing instructions for permits and approval conditions.

Various Hanford site permits are required to conduct construction activities. A list of site required permits that typically affect construction activities are provided in HNF-PRO-2000, *Construction Program Execution Phase*.

1.12 Risk Management

Risk management begins concurrently with the development of the project cost and schedule baselines and continues throughout the life cycle of the project. The risk management process used by the SNF Project is consistent with the DOE Good Practices Guide, GPG-FM-007, *Risk Analysis and Management*. Risks to the successful achievement of the Project's goals are identified, categorized, quantified, and managed to eliminate or mitigate the risk and/or impact to the Project.

Refer to Appendix D, *SNF Project Risk Management Plan*, for further details on the risk management process.

2.0 PROJECT MANAGEMENT

2.1 Project Initiation

The SNF Project was established in February 1994. The urgency associated with moving the fuel had been identified in late 1993 during Congressional testimony by the DNFSB, the DOE Spent Fuel Work Group's assessment of ES&H vulnerabilities associated with reactor-irradiated nuclear materials, and the DOE Office of Spent Fuel Management's Comprehensive Technical Assessment of the K East Basin. Stakeholder and regulatory interfaces at that time also reinforced the defined urgency.

In May 1994, DNFSB Recommendation 94-1 formally recommended to the DOE "that the program be accelerated to place the deteriorating reactor fuel in the K East Basin at the Hanford Site in a stable configuration for interim storage until an option for ultimate disposition is chosen."

2.2 Configuration Management

Maintaining programmatic and technical documentation under change control is a fundamental tenet of sound configuration management. Specific requirements are identified in HNF-SD-SNF-CM-001, *SNF Project Configuration Management Plan*. The SNF Engineering, Systems Engineering group is responsible for configuration management for the SNF Project.

The configuration management process documents the functional and physical characteristics of an item during its life cycle, controls changes to those characteristics, and provides information on the status of change actions. Configuration management practices, in accordance with the principles of systems engineering, underlie common sense good business "practices" to provide for the orderly establishment, documentation, and maintenance of work; manage changes to the configuration baseline; and furnish information essential to work performance throughout its life-cycle. SNF Project systems, facilities, equipment, and processes, which define the technical and operational characteristics of the Projects and their activities, are maintained under configuration control. Metrics that assess the effectiveness of configuration management implementation and performance (performance indicators) are prepared and routinely issued for management review.

2.3 Contract Administration

The technical and non-technical project obligations of FH are set forth in various clauses in the Prime Contract between FH and DOE. The Prime Contract is administered by the FH Contracting Officer and coordinated with the SNF Project Director and the RL Director, as appropriate.

- The Deputy Manager for Site Transition (DMST) is the Contracting Officer's Representative (COR) for the prime FH contract. The RL Director of SFO is the COR for the SFO.
- The SNF Project Director serves as the FH COR to provide technical and administrative direction, to monitor and facilitate progress, and to verify and status compliance of performance measures.

The SNF Project Director ensures that the project team meets obligations established by the prime contract.

2.4 Records Management

The PI&RS organization has the responsibility for the support function of document control and records management in the SNF Project. Lockheed Martin Services, Inc. (LMSI) provides support to the SNF Project in these areas through a subcontract.

SNF Project Managers are accountable for proper identification, development, interim storage, transfer, and disposition of records created during the performance of their work.

The Document Control and Records Management Plan for the SNF Project serves as the guide for management of documents and records within the Project.

Project records are electronically loaded on the Site-wide Records Management Information System (RMIS), and available across the Project from this central file. The official hard copy of records are maintained in the SNF Project Files at one of the following locations:

• Building 2751E (200 East)	General Project Records
• MO234 (200 East)	Startup and Test Records
• MO293 (200 East)	Canister Storage Building and archived Hot Conditioning System Records
• MO724 (100K Area)	K Basin, Cold Vacuum Drying, Integrated Water Treatment System, Fuel Retrieval System, and Operations Records

The filing system is maintained in accordance with applicable requirements, including requirements of PHMS Topical Areas *Information Resource Management* and *Quality Assurance*. A suitable environment is provided to prevent damage or deterioration and to prevent loss for both hard copy and electronic documents. The filing system is established per SNF Project AP IR-1-029, *Records Management*, and related HNF-PROs.

At the conclusion of the project, documents in the project filing system will be turned over to RL, in accordance with contract requirements, and retained by LMSI as required in PHMS Topical Area, *Information Resource Management*.

2.5 Project Administration

2.5.1 Office Space, Equipment, and Services

Office space, furniture, duplicating, and facsimile equipment are provided through the respective building administrators as required by HNF-PRO-475, *Building Administrator*. Computer hardware is based on site standards. Facilities, equipment, and services are RL-furnished and are Government Furnished Equipment (GFE).

2.5.2 Authorized Signature, Approval Authorities, and Certifications

The Authorized Signature delegations for the Project identify the individuals within the management organization who can approve specified documents and other activities requiring delegation of authority. Project specific authorities and requirements are also found in:

- Appendix B, *SNF Project Review and Approval Matrix*, establishes guidance for preparation, review and approval of key project documents. This matrix does not have precedence over relevant and applicable HNF PROs or SNF Project APs.
- HNF-PRO-263, *Qualification and Certifications of Inspection and Test Personnel*, require that quality assurance (QA) inspection activities be performed by certified inspectors.
- AP PC-1-037, *Integrated Change Management*, is used in lieu of HNF-PRO-533, *Change Control*, establishes approval thresholds for baseline change management (see Section 5.0 *Change Management*).
- HNF-PRO-695, *Authorizing Expenditures*, establishes approval of expenditures, travel, fund authorization, and general items in the area of personnel, property control, and PHMC security.
- AP MS-1-023, *Approval Designators, E, S, Q, M, R, and D Identifications*, is used in lieu of HNF-PRO-233, *Review and Approval of Documents*, for determining when environmental, safety, and quality approvals are required on SNF Project documents as well as RL approvals.
- Section 2.5.3 below sets policy regarding signing of SNF Project correspondence.

2.5.3 Project Communications/Correspondence

Project communications include correspondence (letters, facsimiles, e-mails), transmittals, discussion confirmations, conference notes, presentations, trip reports, and interoffice correspondences. Standard numbering is used as described in HNF-4725, *Correspondence Style Guides*, and HNF-PRO-231, *Correspondence and Commitment Control*.

Formal written correspondence within the Project uses the standard SNF Project interoffice correspondence memorandum.

Letters sent external to the SNF Project and correspondence received from RL are logged. Correspondence requiring a response is entered in the Commitment Tracking System (CTS). An individual designated by the Project Director in accordance with AP MS-1-032, *Commitment Management*, maintains the correspondence log and CTS.

- Project correspondence sent from RL to the Contractor, is signed by the RL SFO Director or designated representative
- Contractor letters sent external to the SNF Project shall go through the office of the Project Director for signature
- SNF Project correspondence addressed to any non-SNF personnel shall go through the office of the Project Director

2.5.4 Commitment Tracking System

SNF Project administrative commitments shall be met. The SNF Project PI&RS Manager shall maintain a single consolidated CTS for the management of administrative commitments. The CTS is not used to track compliances or actions tracked in other systems. AP MS-1-032, *Commitment Management*, governs how commitments are identified, tracked, changed, and closed.

2.5.5 Travel/Expense Reports

A uniform travel policy is issued to Project personnel consistent with Federal Joint Travel Regulations (JTR) policies and HNF-PRO-099, *Allowable Costs*. Travel Authorizations are reviewed and approved by the Project Director or delegate prior to travel.

2.6 SNF Project Management System

SNF Project requirements are implemented through the PHMS documents posted on the Hanford Intranet and through the SNF Project Management System. The SNF Project Management System consist of Memorandums of Understanding (MOU), Management Directives, Plans, Procedures, and Desk Instructions which have been developed to facilitate management of the SNF Project and implementation of PHMS requirements.

2.6.1 SNF Project Memorandum of Understanding

MOUs have been executed between organizations within the SNF Project and between other Hanford (non-PHMC) organizations and the SNF Project to define the relative relationships, interfaces, roles, and specific project agreements. Similarly, Programmatic Agreements define major interfaces between the SNF Project and other major PHMC Projects. The Point of Contact for SNF Project MOUs is the Manager of Site Integration. The list of MOUs and Programmatic Agreements applicable to the SNF Project are:

- Memorandum of Understanding - Management of the 300 Area Light Water Reactor Spent Nuclear Fuel (9652500, dated June 5, 1996).
- Memorandum of Understanding for Management of Spent Nuclear Fuel Currently Located at the Plutonium Finishing Plant (96-SFD-171 / 9602191B, dated August 16, 1996).
- Memorandum of Understanding for Management of Spent Nuclear Fuel Currently Located at T Plant and the 200 Area Low-Level Burial Grounds (9601944B R1, dated September 11, 1996).
- Programmatic Agreement between Fast Flux Test Facility Project and Spent Nuclear Fuel Project (FDH-9756843, dated August 12, 1997).
- Programmatic Agreement for Planning and Management of Canister Storage Building (FDH-9756143, dated August 25, 1997).
- Agreement Between the River Protection Office and the Spent Nuclear Fuel Project for Canister Storage Building Interfaces (FH-0000853, dated February 17, 2000).
- Memorandum of Understanding for the Packaging, Treatment, transport, and Disposal of K Basin Waste to the Environmental Restoration Disposal Facility (BHI 075656, dated December 28, 1999).
- SNF Project Memorandum of Understanding for Turnover of K Basins (9956486 R1, dated November 8, 1999).

- Interim Storage of K Basins Sludge in T Plant Programmatic Agreement (FDH-9956246, dated September 28, 1999).

2.6.2 Policies and Management Directives

The Project complies with applicable PHMS Policies and Directives, and issues SNF Project Management Directives as necessary. The SNF Project management policies are set by this PEP. PHMS Policies and Directives are maintained on the Hanford Intranet. SNF Project Management Directives are maintained on the SNF Project shared drive at \\ap012\snf-proj.

SNF Project Management Directives are issued by the Project Director to convey management direction, guidance, clarification, emphasis or waiver on any matter related to the operations of the Project. Management Directives are used to supplement the formal policies and procedures system and provide immediate and/or interim direction on contractual, programmatic, or customer requirement changes. The Management Directive process is managed by the Procedures Manager in accordance with AP MS-1-024, *Management Directives Administrative Control*, and HNF-PRO-245, *Management Directives*.

2.6.3 Management Plans

The Project complies with applicable PHMS Policies and Procedures and produces additional management documents as necessary and sufficient to facilitate communication, status, and control for the Project. The PHMS comprises 32 topical areas. Each topical area is assigned a Functional Area Manager (FAM) as identified by FH in HNF-MP-001, *Management and Integration Plan*. The SNF Project Management System is functionally aligned with the PHMS approach. SNF Project FAMs interface with the FH counterparts through the Site Systems Engineering (SSE) organization on procedure change actions. PHMS management directives, policy statements, and procedures are coordinated for Project specific impact by the SNF Project FAMs as specified in AP MS-1-031, *PHMS Document Reviews*.

The SNF Project develops plans as necessary to implement subproject or topical programs to maintain operational consistency across the Project. The plans will be revised as required. Requirements for individual subproject plans will be fulfilled by topical plans. Only subproject specific data will be required which can be included in subproject management plans or work plans. Approval authority of these and other Project documents are reflected in Appendix B, *SNF Project Review and Approval Matrix*. Topical plans are used for activities common to subprojects. Requirements for individual subproject plans may be fulfilled by these topical plans. The key active Project management and topical plans currently in use on the Project are shown in Table 2-1. The inactive plans are shown in Table 2-2.

2.6.4 Procedures

Project work is performed in accordance with implementing procedures derived from contract and S/RID flow-down requirements. Maximum use of FH standard commercial practices is reflected in SNF Project procedures. The SNF Project is managed with two categories of procedures:

- **Administrative Procedures:** The SNF Project uses an AP system that defines the development, approval, distribution, and revision of APs containing requirements specific to SNF Project activities. SNF Project APs capture the requirements from regulatory documents, as discussed in Section 1.11, *Requirements*. APs are developed to provide work processes to ensure that SNF Project activities are conducted in a safe, efficient, and consistent manner. Managers are responsible for the content and accuracy of the APs, which implement their organizational responsibilities. The Procedures organization, in coordination with assigned FAMS, develop and maintain the APs in accordance with AP MS-1-002, *Administration of Administrative Procedures*. Table 2-3, *Functional Area Responsibilities and Alignment*, lists the functional categories of APs used on the SNF Project and identifies organizational ownership.
- **Technical Procedures:** The SNF Project has a technical procedure (TP) system that defines the development, approval, distribution, and revision of TPs that contain requirements specific to SNF Project activities. SNF Project TPs capture the requirements from regulatory documents as discussed in Section 1.11, *Requirements*. TPs are developed to provide detailed work instruction to ensure that SNF Project operations, maintenance, surveillance, radiological control, emergency response, and compliance activities are conducted in a safe, efficient, and consistent manner. Managers are responsible for the content and accuracy of the TPs, which implement their organizational responsibilities. The SNF Project Procedures organization develops and maintains the TPs used for the SNF Project, in accordance with SNF Project APs:
 - MS-9-001, *Technical Procedure Administration*
 - MS-9-002, *Technical Procedure Development Process*
 - MS-9-003, *Technical Procedure Change Process*
 - MS-9-004, *Technical Procedure Use and Compliance*

2.6.5 Desk Instructions

Desk Instructions provide managers with a controlled means of providing their employees with written instructions to standardize performance of administrative or clerical duties within their specific organizations. Desk Instructions do not conflict with upper tier documents, established policy, or provide direction to any other function or group, nor do they address any function related to safety, quality requirements, or classified material. AP MS-1-005, *Desk Instruction Administration*, governs the application of Desk Instructions.

2.7 Human Resources

Human Resources (HR) Management is not a Project function. Project Managers make individual hiring actions with the support of the FH HR group. Standard FH personnel policies will apply to employees on this Project and are available from HR.

2.8 External Communications

The SNF Project Director and staff obtain RL's approval prior to making public any formal or informal news releases and announcements regarding this contract. RL has primary responsibility for communication with outside agency contacts. SNF Project contact with the news media is coordinated through the FH Communications Office who coordinates with RL.

If a paper or presentation on the Project is requested for a professional society or other organization, or is requested for unrestricted publication, approval from the SNF Project Director and RL is obtained before publication.

Table 2-1
Active SNF Management Plans

Responsible Manager	Document Number	Management Plan
Quality Assurance	SNF-4948	SNF Quality Assurance Program Plan
	QAPP-OCRWM-001	Quality Assurance Program Plan for Implementation of the OCRWM QARD for the SNF Project
	HNF-SD-SNF-RPT-007	Application of the OCRWM QA Requirements to the Hanford SNF Project
Projects	HNF-2281	SNF Sludge Treatment System Preliminary Project Execution Plan
	WHC-SD-SNF-PMP-002	Project A.13 K Basins Sludge Removal Systems Project Management Plan
	WHC-SD-SNF-PMP-016	Fuel Retrieval Sub-Project, Project Management Plan
	HNF-SD-SNF-PLN-023	Fuel Retrieval Sub-Project Turnover Plan
Engineering	HNF-SD-SNF-CM-001	SNF Configuration Management Plan
	HNF-SD-SNF-MP-001	SN Project Data Management Plan
	HNF-SD-SNF-PLN-010	Characterization Program Management Plan for Hanford K Basin Spent Nuclear Fuel
	WHC-SD-SNF-PLN-007	Plan for Characterization of K Basin Spent Nuclear Fuel and Sludge
Operations	AP OP-2-017 Appendix	Conduct of Operations Applicability Matrix
	HNF-2039	Management Self Assessment Plan
	HNF-SD-SNF-POA-001	Plan of Action for the SNF Project Fuel Handling and Process Operations Operational Readiness Review
	HNF-SD-SNF-PD-011	SNF Project Operational Staffing Plan
	SNF-MIP-001	SNF Maintenance Implementation Plan
	No. #	FY1999 Radiological Control Improvement Plan
	HNF-2284	SNF Tooling and Ancillary Equipment Plan
PI&RS	HNF-1721	SNF Project S/RID Implementation Plan
	HNF-3552	SNF Project, Project Execution Plan
	SNF-6089	SNF Project Document Control and Records Management Program Description
Sludge, Debris, Water Cleanup, and Other SNF Disposition	WHC-SD-SNF-SP-006	SNF Project Tribal, Stakeholder, and Regulator Communication and Participation Strategy
	HNF-SD-SNF-PMP-018	Site-Wide Spent Nuclear Fuel Project Management Plan
	HNF-EP-0853	DNFSB Recommendation 94-1 Site Integrated Stabilization Management Plan
H,S&EP	HNF-4747	K Basins Interim Remedial Action Health and Safety Plan
Project Controls	HNF-SP-1104	SNF Project Multi-Year Work Plan

**Table 2-2
Inactive SNF Management Plans**

Owner	Plan	Document Number	Canceling ECNs
Project Controls	SNF Project, Project Management Plan (Replaced with HNF-3552)	HNF-SD-SNF-PMP-011	651409
	SNF Project Integrated Schedule Plan	HNF-SD-SNF-PD-009	652134
Contracts	SNF Project K Basins Path Forward Acquisition Strategy	WHC-SP-1144 (canceled)	-----
Engineering	K Basins SNF Project Safety Analysis Report for Packaging SARP Approval Plan	HNF-SD-SNF-PLN-003	652137
	SNF Project Interface Control Plan	HNF-SD-SNF-CM-003	
	SNF Project Systems Engineering Management Plan	WHC-SD-SNF-SEMP-001	
	SNF Project Integrated Testing Strategy	HNF-SD-SNF-SP-016	652139
	SNF Project Technical Analysis Integration Plan	HNF-SD-SNF-SP-017	652138
	SNF Project Technology Acquisition Plan	HNF-SD-SNF-PLN-013	652136
PI&RS	SNF Project Manual (Replaced with HNF-3552)	SNFP-1 (canceled)	-----
	SNF Project Dose Management Plan	HNF-SD-SNF-SP-010	645091
	ES&H Compliance Plan		
Operations	SNF Project Integrated Safety Management Plan	WHC- SD-SNF-PLN-012	654632
	SNF Project Startup and Test Plan	HNF-SD-SNF-SUP-003	653485

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Owner	Plan	Document Number	Canceling ECNs
Projects	Project W-379 Canister Storage Building Project Management Plan	HNF-SD-W379-PMP-001	652144
	Canister Storage Building Multi-canister Overpack Handling Machine Work Plan	HNF-SD-W379-PMP-002	652145
	Project W-443 Cask/Transportation Project Management Plan	HNF-SD-W443-PMP-001	652141
	Project W-441 Cold Vacuum Drying Project Management Plan	HNF-SD-W441-PMP-001	652146
	Project W-484 Hot Conditioning System Project Management Plan	HNF-SD-W484-PMP-001	652701
	Project W-442 Multi-canister Overpack Project Management Plan	HNF-SD-W442-PMP-001	652140
	Debris Removal Project Management Plan	HNF-SD-SNF-PMP-006	652706
	K Basins Integrated Water Treatment System Project Management Plan	HNF-SD-SNF-PMP-014	652708
	IX Disposition Project Project Management Plan	HNF-SD-SNF-PMP-008	652705
	Project Mgmt. Plan for K Basins Facility Upgrades for Transport Project A.5/A.6	HNF-SD-SNF-PMP-015	652703
	Project Management Plan Basin Personnel Facility Upgrades	HNF-SD-SNF-PMP-017	652704
	Project Management Plan for Project A.8 Loadout Dose Management	HNF-SD-SNF-PMP-007	652702
Quality Assurance	Quality Assurance Program Plan for W-379, SNF Canister Storage Building	HNF-SD-W379-QAPP-001	652142
	Quality Assurance Program Plan for Project W-441, Spent Nuclear Fuel CVD	HNF-SD-W441-QAPP-001	652143
	Quality Assurance Program Plan for Project W-484, SNF HCS Subproject	SD-W484-QAPP-001	649597
	Project W-405 Quality Assurance Program Plan	HNF-SD-W405-QAPP-001	652707
	SNF Project CVD Facility OCRWM-QARD Compliance Plan	HNF-1551	652271
Integration Projects	Project Management Plan for the PUREX Fuel Transfer Program	HNF-SD-SNF-PMP-010	652135

Table 2-3
Functional Area Responsibilities and Alignment

SNF Project Management Organization	PHMS Standard Functional Areas	Responsible Functional Area Managers	SNF Project Alignments		
			Admin. Procedure Category	MSA Plan Sections	S/RID Chapter
Construction Projects	Construction	Construction Projects Manager	CS	C	8
	Maintenance	Maintenance & Work Control Manager	MN	G	10
Operations	Property Management		PM		N/A
	Operations	Operations Director	OP	F, M & P	9
	Procedures	Procedures Manager	TN	D	4
	Training	Training Manager	TN	D	4
	Transportation & Packaging	Operations Support Manager	TP		13
	Waste Management		WM		16
Engineering	Configuration Management		CM	B	3
	Engineering Program	Engineering Manager	EN	B	7
	Fire Protection		FP	B	12
	Nuclear & System Safety	Nuclear Safety Manager	NS	H	18
Quality Assurance	Quality Assurance	Quality Assurance Manager	QA	Q	2
Radiological Control	Radiation Protection	Radiological Control Manager	RP	L	11
Contracts	Acquisition	Contracts Manager	AQ		N/A
	Contract		CR		N/A
Project Controls	Project Control	Project Controls Manager	PC		N/A
	Environmental Protection	Environmental Protection Mgr	EP	1	20
Performance Improvement & Regulatory Services	Information Resource Mgmt.	PI&RS Manager	IR		N/A
	Management System		MS	A & E	1
	Safeguard & Security	SAS Specialist	SS	K	6
	Occupational Health & Safety	Safety & Health Manager	OS	J	19
Safety, Health & Emergency Planning	Emergency Management	Emergency Planning Manager	EM	N	5
Human Relations	Employee Concerns	Human Resources	EC		N/A
	Human Resources	Representative	HR		N/A

3.0 ORGANIZATION AND STAFFING

The overall responsibility for management of SNF at the Hanford Site is with the RL SFO. FH is the managing contractor of the PHMC.

3.1 Project Organization and Interface

FH manages the SNF Project and utilizes an integrated project organization. The SNF Project Director is solely responsible to RL and FH management for planning, organizing, directing, coordinating, and business control of the project. Project organizational interfaces are shown in Figure 3-1, *SNF Project Organizational Relationship*.

3.2 RL Organization

RL assigns Facility Representatives (FRs) from the Operations Oversight Division (OOD) to be resident on the Project. RL identifies technical and organizational interfaces, and integration with other projects and activities. The following sections define the roles and responsibilities within RL.

3.2.1 U.S. Department of Energy

The DOE organization that interfaces with the SNF Project is reflected in Figure 3-2, *DOE-HQ Organizational Interface*. The general DOE responsibility is to provide funding and direction as required for the project.

3.2.2 DOE, Assistant Secretary for Environment, Safety, and Health

- Provide nuclear safety technical support and independent safety oversight
- Provide support for the NEPA documentation
- Provide funding support for the Independent Review Panel (IRP)

**Figure 3-1
SNF Project Organizational Relationship**

Figure 3-2
DOE-HQ Organizational Interface
Hanford SNF Project Independent Review Groups Environmental Management, Headquarters

3.2.3 DOE, Assistant Secretary for Environmental Management

- Establish overall mission objectives and top-level functional requirements
- Provide Program oversight, guidance, and coordination with other DOE organizations
- Monitor the Project in the near-term via monthly Project reviews
- Provide liaison with the National Spent Nuclear Fuel (NSNF) Program
- Provide liaison with the Office of Civilian Radioactive Waste Management (OCRWM) Program

3.2.4 DOE, Office of the Associate Deputy Secretary for Field Management

- Conduct independent cost estimates for the Project as appropriate
- Participate in the validation of the Project as part of the funding process
- Assist in monitoring via monthly Project reviews.

3.2.5 DOE, Richland Operations Office

The *Functions, Responsibilities, and Authorities Manual* (FRAM) is the RL governing document for delineating roles and takes precedence over this PEP, should there be a conflict.

The SNF Project IRP is responsible to the RL Manager to provide an independent recommendation of the adequacy of the Project safety basis for the design, construction, start-up, and operation of the fuel storage and conditioning systems, as well as the processes for the removal and handling of the spent nuclear fuel.

3.2.6 DOE, Operations Oversight Division

Safety and Operations oversight responsibilities of the SNF Project are assigned through the Office of Performance Evaluation (OPE) to the OOD. Specific responsibilities are denoted in the RL FRAM.

The OOD performs its responsibilities through the assignment of FRs to the main facilities within the SNF Project. The FRs provide day-to-day RL presence in the oversight of facility activities and provide RL Management with timely information on events and conditions within the facilities. These FRs perform their oversight role through a series of preplanned and reactive mode performance evaluations. Identified deficient conditions are communicated to RL management and to the contractor. The FRs are the main evaluators for occurrence reports, corrective actions, and accident investigation closure follow-up. They provide periodic evaluations of Conduct of Operations, Conduct of Maintenance, Emergency Preparedness, and ES&H.

3.2.7 DOE, Office of Spent Nuclear Fuels

Management responsibilities for the SNF Project are assigned by the SFO. The Director of the SFO is the Project Manager and conducts the Project as intended in DOE Order 430.1, *Life Cycle Asset Management (LCAM)*.

The SFO organization is consistent with a project organization, having a significant portion of the staff matrixed from line organizations. Figure 3-3, *Office of Spent Nuclear Fuels*, displays the SFO organization. The SFO is ultimately responsible for the overall management, administration, performance, and operations and maintenance activities on the SNF Project. The SFO ensures that the required levels of quality, safety, and environmental compliance are achieved within established technical, schedule, and cost baselines as defined in the PEP. Specific responsibilities and authorities include, but are not limited to, the following activities:

- Provide review and approval of top-level SNF Project baseline documents
- Assume overall responsibility for design, construction, start-up, and operation of systems and facilities within the scope of the SNF Project through direction to the contractor participants
- Monitor and maintain overview of project activities, cost and schedule status, and technical baseline compliance to ensure project performance expectations, quality, cost, and schedule objectives are met
- Provide DOE interface with DOE-Headquarters organizations

- Provide and coordinate review and approval of required environmental and safety documentation
- Assure quality, safety, and environmental requirements are applied
- Review and submit budget documents in accordance with the DOE budget cycle
- Provide interface with stakeholders, regulators, and other federal government entities
- Maintain, manage, and validate Project Performance Incentives (PIs)
- The SFO is advised by a Technical Advisory Group (TAG) (of approximately four primary members) consisting of experts with specialized skills and experience in matters vital to the success of the project. They assist in solving problems on a real-time basis
- The Acceptance and Inspection (AI) Team from FH provides independent QA/quality control (QC) oversight of construction for RL.

3.3 Project Hanford Management Contract - FH

FH is the Hanford integrator and strategic leader for the PHMC, under the direction of RL. Roles and responsibilities of participants of the Hanford project are defined in HNF-MP-001, *Management and Integration Plan*. The PHMC organization is shown as Figure 3-4, *PHMC Organization*. FH, as the Managing Contractor, is responsible for:

- The leadership, oversight, direction, and control of Hanford projects
- Embedding the best commercial practices in the execution of the Hanford projects consistent with compliance with DOE requirements
- Managing site-wide systems engineering to provide a traceable, integrated, risk-based, and technically defensible baseline
- Overall leadership covering the breadth of the ES&H function at Hanford sites
- Development of a site-wide QA program and implementation procedures
- Managing subcontracted infrastructure and certain crosscutting service organizations.

Figure 3-3
U.S. Department of Energy, Richland Operations Office
Office of Spent Nuclear Fuels

Figure 3-4
PHMC Organization

3.3.1 SNF Project Director

The SNF Project Director is the senior staff employee responsible for Project success and reports to the FH Office of the President for overall Project execution. He is responsible for executing the SNF Project in accordance with the contract and its scope of work, while ensuring the safety of the public and workers, and protecting the environment. This includes the balancing of priorities to ensure that budget and/or schedule do not take precedence over safety and health issues. He also provides leadership that fosters a safety culture and establishes the framework for safety, quality, productivity, and integration with other PHMC projects, functional groups, and service providers. He establishes the SNF Project organizational structure and assigns responsibilities and monitors the technical, schedule, and financial performance of the SNF Project.

The SNF Project Director is the primary point-of-contract for RL (SFO). Responsibilities include:

- Leading development and maintenance of life-cycle baseline
- Ensuring integration of scope, schedule, and resources with other site-wide projects
- Interfacing with RL and stakeholders regarding incorporation of regulatory commitments and other requirements
- Leading the prioritization of work activities to accomplish project results on the basis of an integrated priority list and budget direction supported by risk/benefit assessment that consider safety, environment, technical, and cost factors
- Managing and integrating intra-project scope, cost, and schedule.

3.3.2 Integrated SNF Project Team

The SNF Project is executed through a uniquely integrated relationship between RL, the Prime Contractor, and various subcontractors. As appropriate, SFO is informally integrated on an issue-by-issue basis. The integrated SNF Project organization chart is shown in Figure 3-5. This team is responsible to:

- Execute and manage the Project baseline
- Support the Project Director in planning inter-project, infrastructure, and cross-cutting service requirements, and support regulator and stakeholder interface activities
- Manage the Project work force through direct hires and subcontracted services

- Prepare and oversee the ORR process
- Design, procure, and manage construction of Project activities
- Provide Design Authorities for the SNF Project and subprojects
- Manage facility and system startup and testing
- Execute fuel movement operations for the SNF retrieval, conditioning, packaging, transportation, and storage systems
- Conduct internal audits and self assessments
- Retain line management responsibility for ES&H and QA

3.3.3 Subcontract and Vendor Services

Project execution is largely provided through subcontracted and vendor-provided services. The SNF Project Contracts Manager is responsible for procurement activities and is the primary procurement agent for the Project and contractual interfaces with other Hanford Site subcontractors or other organizations for needed services.

3.3.4 Roles, Responsibilities, and Charters

The organizational structure within the SNF Project is further defined via formal charters. The charters define responsibility for actions and functions and are maintained by the PI&RS organization. Reviews are conducted by Operations for subordinate manager charters. The affected manager and the Project Director approve changes.

SNF Project charters are maintained as Appendix C, *SNF Project Organization Charters*, to this PEP. Reviews are conducted periodically by the Project Director or delegate, or whenever changes occur, to assure that there are no gaps or overlaps in responsibilities and that the charters are representative of the organization.

Figure 3-5
SNF Project Organization

3.3.5 Job and Position Descriptions

Job/position descriptions for SNF Project employees are maintained differently based on personnel categories.

- SNF Project manager positions are prepared as needed to support recruiting requirements, graded by the FH Compensation group, and approved by the Project Director. They are centrally maintained by the FH HR organizations as appropriate and by the FH Compensation group.
- Personnel filling OCRWM positions have position descriptions as defined in AP TN-11-013, *Position Descriptions/Education and Experience*.
- Represented employees from bargaining units are established and maintained site-wide, by FH.
- Non-represented, non-management employee job descriptions are generic, standardized site-wide, and are developed and maintained by FH.

3.4 Project Staffing

Staffing the Project is the responsibility of those SNF line managers who report directly to the SNF Project Director in coordination with the appropriate HR office. Managers provide only the personnel required for the Project.

As the work transitions to operations, the Project will experience a “ramp down” of personnel in Projects, Engineering, and the support organizations, and a “ramp up” of personnel in Operations. The Project Director will manage this transition of staffing through periodic review of the Project organizational structure and staffing.

Operations managers are responsible for central management of “ramp up” staffing for fuel movement operations as described in the Staffing Plan. Key management positions require the Project Director’s approval.

Subcontractors and individual consultants are used to augment the Project staff as appropriate and necessary to ensure the application of individuals best qualified for the job.

3.5 Qualification and Training

Employee qualifications and Project position assignments are based on classifications and salary grades that reflect their education, training, experience, and performance. Project staffing requirements are expressed in terms of these classifications and grades along with any special project requirements.

Training requirements identified in RL's contractual agreement or based on a need determined by the Project Director or Managers are satisfied based on either on-the-job and/or formal training. Objective evidence of completion of formal training is maintained as a quality record in project, discipline, or office files, depending on applicability.

Personnel assigned to particular SNF Project areas are trained in those general requirements as identified on their individual Integrated Training Electronic Matrix (ITEM) or Training Program Description for personnel who need to meet DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*. A Training Implementation Matrix (TIM) for the SNF Project has been developed in accordance with DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, and is the method by which compliance to that order is documented.

The SNF Project Operations managers maintain and implement the (operations) APs on training and ensure that SNF Project personnel, subcontractor personnel, and visitors are trained to the applicable requirements and documented in accordance with the applicable AP when working in one of the SNF Project facilities.

3.6 Industrial Relations

The FH Industrial Relations (IR) department is responsible for the development and implementation of a detailed, written, site-wide IR program for the PHMC.

3.6.1 Organization & Responsibilities

The Hanford work force represented by the Hanford Atomic Metal Trade Council (HAMTC) and the Hanford Guards Union (HGU) are employees of FH. FH IR is the single point of focus and authority for matters related to labor relations for the PHMC. FH has assigned an IR specialist to the SNF Project and to each Major Subcontractor to ensure consistency of application of the collective bargaining agreements.

3.6.2 Requirements

The SNF Project provides work direction and supervision to those FH-represented, work-force employees assigned to the Project. FH has given notice to the Bargaining Unit that the Project provides work direction to such employees. Such direction and supervision must be in compliance with the terms and conditions of the applicable collective bargaining agreements.

The SNF Project shall provide:

- First-line interface with members of the assigned work force
- Employee Relations support
- Grievance resolution at the first step (with guidance/approval from FH IR) and support to FH IR at second step and arbitration
- Disciplinary action and termination with coordination/approval from FH IR.

FH IR retains authority to direct the resolution of grievances if deemed necessary after the second step up to and including arbitration.

The SNF Project provides personnel forecast requirements by classification and numbers needed to FH IR no later than 30 days in advance of new projects and/or scope changes. FH IR maintains a database reflecting the classification, training records, skills, and seniority list of represented work force. This information is used to assign represented employees to the Subcontractor and other FH organizations and projects.

If the Project elects to reduce the number of represented workers assigned to it in a particular classification, personnel are be reassigned back to FH in accordance with the Bargaining Agreements.

4.0 PROJECT CONTROLS

Execution of approved and authorized work scope, in strict compliance with the established schedule and cost baseline, is the key to successful project controls and the responsibility of every participant on the SNF Project.

This section establishes the project controls approach, philosophy, policies, and practices of the SNF Project. The primary goal for successful SNF Project controls is twofold:

- Plan the work – Establish a realistic plan (time frame, budget, and funding) for completing the project scope. Planning consists of formulating sound baselines by first defining the work scope and then associating a cost and schedule estimate to accomplish the work scope. It also includes the definition of work priorities and funding requirements (see Section 4.3.5, *Integrated Management Decision Process*).
- Work the plan – Provide a process for ensuring that the project proceeds in accordance with that plan and for accurately measuring performance/progress against that plan in a timely manner. Project execution covers the implementation of project controls such as work authorizations, critical decision hold points, and the baseline change request process (as discussed in Section 5.0, *Change Management*). It also entails project evaluation and management reporting (the review, analysis, action identification, and commitment tracking to address issues facing the Project).

Project controls activities are performed in accordance with RLID 5000.1, *Baseline Execution and Management Process* and PHMS Topical Areas, *Project Controls* and *Financial Management*.

4.1 Organization and Responsibilities

The Project Controls Manager provides project control functions for the project including scheduling, planning, reporting, cost and schedule analysis, deviation control, forecasting, finance, and accounting.

Project Managers own and manage the scope of work for their project and use their Project Control staff to status the budget and schedule data associated with that work, and to facilitate reporting and management.

The Project Director provides overall control of the scope, budget, and schedule of the Project and negotiates with RL via the change management process for approval of scope changes.

4.2 Planning the Work

SNF Project work is planned and managed by the Project Managers. They ensure that the work performed is within the approved baseline and that appropriate charge codes are utilized based on work scope.

No one within the SNF Project commits to new work or commits SNF Project resources without first reviewing the existing integrated schedule and resource-loaded budget for the current work scope. The addition of ANY new work scope involves processing appropriate change control paperwork to document the addition of the new work scope and address any impacts of the proposed changes.

4.2.1 Work Breakdown Structure

The Project WBS divides the Project scope into discrete, manageable work packages that focus on the *deliverables included in the Project scope of work*. The WBS has a coding structure that is logical and permits tracking of progress, costs, work hours, and schedule. The level of detail supports effective project execution and collection of historical data. Additional detail that does not add value or enhance the Projects ability to execute the project is discouraged.

The WBS is in accordance with the Hanford guidance for the first five levels. The SNF Project further breaks down work into subprojects and sub-areas for effective execution.

4.2.2 Code of Accounts

The FH standard Code of Accounts are the basis of the coding system used to further break down project costs for purposes of accounting, reporting, and analysis.

4.2.3 Estimating

The Project Managers, working with the cost estimators, are responsible for the preparation of Project estimates. The Project Controls organization assists in the development of estimates and provides oversight and consistency. Estimates have internal reviews with Project Controls and the Project Managers prior to issuance to RL for review and approval. The Project Manager ensures that cost estimates and revised estimates are tied to the current baseline schedules, and that the basis for the estimates is consistent with the approved documented Project scope baseline definitions.

The cost baseline is also known as the “Budgeted Cost of Work Scheduled” (BCWS) and is reconcilable to the Budget Authority (BA) in the funding profile. These baselines are established for project activities over the life of the project and are related to the scope baseline via the WBS.

4.2.4 Scheduling

The Critical Path Method (CPM) of planning and scheduling is used on the SNF Project. The fundamental elements of a schedule are the logic, activities, and milestone events. The Project utilizes scheduling software to develop the following levels of schedules:

- Presentation Schedule (Level 1) – The most concise project schedule, used only for a high-level view of the project scope and life cycle.
- Project Master Baseline Schedule (PMBS) (Level 2) - Defines the major activities and interfaces between engineering, procurement, fabrication and construction, transportation, installation, pre-commissioning, commissioning, start-up, operations, transition, and turnover. It is issued in the monthly progress report for statusing and is the baseline schedule reflected in the MYWP.
- Project Integrated, Resource Loaded Schedule (Level 3) – Is a schedule detailed, at a minimum, to Level 8 of the WBS, or Control Account Charge Number (CACN).

The schedule identifies the logic ties and interfaces necessary to coordinate the completion of that phase of the work scope with the other elements of the project summary schedule, and contains sufficient detail to allow integration of subproject schedules into the project summary schedule. The MYWP contains the Project Milestone Description Sheets (MDS), which clearly define what constitutes milestone completion.

Subproject schedules are resource-loaded with staff hours associated with the particular skill mix that is identified for each activity and other direct costs.

4.3 Work the Plan

4.3.1 Cost Control

A project cost system tracks original budget, current budget, current forecast, commitments, and expenditures for the contractor costs and work hours. The Baseline BOE serves as the cost control base for the Project and is loaded into the Project cost control system. The Project Controls team inputs budget and forecast data into the cost system for estimates and deviations.

Project Controls analyzes the data (including commitments and expenditures) in a monthly report and informs Project management and RL of the cumulative impact of any deviations to the cost and schedule baseline plan.

The Project Controls organization provides cash flow (spend forecasts) projections, as required.

4.3.2 Funds Management

Control of fiscal year (FY) cost ceilings and appropriations is accomplished in accordance with DOE approved funding plan requirements and existing RL funds control policies and procedures. Project funding that is authorized but not spent (i.e., carry-over) within any FY remains with SNF Project for use in the next FY in accordance with the Project's cost, schedule, and scope baselines.

Project Baseline Summaries (PBS) are utilized as the primary budget and status document for DOE Environmental Management Program funded activities. The SNF Project has one PBS (RL-WM-01).

4.3.3 Contingency Management

The SNF Project and RL jointly manage approval of FY contingency via the joint Change Review Board (CRB) and through the use of an Integrated Management Decision Process discussed in Section 4.3.5 below. Refer to Figure 4-1, *Contingency Management Process*, and Figure 4-2, *Integrated Management Decision Process*. Refer to the charter in Appendix C for more details on the CRB.

4.3.4 Work Authorization and Critical Decisions

Specific authority to proceed with Project work is provided from RL to the contractor. The contractor will provide budget authorization, within the FY, to the subcontractor Project participants for work scope that is definitized. This authority is provided from RL to the contractor based on an approved multi-year technical, schedule, and cost baseline. Any restrictions or conditions are included in the Work Authorization.

Critical Decision hold-points are built into the baseline schedule to assure readiness prior to proceeding. Specific Critical Decision hold points are defined in the SNF Project Plan, RL-D96-007 and are reflected in the PMBS.

Figure 4-1
Contingency Management Process

• See Integrated Management Decision Process

CRB = RL/SNF Baseline Review

4.3.5 Integrated Management Decision Process

The Integrated Management Decision Process (see Figure 4-2, *Integrated Management Decision Process*) integrates the use of several management tools:

- Project contingency is managed through the formal change management process (see Figure 4-1, *Contingency Management Process* and Figure 4-3, *Integrated Change Management Process*, for graphic illustrations of this process). Refer also to AP PC-1-037, *Integrated Change Management*, for more information on the entire process. A Contingency Utilization Report reflects contingency usage approved by Change Requests (CRs) through the CRB. This report also reflects targeted Project contingency utilization based on the Contingency Analysis. The SNF Project Contingency Analysis is updated annually. Utilization Reports are updated and distributed to CRB members bi-weekly for trend analysis.
- The FY Performance Status Report is published in the SNF Project Monthly Report. Execution trends are reviewed monthly by senior SNF Project management and incorporated into the FY Spend Forecast.
- The FY Funds Management Report reflects funding authorizations to date plus pending changes compared to FY spend forecast and target data. Another key aspect of this report is the summary data at the Project-level compared to available funds.
- The Prioritized Risk Mitigation Report reflects the current status of SNF Project risks. Risks are eventually dispositioned as becoming reality through a CR or documented as a cost avoidance.
- The Prioritized Opportunity List reflects the current status of SNF opportunities for cost savings. CRs document cost savings as they are realized.

Based on an integrated analysis of the current performance projected spend forecasts and funds availability, management makes decisions to either turn work "on" or "off" or implement other funds management actions.

Figure 4-2
Integrated Management Decision Process

Figure 4-3
Integrated Change Management Process

4.3.6 Performance Measurement

The scope, schedule, and cost baselines are statused through Earned Value performance measurement techniques. Earned Value methodology is applied to work scope to establish the Budgeted Cost of Work Performed (BCWP). This is done based on an assessment of the percent of work scope actually complete (not dollars spent). Utilizing the BCWP, the BCWS (the baseline), and Actual Cost of Work Performed (ACWP), other Earned Value parameters are derived and used to report status and trending data. The Project takes corrective actions when routine Earned Value cost and/or schedule variance analysis reveals problems. Explanations are provided for variances that exceed the established thresholds:

SNF Project Level:

Cost Variance (CV) $> \pm 5\%$
Schedule Variance (SV) $> \pm 7.5\%$

Subproject Level:

CV $> \pm 5\%$ or \$250K
SV $> \pm 7.5\%$ or \$250K

Control Account Plan Number Level:

FY BCWS $< \$500K$: CV and SV $\geq \pm 10\%$ and \$10K
FY BCWS $> \$500K$: CV and SV $> \$50K$

Cost and schedule control and reporting is based on the Project life cycle, as well as on a FY basis. The estimate to completion (ETC) and the Estimate at Completion (EAC) for the Project as a whole and for each subproject level WBS element are prepared by the subproject manager based on the status of the work element and taking into account the Cost Performance Index and reported monthly. The ETC is based on the latest performance data, current assessment conditions, current and projected pricing factors and rates, and knowledgeable forecasts of projected conditions. The management contractor prepares estimated completion durations for the Project and subprojects, taking into account the Schedule Performance Index (SPI) and other factors.

Additional techniques and tools used for performance measurement include:

- Trends and Variances – Trending reports are utilized, as appropriate, as an analysis tool to predict potential variance impacts. Potential variances are documented utilizing Deviation Notices (DNs), which, once dispositioned, may result in a CR or a performance variance.

- Critical Path Schedule Analysis – The critical path is a focal point for performance assessment and schedule management.
- Staffing – Staffing plans are developed in accordance with budgets and monitored against actuals for trending and variance analysis.
- Milestones – Baselined milestone events are another mechanism for measuring progress. They are well defined to assure that achievement is unquestionable. The MYWP contains the MDS.

4.3.7 Tri-Party Agreement Milestone Tracking

Tri-Party Agreement milestones are tracked in quarterly review meetings with the DOE, EPA, and the Washington State Department of Ecology (Ecology). The PI&RS organization provides the input to RL for these meetings.

Proposed Tri-Party Agreement milestone schedule changes are formally documented with a Tri-Party Agreement change request submitted to Regulators 110 days prior to the milestone due date in order to allow for negotiations on milestone extensions.

The PI&RS organization coordinates Tri-Party Agreement correspondence and communication for the SNF Project. This includes requests for information by Regulators, presentations to Regulators, milestone completion notices to RL, and milestone change requests to RL. The PI&RS organization maintains the primary interface with the Tri-Party Agreement Integration group in the FH Office of Environment, Safety, and Health.

4.3.8 Recurring Meetings and Reports

The SNF Project utilizes established Hanford Site reporting systems to meet the intent of reporting requirements in RLID 5000.1. Explanations are provided for variances over the threshold (see Section 4.3.6, *Performance Measurement*). Cost and schedule control and reporting is based on the Project life cycle, as well as on a fiscal basis. These reports summarize and consolidate the costs, scope and schedule progress, and status of the project, including identification of any major items of concern.

Prior to the release of any performance or cost data outside of the SNF Project or SFO, the respective Project Controls manager confirms the accuracy of the data.

5.0 CHANGE MANAGEMENT

The Project implements a change management process that provides timely identification of deviations or changes in Project scope, cost, or schedule. The integrated change management process tracks current budget and the forecast, taking into account any deviations (trends), budget shifts, and change orders that have been identified. The SNF Project change process is managed as described in AP PC-1-037, *Integrated Change Management*.

5.1 Organization and Responsibilities

It is the responsibility of Project personnel to notify Project Management of potential deviations that exceed the DN thresholds (see Table 5-2, *Deviation Notice [DN] Threshold Table*) as soon as they are recognized. DNs are processed in accordance with AP PC-1-037.

Approval thresholds for CRs are established as shown in Table 5-1, *Change Control Thresholds*. The Project Controls organization facilitates the baseline change process. They also perform comparisons to the control base that include, but are not limited to, take-off quantities, unit prices, work-hours, changes to equipment or specifications, and changes in project execution. Deviations identified as a result of these comparisons are processed through the deviation process.

Two joint SNF Project-RL teams have been formed to expedite the review and approval of CRs. The first is the Joint Pre-CRB and consists of the following members responsible for reviewing CRs and their potential impacts on their designated areas as shown below:

Schedule:	SNF Project Cost and Schedule Manager
Technical/Scope:	Systems Engineering Manager
Operations:	Operations Manager
Estimating:	Estimate Manager
Contracts:	Contracts Manager
Engineering/Safety Analysis:	Engineering Manager
Training/Procedures:	Training and Procedures Managers
RL SFO:	RL SFO Deputy Director
	RL SFO Business Management Representative
	RL SFO Subproject Representative

The Pre-CRB team reviews CRs, resolves issues relative to the proposed change and recommends the CR disposition to the CRB. In the event issues are not resolved, they are brought to the CRB for disposition. Refer to the Pre-CRB Charter in Appendix C for more information.

**Table 5-1
Change Control Thresholds**

Change Levels	Approval Authority	Technical /Scope Thresholds	Schedule Thresholds	Cost Thresholds
Site	DOE-RL SMB – approve FH CCB – endorse SNF CRB – endorse	<ul style="list-style-type: none"> - Performance expectations impact - Items impacting fee - Section 1-4 requires CO approval - Section 5 requires COR approval - DOE-RL management commitment to HQ - FH contract SOW impact - Site specification impact - Endpoints or end-states - Completion criteria - Technical requirements - MYWP technical approach impacts - Tier 1 or 2 SNF Project technical baseline document impact 	<ul style="list-style-type: none"> - Milestone impact (date or milestone description sheet (MDS)) - Enforceable agreements (TPA) - DOE-HQ milestone - DNFSB commitment - DOE-RL milestone - Performance expectation - PMBS changes >180 calendar days 	<ul style="list-style-type: none"> - MYWP changes at PBS level $>+\\$5M$ to any FY cost - PBS changes $>+10\%$ of total life cycle cost (LCC). - Construction project TEC or TPC exceeded - LI - MSA - Use of LI construction project contingency for scope changes
	DOE-RL AM-approve FH CCB/SNF CRB - endorse			<ul style="list-style-type: none"> - MYWP at PBS level changes $>+\\$1M \leq \\$5M$ to a FY - PBS changes $>+2\%$ and $\leq 10\%$ of a total LCC
	FH CCB – approve SNF CRB – endorse	<ul style="list-style-type: none"> - Inter-project technical impact - Changes that affect more than the SNF Project as defined by interface control points 	<ul style="list-style-type: none"> - Inter-project schedule impact - FH designated critical activities and milestones - PMBS changes >90 but < 180 calendar days 	<ul style="list-style-type: none"> - MYWP at PBS level changes $>+1\%$ and $\leq 2\%$ of total life cycle cost - Contingency use >25% of total project contingency - MYWP/PBS impact $>\\$100K$ and $\leq \\$1M$ to a FY - Use of project savings efficiencies for scope acceleration
Project-CRB	SNF CRB – approve FH & RL Subp. Mgr. – endorse	<ul style="list-style-type: none"> - Tier 3 or 4 SNF Project technical baseline document impact - Changes to subproject level descriptions resulting from scope additions to the subproject 	<ul style="list-style-type: none"> - Impact to PMBS ≤ 90 calendar days - Impact to critical path schedule - Total float change ≥ 30 days on current schedule 	<ul style="list-style-type: none"> - Use of construction project contingency $\leq 25\%$ of total project contingency but greater than available subproject-held contingency - Use of Project level contingency
Project-SNF	SNF Project Director – approve FH Subp. Mgr. and PC – endorse	<ul style="list-style-type: none"> - WBS changes between Subprojects (scope transfers only) - Changes to subproject descriptions from scope transfers 		<ul style="list-style-type: none"> - Changes between Subprojects with no net change to the SNF Project, excluding contingency
Subproject	FH Project Controls – approve FH Subp. Mgr. – approve	<ul style="list-style-type: none"> - CAPN level narrative changes - Tier 5 and 6 SNF Project technical baseline document impact 	<ul style="list-style-type: none"> - No impact to PMBS activities or milestones - No impact to critical path activities - No inter subproject impact (including RL activities) - Total float change <30 days with resultant total float >30 days on current schedule 	<ul style="list-style-type: none"> - Changes to resource items within a CAPN with no net change to CAPN totals by FY - Changes between CAPNs within a subproject with no net change to subproject totals by FY - Use of subproject-held contingency for procurement/contract re-estimates, minor design changes, or estimating errors and omissions

**Table 5-2
Deviation Notice Threshold Table**

The following criteria indicate when a DN is required.

TECHNICAL
<ul style="list-style-type: none"> -Any change or potential change to an SNF Project Programmatic Assumption -Any change or potential change to an SNF Project Technical Baseline document per Exhibit 1-1 of the SNF Project "Project Execution Plan", HNF-3552 -Identification of a new or potential risk or opportunity -Any significant change to the probability, range or status of a currently identified project risk or opportunity
SCOPE
<ul style="list-style-type: none"> -Any change in requirements or their interpretation which impacts the project -Any scope deferral or deletion -New or potential scope addition to the SNF Project as defined by the PHMC contract SOW and MYWP section 1.1 -New or potential scope addition to an SNF subproject as defined by the subproject descriptions (Report 2A) in the Baseline BOE Books -Any Work Breakdown Structure proposed change down to the CAPN level (WBS Level 8-9)
COST / SCHEDULE PERFORMANCE
<ul style="list-style-type: none"> -Monthly performance variance at the subproject level, by funding type, exceeds or is expected to exceed the following thresholds: FYTD Cost Variance (CV) > +/- 5 % or \$250K FYTD Schedule Variance (SV) > +/- 7 ½ % or \$250K FY Variance at Completion (VAC) > +/- \$0 -Monthly performance variance at the CAPN level exceeds or is expected to exceed the following thresholds: CV or SV > +/- 10% or \$50K
SCHEDULE
<ul style="list-style-type: none"> -Any potential or proposed change to the PMBS -Any potential or proposed change to Level 3 Schedule Activity Completion Date -Any potential or proposed change to a Level 3 Schedule Activity Start Date that results in a SV exceeding the threshold as stated above. -Any proposed forecast date or logic change to either the PMBS or Level 3 "Current" schedules

NOTES:

- DNs are used to document a Management decision prior to proceeding through the lengthy change request (CR) review and approval process.
- CRs may proceed without a prior dispositioned DN; however, current schedule and cost forecasts are not authorized to be changed unless a DN is dispositioned.
- DNs that have been dispositioned to proceed with a Project or Subproject level CR serve as the authorization to the Subproject manager to proceed with the work described in the DN. This assumes that the subproject has the funds to cover the change within the current funding limits and will "funds manage" the DN work until the CR is approved providing both budget and funds.
- DNs may be used to document additional funding authorization to the subproject in situations where available funds are not sufficient to proceed with the deviation. RL is given a copy of the DN authorizing additional funding for notification of the planned Project contingency utilization.
- DNs may be used to show funding authorization withdrawals from a subproject or CAPN.
- DNs are used to provide "Start Work Authorization" (SWA) if the deviation impacts the scope of the subproject. RL concurrence is obtained for all DN SWAs.
- DNs are written to document and explain expected and current variances to cost and schedule performance.

The Joint SNF-RL CRB has been created to provide timely disposition of CRs that utilize Project contingency or impact the PMBS. The CRB consists of the following members:

- SFO Director
- SNF Project Director
- SFO Deputy Director
- SNF Project Controls Manager

Refer to the CRB Charter in Appendix C for specific responsibilities of the CRB.

5.2 Change Management Process

Change control is the combined process of baseline control described here and in Section 2.2, *Configuration Management*. The relationship between the two processes is shown on Figure 5-1, *Overview of the Change Control Process*.

5.2.1 Baseline Change Control

The purpose of maintaining the baseline is to assure an accurate performance measurement tool. An accurate baseline reflects what is actually intended to be done. The baseline for the SNF Project is defined in Section 1.6, *Project Baseline*.

Effective control of the Project baseline is essential, and changes to the baseline are managed in a disciplined fashion. The SNF Project approach to managing Project baseline changes are based on methodically evaluating proposals to alter it, and maintaining configuration of the technical baseline. This is done continuously as the Project evolves and becomes better defined, rather than through annual rebaselining.

Baseline changes due to drivers are incremental changes, which are made on a continuous basis as opposed to routine rebaselines/upgrades. This approach maintains an accurate and valid baseline in real-time for the life of the Project.

Control is achieved through the establishment of change class levels to set the level of approval authority and a joint contractor and RL baseline review team. Change request participants consist of the cognizant technical staff responsible for the change (contractor and RL), Project Controls staff (contractor and RL), and any affected parties. Changes, regardless of the approval level, are documented as a minimum at the CAPN/P3 Activity level.

Changes to controlled baseline documents are through submittal of change requests that justify the proposed changes. Baseline changes are formulated to clearly depict the cause and the corresponding effects (drivers and impacts), and approval is judged on the benefits versus the costs of the change. Specific baseline change control requirements are managed in accordance with HNF-PRO-533, *Change Control*, and HNF-MD-029, *Hanford Site Technical Baseline Change Control*, SNF Project APs, and established thresholds (Table 5-1). Approved contractor change requests are submitted to RL for information.

5.2.2 Configuration Control

Change control is used to maintain positive control and consistency among design requirements, physical configuration, and documentation. The Engineering Change Notice (ECN) process is used to establish and maintain configuration control as prescribed by HNF-PRO-440, *Engineering Document Change Control Requirements*, and AP EN-6-039, *Engineering Document Change Control*.

Figure 5-1
Overview of the Change Control Process

*Baseline includes scope, schedule, cost, and technical.

6.0 AUTOMATION

Successful automation of SNF Project work processes lead to reduced cycle-time, reduced waste, and decreased rework.

6.1 Organization and Responsibilities

LMSI provides site-wide automation services for the PHMC. Automation requirements are processed through managers who report directly to the SNF Project Director.

6.2 Specific Automated Systems

The HLAN is used for project data communication. HLAN contains software products designated by RL as site-wide standards.

A listing of discipline-specific analysis and design application software are developed by each Design Authority and approved by the Chief Engineer. As the Project progresses, if there is no automated system available to satisfy a particular Project deliverable, the selection is made by the responsible functional group with the concurrence of the SNF Project Director and LMSI.

The following issues will be addressed for each automated system:

- Project-specific software development requirements
- Automation system interface requirements and limitations
- Project specific set-up required for interactive applications

6.3 Automation Security Requirements

Computer security training requirements are met by completing the annual Hanford General Employee Training (HGET). Computer security rules are listed on Site Form A-6700-382.1, *Computer Security Rules*.

6.4 Automation Hardware

- Automated hardware purchased for the project is GFE
- SNF Project GFE hardware is acquired by LMSI following approval by the appropriate SNF Project manager.

6.5 Project Deliverables

Electronic copies of deliverables are developed for transmittal to RL and the records holding area. These files are retained at the end of the Project. When data is retained electronically in the LMSI records center, a copy of the software programs, along with the hardware used to generate the data, is also retained in addition to the data files themselves.

6.6 Automation Service Support Organization

LMSI is responsible for installation and maintenance of GFE computers and for the maintenance and upgrade of the HLAN. Design, setup, and testing of the automation network (including hardware) are accomplished by LMSI.

Support and upgrade of the automation software is accomplished by the responsible Project organization with the LMSI Help Desk group acting as the lead for software support and upgrade.

7.0 ENGINEERING

Engineering and design work, performed by or under the direction of the SNF Project, is carried out in accordance with PHMS procedures. In addition, SNF project-specific APs are used to modify, supplement, or implement procedures within the Project.

7.1 Organization and Responsibilities

The SNF Project Engineering organization is responsible to provide engineering and design work for the project. This includes all aspects of engineering and design. Architect-Engineering (AE) work, while performed through the appropriate AE pool and other contractors, is performed in accordance with SNF and PHMS Engineering requirements.

Engineering provides engineering and technical services to other SNF organizations; manages, develops, and maintains the technical and design bases; interprets and sets nuclear safety standards and regulations; implements QA requirements relative to engineering activities; and provides technical services to SNF organizations.

The Chief Engineer has overall responsibility for all engineering performed on the SNF Project. This includes establishing, implementing, and maintaining the technical requirements, engineering design basis, authorization basis, and ensuring nuclear safety regulatory compliance. The organizational charter is shown in Appendix C.

The Chief Engineer is the Design Authority for the SNF Project. As Design Authority, the Chief Engineer defines requirements for, and ensures the technical adequacy of, all SNF Project facility systems, structures, and components (SSC). As such, this authority ensures that changes to documentation that affect functions, requirements, architecture, interfaces, operability, maintainability, and safety basis are technically sound and consistent with the approved authorization basis. The Chief Engineer appoints other Design Authorities and Cognizant Engineers as provided for in AP EN-6-004, *Design Authority and Cognizant Engineer Appointment*.

Design Authorities are uniquely responsible and accountable for final acceptability of a SSC and its technical baseline.

Cognizant Engineers maintain cognizance of installed facility and process systems. Cognizant engineers provide technical guidance to the Maintenance and Operations organizations for all plant processes, procedures, and activities.

Some engineering activities are subcontracted, through the AE pool and other third-party subcontractors. SNF Project engineering requirements are imposed, through appropriate contract documents, on those subcontractors. The Design Authorities assure that the design documents prepared by subcontractors conform to the established technical baseline.

7.2 Systems Engineering

A focused Systems Engineering approach is used to develop an integrated technical baseline for the SNF Project and to augment Project Operations, Project Management, and Project Controls. The Systems Engineering discipline is used by the SNF Project to define and manage project requirements, allow effective management of risk, assure project efficiency, support informed decision-making, and to verify that products and services meet customer needs.

The role of Systems Engineering within the SNF Project is to ensure that the mission and scope of the project are well defined, that the functions necessary to accomplish the mission are identified, and that the requirements that must be met by each of the Project's functions are identified. The functions and requirements are the platform on which the technical baseline is constructed for the entire project.

7.2.1 Interface Control

In order to assure a consistent interface between different functions and physical features of the Project, and to assure a sound system that meets regulatory requirements, it is necessary to control the interfaces. Interfaces of physical or functional features between the SNF Project and external entities, between SNF subprojects, and between SNF subprojects and SNF Facilities are controlled in accordance with AP EN-6-021, *Interface Control Process*.

7.3 Configuration Management

As discussed in Section 2.2, the SNF Project Configuration Management process is the process that documents the functional and physical characteristics of the SNF Project during its life cycle, controls changes to those characteristics, and provides information on the status of change actions. The systems, facilities, and processes that define the technical and operational characteristics of the SNF Project are maintained under configuration control. Specific requirements are identified in HNF-SD-SNF-CM-001, *SNF Project Configuration Management Plan*, and are implemented through the Project APs.

Specific elements related to Configuration Management are identified below.

7.3.1 Component Identification and Labeling Control

Administrative requirements and process for the control and accuracy of the Job Control System (JCS) component index database are covered in AP EN-6-005, *Engineering Component Identifier and Labeling Control*. This process ensures that labels in the field are consistent with the component numbers on H drawings and that each component has a unique component number, standardized nomenclature, and is easily understood by facility personnel. This procedure also covers the labeling of piping along with the temporary labeling of components and piping.

7.3.2 Vendor Information

AP EN-6-026, *Vendor Information Requirements*, defines the requirements and process for the identification, receipt, acceptance, tracking, distribution, revision, and filing of documents provided by vendors.

7.3.3 Supporting Documents

AP EN-6-025, *SD Issuance and Change Control*, documents the requirements for the identification, preparation, approval, release, revision, and accountability of supporting documents (SDs).

7.3.4 Engineering Change Notices

AP EN-6-039, *Engineering Document Change Control*, defines the requirements associated with the development, review, approval, release, and incorporation of changes to approved and released engineering documents through the use of the ECN.

7.4 Nuclear Safety Management

The SNF Project has established a rigorous Nuclear Safety Management process that meets applicable DOE and regulatory requirements. The Nuclear Safety Management process is designed to meet the requirements of DOE 5480.21, *Unreviewed Safety Questions*; DOE 5480.22, *Technical Safety Requirements*; DOE 5480.23, *Nuclear Safety Analysis Reports*; DOE 5480.24, *Nuclear Criticality Safety*; and 5481.1B, *Safety Analysis and Review System*.

Engineering, through its Nuclear Safety Group, provides coordination and integration of the SNF Project nuclear safety program by interfacing with other SNF Project organizations, FH, and RL. Nuclear Safety reviews external standards, statutory regulations, and various nuclear safety directives for specific SNF Project facilities applicability and reviews, and approves nuclear safety documents as they relate to SNF Project facilities.

Engineering is responsible for preparing safety analysis documents for the SNF Project, and submitting those documents for approval as required. This includes new SARs and TSRs, revisions to those documents, and annual updates.

Nuclear Safety supports the SNF Project and Operations managers relative to Final SAR (FSAR) and TSR compliance implementation and manages the Unreviewed Safety Question (USQ) process, supports USQ evaluations, and prepares closure documentation. Proposed activities, reportable occurrences, and issues are screened or evaluated with the USQ procedures as defined below.

7.4.1 Nuclear Safety Program

The SNF Project Nuclear Safety Program is described in the PHMS Topical Area, *Nuclear and System Safety*, and the AP Topical Area, *Nuclear and System Safety*.

7.4.2 Unreviewed Safety Questions

The SNF Project employs a robust USQ screening process, as described in AP NS-4-001, *Unreviewed Safety Questions*. The function of the USQ review process is to determine the approval authority (i.e., Manager RL or SNF Project) for proposed activities. The USQ process allows the SNF Project to make physical and procedural changes and conduct tests and experiments without prior RL manager approval as long as these changes do not explicitly or implicitly affect the authorization basis of the facility or result in a TSR change. RL involvement and approval is required for activities associated with a USQ and TSR change. Proposed activities determined through the USQ review process, to be bounded by the authorization basis, do not require RL manager approval.

7.4.3 Plant Review Committee

The SNF Project has established a Plant Review Committee (PRC) to manage the facility's authorization basis. The PRC is a group of trained USQ evaluators, which operates in conformance with AP NS-4-019, *Plant Review Committee*, and the USQ process. The PRC identifies, establishes, and manages the SNF facilities authorization basis and recommends to RL if potential USQs exist.

7.5 Design Baseline

A design baseline is comprised of the technical constituents that describe the physical attributes and functions of the SSC. The Design Authorities for each system in SNF Project facilities are responsible for establishing the design baseline for their systems.

7.5.1 Design Authorities

The Design Authorities have the responsibility to maintain their design baseline consistent with the physical configuration of the SSC the baseline represents and to ensure that the design baseline is technically correct and meets design requirements. Maintaining the design baseline includes approving modifications to an existing design baseline or establishing a new one.

Qualified Design Authorities supporting SNF Subproject Managers are assigned by the Chief Engineer to define requirements and ensure the technical adequacy of the SNF Project facility SSC. Design Authorities ensure that the Project SSC meet Project requirements. Engineering provides up-front and ongoing support to subprojects by developing processes utilized for implementing SNF Project mission requirements, performing technical work necessary to resolve issues and make decisions, and developing safety basis documentation to guide the design effort.

Qualified Design Authorities are assigned to support the operating facilities, and work with the Engineering Managers at each facility to assure the ongoing technical adequacy of each facility. The responsibilities of Design Authorities are covered in HNF-PRO-1819, *PHMC Engineering Requirements*, and AP EN-6-004, *Engineering Personnel Qualifications, Appointments, and Responsibilities*.

7.5.2 ECNs

The SNF Project design baseline documents under Hanford Site document control are revised with an ECN. ECNs are performed in accordance with Section 7.3.4. The ECN process provides a formal method for assuring modifications are controlled and reviewed to an appropriate level of rigor, and are approved by the Design Authority.

7.6 Process Management

The purpose of the SNF Project is to construct processing and storage facilities to move the fuel in K Basins to dry storage. This Project is based on a technical basis that supports facility design and safety bases for construction and operation. In addition, controls are required during production operations to maintain process technical and quality requirements. Engineering has in place functions to address these requirements as well as managing issues associated with them.

7.6.1 Process Technical Basis

Process Engineering has the responsibility for developing and maintaining the process technical basis. The process technical basis is contained in the Project Level 0 and Level 1 Process Flow Diagrams (essential drawings), SNF Project Technical Databook and supporting documents, and the SNF Project Fuel Product Specification. Process Engineering has the responsibility to perform the required engineering studies and calculations to develop these documents, and then maintain them current for the SNF Project.

7.6.2 Technical Issue Management

Engineering has the responsibility for the SNF Project to identify, evaluate, and resolve Project-wide technical issues. Priorities on project-wide issues are established by Engineering, in conjunction with SNF Project Management, and focus and direct management attention and technical resources on resolution of those issues. Engineering documents closure of technical issues to assure that adequate basis for decision-making is available. Engineering supports other SNF organizations by providing resources and providing studies, calculations, reports, or designs as necessary to resolve subproject level technical issues.

7.6.3 Process Control

The process control function provides engineering cognizance of the production campaigns for fuel and MCO processing. It provides this through on-floor process engineering support for each facility and a central process control group for integration of process requirements and process issue resolution. This group issues Travelers that provide instructions from process campaign strategies and compile the quality records required for fuel cleaning, drying, and storage. There are also a number of special processes, e.g., fuel cleanliness and MCO dryness, which can only be shown to meet their technical basis by demonstrating control of the process, has been maintained. This group provides the control functions for special processes. It is responsible for process related non-conformance resolution and support compilation of MCO Data Packages.

7.7 Engineering Requirements

7.7.1 Engineering Process

The SNF Project engineering process is described in AP EN-6-030, *Engineering Process*. This procedure includes a roadmap of Engineering APs providing compliance with HNF-PRO-1819, *PHMC Engineering Requirements*. These requirements begin with recognition of need for engineering support followed by planning for the design work. The design cycle begins with the selection of design inputs. Design inputs are those criteria, parameters, bases, and other design requirements upon which the design output is based. Design inputs are from previously approved documents such as codes and standards, F&R documents, and design specifications. Using analyses, calculations, as low as reasonably achievable (ALARA) design goals, and engineering studies, design inputs are translated into design outputs. Qualified design inputs are not always available to support the design when information is required; therefore, technical assumptions must be used for the design process to proceed. Design control is maintained by tracking the assumptions and the design outputs resulting from their use until the assumption is validated or qualified input is obtained and the design is revised.

Design verification is performed in accordance with AP EN-6-027, *Design Verification Process*. Appropriate design verification methods are selected based on a grading process to ensure that the SSC satisfactorily performs its intended function, that failure modes and hazards have been considered and accounted for in the design, and that the SSC as installed and operated does not adversely impact other SSC. Design verification is performed as early in the design process as practicable, but in all cases performed prior to relying on an item to perform its intended function. Design verification is performed on original designs and on revisions or modifications to designs. Design verification is performed on a package of related design outputs; however, in cases of revisions or modifications, design verification is performed on only the revised design output to verify the results are consistent with the original design.

Changes to the design baseline and released design inputs or outputs are controlled in accordance with AP EN-6-039, *Engineering Document Change Control*. Integrity of a design package is preserved through a disciplined configuration management process.

Procurement of engineered items and engineering services are performed in accordance with AP AQ-1-025, *Procurement Document Control*, and AP AQ-1-030, *Purchased Items and Services*. SNF Project Engineering is involved in the vendor selection process. A supplier's design work is conducted in accordance with the supplier's QA program, and based on requirements specified by the buyer's technical representative (BTR) in the SNF Project. Supplier evaluation is an integral part of the procurement cycle involving feedback from the Engineering managers on contractor performance.

7.7.2 Engineering Calculations

AP EN-6-010, *Calculations*, establishes the requirements and process to be used for the preparation, documentation, review, approval, and retention of design and safety-related calculations. For inputs to calculations requiring usage of physical properties and/or derived physical quantities related to fuel behavior and material parameters, the SNF Project Technical Databook (HNF-SD-SNF-TI-015) is used as the source for those quantities available in the Databook Parameter Summary Tables.

7.7.3 Engineering Documents

Engineering documents include F&R documents, specifications, drawings, calculations, engineering studies, engineering and design reports, ECNs, ALARA design documents, and safety basis documents as required to support the subprojects or operations activities. Engineering documents are produced in accordance with the following procedures:

- AP EN-6-006, *Engineering Drawing Requirements*
- AP EN-6-011, *Engineering Specifications*
- AP EN-6-025, *Supporting Document Issuance and Change Control*
- AP EN-6-029, *Development and Maintenance of Safety Equipment Lists*
- AP EN-6-034, *Functions and Requirements*
- AP EN-6-039, *Engineering Document Change Control*
- AP EN-6-042, *Development of System Design Description*

In addition, Engineering identifies, evaluates, and resolves issues that encompass multiple subprojects, and are potential cost and schedule drivers. Closure of technical issues is managed in accordance with AP EN-6-022, *Technical Issue Closure*.

7.7.4 Training and Qualification

DOE Order 5480.20A, *Personnel Selection, Qualification, and Training Requirements for DOE Nuclear Facilities*, specifies the training requirements that must be included in nuclear safety training and qualification programs. The objectives are to ensure the development and implementation of contractor-administered training programs that provide consistent and effective training for personnel at DOE nuclear facilities. In addition, there are OCRWM requirements (DOE/RW-0333P, *U.S. Department of Energy Office of Civilian Radioactive Waste Management Quality Assurance Requirements and Description for the Civilian Radioactive Waste Management Program*, Section 2.2.12 and 2.2.13) for personnel who perform OCRWM-related work within the SNF Project.

The SNF Project Chief Engineer has established a process to qualify engineering personnel. This process is described in APs TN-8-007, *Technical Staff Training Program Description*; TN-8-027, *Test Personnel Training Program Description*; and ENG-DI-012, *Engineering Qualification*.

7.8 Construction Project and Facility Support

Engineering provides support to the subprojects during each of the three phases: pre-conceptual, conceptual, and execution. In the pre-conceptual phase, typically, an engineering study is performed to identify a preferred alternative. A major goal of conceptual engineering and design is to define a scope of facilities (that achieves defined technical objectives), which is sufficiently detailed to support development of cost and schedule baselines. The preferred configuration and final basis for design is documented during the conceptual phase in the technical baseline document. In the execution phase, preliminary engineering and design builds on and develops the preferred configuration and final basis for design that were established during the conceptual phase. These three phases are described in HNF-PRO-1998, *Construction Program Pre-Conceptual Activity*, HNF-PRO-1999, *Construction Program Conceptual Phase*, and HNF-PRO-2000, *Construction Program Execution Phase*.

Engineering provides support to operating facilities, to assure conformance between facility operations and the technical baseline. In addition, specific engineering activities for the Project and facility support are described below.

7.8.1 Subproject/Construction Support

Qualified Design Authorities are assigned to support SNF Subproject Managers, to define requirements, and ensure the technical adequacy of the SNF Project facility SSC. Design Authorities ensure that the Project SSC meet Project requirements. Engineering provides up-front and ongoing support to subprojects by developing processes to be utilized for implementing SNF Project mission requirements, by performing technical work necessary to resolve issues and make decisions, and by developing safety basis documentation to support the design.

Engineering participates in constructability reviews, field walkdowns, verification of design compliance, and inspection activities for the SSC to assure that systems are in compliance with applicable requirements documents such as F&Rs, Permits, S/RIDs, and authorization basis documents. Engineering leads the development of factory, construction and preoperational acceptance tests.

7.8.2 Facility Operations Support

Qualified Design Authorities and Cognizant Engineers are assigned to the operating facilities, to develop and maintain in-depth knowledge of system design, performance, and current condition through regular system walkdowns, system performance reviews, and communications with SNF Project Operations and Maintenance personnel. Process flow diagrams and technical manuals are developed and integrated with crosscutting calculations for multiple SSC. Engineering prepares and maintains current system design descriptions, drawings, technical baselines, and safety basis documents.

Cognizant Engineers, in conjunction with operating facility management, are responsible to ensure that systems are operable within the existing safety authorization basis and to support necessary updates to the authorization basis documents. Engineering screens USQs and prepares evaluations for action as necessary.

Engineering designs, recommends, selects, and specifies new plant equipment and modifications to plant equipment and systems to support facility and system operation. Engineering will provide engineering expertise for plant walkdowns to ensure safe and effective implementation of maintenance upgrades and plant modifications, as well as provide engineering support for work package preparation, execution, and closeout.

7.8.3 Commercial Grade Item Upgrade

AP EN-6-035, *Dedication of Commercial Grade Items (CGIs)*, defines engineering, procedural requirements, and processes associated with the upgrading the new and replacement commercial grade items (CGIs) in the SNF Project facilities. Dedication of CGIs is an elaborate process employed in upgrading the CGIs when used as SSC in safety class (SC) and safety significant (SS) function applications. This procedure is applicable to the CGIs identified during the following applications:

- The engineering design and specification process
- After specification, procurement, and receipt
- New, replacement, spare parts, and equivalent items
- The dedication process as applied to engineered equipment

7.8.4 Acceptance for Beneficial Use

Near the end of the project execution phase and in transitioning to operations, essential documentation needed to operate and maintain the SSC is provided by the subprojects to Operations. Facilities engineering provides a valuable service in ensuring that necessary activities, documentation, and associated processes are complete for a subproject before it is turned over for use to the operations. AP CS-6-019, *ABU Checklist – SSCs*, describes requirements, responsibilities, and process for this turnover.

7.8.5 Redlines

Redlining of essential drawings is normally used in cases where it is necessary to have the essential drawings quickly revised to reflect the new configuration of the facility so that a system, essential to the safe operation of the facility, may be returned to service. This applies to SNF Project essential drawing prints provided to operations and maintenance for use in the plant. EN-6-006, *Drawing Requirements*, describes this process in detail.

7.8.6 Walkdowns

Walkdowns are conducted to supplement the field verification program. The documented field verification program verifies, by means of field inspection and design verification, that the selected drawings describe the actual hardware configuration of the SSC. The field verification program documentation supports the as-building process or re-verification of design baseline documents for existing facilities. AP EN-6-012, *As-Built Verification Process*, describes the process in detail.

7.8.7 Fire Protection

Engineering conducts the fire protection program for the SNF Project in accordance with APs FP-4-014, *Fire Protection*; FP-4-017, *Fire Protection Design Criteria*; and FP-4-018, *Construction and Decommissioning Fire Protection Criteria*. These APs implement DOE 5480.7A, *Fire Protection*, and RLID 5480.7, *Fire Protection*, requirements identified by the SNF S/RIDs.

SNF Project technical procedures will address inspection and testing requirements identified by PHMS procedures, specifically HNF-PRO-351, *Fire Protection System Testing/Inspection and Maintenance*, to be performed by the facilities. All other inspection, testing and maintenance requirements and needs are performed by the Hanford Fire Department (HFD) according to the Facility Operations Interface Agreement between the SNF Project and the HFD.

The SNF Project Fire Protection Cognizant Engineer is a qualified fire protection engineer meeting the criteria of DOE 5480.7A and is the fire protection contact for the buildings for which the SNF Project is responsible. The SNF Project fire protection contact performs those functions specified by AP FP-4-104, *Fire Protection Program*.

7.8.8 Procurement/Contracts Interface

Design Authorities and Cognizant Engineers work with procurement and contracting personnel to describe and define the interfaces required to work with vendors and suppliers utilized by the SNF Project. Design Authorities and Cognizant Engineers support the vendor selection process by preparing the technical portion of Requests for Proposals (RFP), providing technical review of vendor proposals, and providing technical scopes of work for contracts.

Supplier and contractor documentation are specified and reviewed by Engineering to determine compliance with project criteria, specifications, and referenced codes and standards. Engineering participates in equipment and material inspection activities that occur during the procurement and contracting phase, as identified in approved inspection plans.

8.0 CONTRACTING

8.1 Organization and Responsibility

The SNF Project Contracts Manager supervises contracting and procurement activities on the Project. The organizational charter is shown in Appendix C. The Contracts Manager is responsible for oversight of the preparation and issuance of authorized contracts and material requests. The SNF Project Contracts Manager has Contracting Officers authority to approve and execute contracts on behalf of the SNF Project.

The Contracts Manager delegates Contracting Officers authority to Contract Administrators, as appropriate; assigned contracts administrators participate in the formulation of plans and the overall management of contract and material request packages.

8.2 Contracting Plan

Procurement acquisition plans are developed as necessary to support specific major SNF Project acquisitions.

8.3 Contract Administration

The Contracts Manager and the contract administrators are responsible for administering the contracts and material requests, from the RFP stage to contract closeout. Contract management is conducted in accordance with applicable PHMS procedures found in *Topical Areas, Acquisition and Contract Management*, which include the following activities:

- Monitoring the status and schedule progress of the subcontractors' performance during engineering, fabrication, and testing
- When necessary, evaluating and recommending techniques, strategies, and/or priorities to the subcontractors' management, which will optimize performance in support of contract requirements
- Assessing and assuring that the commitment of resources and facilities by the subcontractors is appropriate to meet contract requirements, and if not, developing plans for resolution of critical post-award performance deficiencies (such as, applying technical or management resources, re-evaluating subcontractor capability, implementing remedies or other recommendations as appropriate)
- Participating in the project contracting philosophy and subsequent contract schedule and overall contracting plan

- Developing more detailed individual contract plans for utilization by involved disciplines
- Performing detailed area resource surveys of contract capability for the work involved
- Preparing Project proposers list and obtaining approvals as required
- Ensuring contract files are maintained in accordance with Project APs
- Preparing and developing contract proposal packages based on job requirements and engineering data
- Establishing negotiating strategies
- Holding proposal explanation meetings for appropriate scopes of work (including required jobwalks) to ensure proposers understand the scope of work/services to be provided
- Receiving and evaluating proposal documents in a fair and ethical manner, in cooperation with the Cognizant Engineer, including technical evaluation
- Ensuring security of pricing information
- Making appropriate recommendations and coordinating contract award
- Preparing and executing contract documents
- Holding jobsite meetings with the subcontractors as necessary to monitor progress and contract compliance
- Managing assigned contracts, including documenting changes to the contract and processing subcontractor invoices in a timely manner
- Setting the goal of zero subcontractor claims, not including normal and acceptable changes
- Preparing monthly contract status reports
- Coordinating final acceptance of work and associated payments
- Evaluating subcontractor performance at contract completion.

8.4 Performance Incentives

Contractually, the PHMC Contractors have placed the ability to earn fee at risk based on actual performance toward meeting RL expectations. SNF Project performance is tracked, documented and managed annually through the establishment of specific PIs.

The PIs identified for the Project are priority areas in the execution of the Project that are considered essential to success and support the project. The PIs are cascaded through the Project via Performance Objective, Measures, and Expectations. Performance Measures focus on demonstrating progress towards achieving the PIs. A monthly status report is used to track progress toward achieving each performance expectation.

PIs are developed and proposed by the Project, negotiated with DOE, and documented by FH Contracts in an annual *Performance Fee Plan*. PI-related documents are formal contract documents between RL and the PHMC and are maintained under rigorous change control. Once signed, any change to a PI requires approval of the FH and DOE Contracting Officer. The *Performance Expectation Plan* is re-negotiated on an annual basis at the end of each FY.

The Project's management approach to PIs is as follows:

- PIs are proposed and negotiated through FH
- Each PI/expectation is assigned an owner within the SNF Project
- The draft PI Completion Matrix is prepared by the owner for each PI
- A Fragnet schedule is developed by the owner from the project baseline schedule for each PI
- Each PI, initial draft PI completion matrix, and Fragnet schedule are reviewed with RL sponsors at the beginning of the FY to establish initial alignment with the RL
- Performance against the Fragnet schedule is reported monthly for each PI
- PIs are formally closed per HNF-PRO-357, Completion and Closure of Performance Agreements.

9.0 MATERIAL MANAGEMENT

Material Management services for the SNF Project consist of purchasing, expediting, supplier quality surveillance (SQS), traffic, logistics, field purchasing, and warehousing activities required for project execution.

Material Management will be integrated with engineering and construction to ensure that project execution will support the development of high-quality, cost-effective Contracts and Material Requests that support successful completion of the Project.

Procurement of goods and services shall be performed in an ethical manner, using sound business practices, from whatever sources provide maximum value for each expenditure, taking into consideration cost, schedule, delivery, quality, reliability, project requirements, PHMC procurement policies, and applicable laws and regulations.

9.1 Purchasing

The Project procures goods and services from qualified suppliers with documented quality systems that have demonstrated their ability to meet quality requirements. FH Acquisition Verification Services (AVS) maintains a list of approved suppliers for the Project.

Adequate planning is the single, most important determinate in reaching the objectives of successful Contract and Materials Management. Project Managers are responsible for procurement planning that is required for their respective project to be successful. Project procurement planning addresses the following activities, as a minimum:

- Ensure the engineering design is as complete as possible
- Ensure technical requirements are as complete as possible
- Identify the market to be procured from (local, global, etc.)
- Identify the key suppliers to be used on the project
- Establish RFP criteria consistent with Project requirements
- Establish procurement negotiating strategies
- Freight and transportation
- Spares philosophy
- Urgency and need for expediting or incentives.

The Contracts Manager is responsible for all contract activities on the Project. The duties are consistent with the PHMC Procurement Policies and Procedures and the staff is aligned with the following procurement functions:

- Maintain database of potential suppliers and their capabilities and experience, knowledge of various commodities, available manufacturers, and principal distributors and market trends. Develop an approved proposers list for contract actions that includes financially sound, reputable, and capable manufacturers and suppliers.
- Prepare, issue, and manage RFPs as a one-stop, cradle-to-grave, service to the SNF Project.
- Work with Engineering to prepare the technical portion of the proposal summary for engineered equipment.
- Forward alternative proposals that appear technically and economically attractive to engineering for review.
- Evaluate proposals and negotiate with suppliers. Consistent with PHMC Policies and Procedures, proposals may be evaluated on a basis other than price, including ratings for engineering, delivery, quality, execution, and safety.
- Prepare, issue, and administer Contracts and Material Requests; including verifying the accuracy of invoices, negotiating back charges for final settlement, and closing contract files.
- Complete supplier performance evaluations to provide additional proposal evaluation basis. The rating system takes into consideration engineering, delivery, quality, terms and conditions, execution, and safety.
- Maintain good supplier relations by consistently using fair and courteous treatment. To meet this criteria, the Project adheres to the following specific policies:
 - Suppliers are afforded equal opportunity and are required to compete on exactly the same terms as their competitors.
 - Prices and special information supplied by any suppliers are treated as business sensitive proprietary information and kept absolutely confidential.

9.2 Procurement of Safety Class/Significant Items and Services

SC and SS procurement contracts, except for CGI, are awarded only to suppliers on the FH evaluated supplier list (ESL) who have been formally evaluated and are qualified to provide such items or services and can meet the requirements specified in the SNF Project procurement documents.

Procurement of SC and SS items and services are in accordance with AP AQ-1-030, *Purchased Items and Services*. Control of related procurement documents comply with AP AQ-1-025, *Procurement Document Control*.

9.3 Expediting

The SNF Project contract administrators are responsible for expediting activities on the Project, unless the situation warrants the use of a dedicated outside expeditor, at which time a specific plan is developed. The contract administrators review and evaluate the subcontractor's understanding of procurement requirements, which can include drawing submittals, release-to-fabricate requirements, hold points, QA approval, test plan approval, and deliverables.

9.4 Acquisition Verification Services

FH QA in accordance with HNF-PRO-268, *Control of Purchased Items and Services*, provides the AVS program for the SNF Project, which ensures that the performance of suppliers is evaluated, and that the goods and services procured for the project meet the quality requirements. This includes the following activities, as a minimum:

- Review project documents regarding supplier QA requirements
- Perform surveillances at a supplier's (or their sub-supplier's) facility to examine equipment/material to ensure conformance to requirements, when requested
- Perform evaluations of the quality program at a supplier's facility to determine supplier acceptability when requested
- Develop and maintain the FH ESL
- Issue surveillance or evaluation reports in a timely manner. A nonconformance report is issued when work presented by the supplier as being complete is found to be deficient
- Interface with RL and supplier personnel to resolve supplier quality deficiencies

- Perform receipt inspection of items in accordance with approved inspection plans
- Conduct supplier Quality Alignment Meetings at a supplier's facility, when requested.

All AVS personnel maintain a high level of ethical conduct when dealing with suppliers, and make every effort to be proactive, so as to promote development of better supplier relations and to encourage a quality teaming process.

9.5 Traffic and Logistics

Most traffic/logistics services for the SNF Project are provided by Waste Management Technical Services (WMTS), who is responsible for transportation activities on the project. WMTS is accessed through the SNF Project Contracts Manager. WMTS activities include the following:

- Review Purchase Orders when required to determine any unique or exceptional shipments
- Conduct surveys of the ports of import and export, and develop costs for port demurrage and handling charges
- Establish export-packaging requirements
- Negotiate project shipping rates and charter agreements with carriers, and plan and arrange international courier/pouch service
- Determine import and customs clearance requirements and any national flag restrictions, and establish procedures to satisfy import documentation and license requirements or to request waivers
- Satisfy applicable governmental reporting requirements
- Satisfy project insurance requirements.

The Maintenance and Work Control organization retains a small work force to manage and expedite local material pick up and deliveries for day-to-day operations within the Project.

9.6 Field Procurement and Warehousing

DynCorp Tri-Cities Services, Inc. (DYN), who are accessed through the SNF Project Contracts Manager, provide the Field Procurement and Warehousing services for the SNF Project.

The procurement organization in the field is responsible for obtaining goods and services required by construction, which are not provided by the owner, home office procurement department, or a third party. Additionally, this organization may also be responsible for receiving, storing, controlling and disbursing owner, third party, and FH purchased material, equipment, tools, and supplies, and maintaining records related to these activities.

The warehousing group performs job-site warehousing functions, including receiving, storage and issuing of materials. Activities may also include handling of hazardous and toxic materials, outbound shipments, construction equipment control, tool and supply controls, special controls, and disposal of surplus and scrap.

9.7 Property Management

The SNF Project Operations organization controls and administers the physical assets for facilities of the SNF Project. This will be done in a manner that results in effective and efficient support of SNF Project activities.

The objective of property management is to adhere to the requirements for the acquisition, receipt, maintenance, protection, storage, movement, and disposition of real and personal property.

The property management program is implemented in accordance with the requirements defined within PHMS Topical Area, *Property Management*, and AP PM-3-003, *K Basin Material Control and Warehousing*.

10.0 MANAGEMENT OF PROJECTS

The complete scope of work for SNF Projects continues to evolve, through the baseline control process, as each subproject matures to completion. Additional work tasks may also be added to the SNF Project based on PHMC management decision regarding site-wide work. Specific SNF Project elements that are executed include:

- Cold Vacuum Drying (CVD) facility and associated process systems to dry the spent fuel
- CSB to provide facilities, systems, and equipment to handle MCOs, for MCO monitoring, sampling, and welding, as well as interim storage of the spent fuel

10.1 Project Planning/Strategy

Project activities are aligned and managed under the direction of dedicated “subproject” teams, each lead by a dedicated Project Manager. These are listed below with a brief description of assigned project activities:

Subproject Team	Project Activities	Management Strategy
CVD	Design and construct a green-field facility and associated process systems.	Contracting of design and construction activities through subcontract with onsite contractor. Self-procurement of major equipment systems.
CSB	Design and construct new facility with associated MCO handling system and sampling and welding equipment.	Construction management through sub-contract with onsite contractor. Self-procurement of major equipment systems.

10.2 Matrix Support to Project Managers

Matrix support is under the direct control of Project Managers. This includes, but is not limited to, approval of assignments and reassignments of matrix support personnel. Specific matrix support requirements are listed in the following sections.

10.2.1 Engineering

The SNF Project Chief Engineer provides engineering and technical personnel resources, as specified in Section 7.0, *Engineering*, necessary to successfully execute project commitments. This includes both dedicated and support personnel. Technical support staff is assigned as necessary to resolve Technical Issues, as required by the Subproject Managers. In the event that existing staff cannot provide engineering resources, the Chief Engineer secures support from other PHMC, sub-contractor, or contracting sources.

10.2.2 Nuclear Safety

Nuclear Safety provides engineering and technical personnel resources as specified in Section 7.0, *Engineering*, necessary to successfully execute project nuclear safety commitments. This includes both dedicated and support personnel and includes:

- Technical support staff for the development and maintenance of the FSARs and TSRs, as well as any other required safety/authorization basis documentation.
- Technical support staff to respond to specific safety/authorization basis technical issues and support planning, design, development, procurement, construction, testing, and turnover, Management Self Assessment (MSA), and Operational Readiness Review (ORR) activities.

10.2.3 Subcontracting and Procurement

Project Managers are responsible for establishing the priority of Contracting and Procurement services and actions on their projects. The SNF Project Contracts Manager provides contract support for both PHMC and associated subcontracts as well as contract support necessary to execute Project commitments as provided in Section 8.0, *Contracting*, and Section 9.0, *Material Management*. This includes, but is not limited to, dedicated procurement and contract management personnel to develop, execute, and manage required procurement actions.

The assignment of dedicated BTRs to each procurement action is the responsibility of the Project Managers.

Materials and equipment are requisitioned/procured by project personnel in accordance with the project procurement plan. Materials and equipment are received, inspected, and distributed in accordance with the purchase order and schedule requirements.

10.2.4 Project Controls

The Manager of Project Controls assigns/reassigns dedicated personnel to support each Project Manager. Decisions, actions, and impacts affecting the Project baseline or execution thereof are subject to the approval of the cognizant Project Manager.

10.2.5 Quality Assurance and Acceptance Inspection

The Construction Projects organization is responsible for the implementation of applicable QA requirements consistent with the programmatic guidance of the SNF Project QA Manager. QA shall assign dedicated personnel to support each Project Manager.

Oversight shall be provided to “managed-resource” activities as necessary to verify implementation of the QA/QC program consistent with the Project QA plan described in Section 12.0, *Quality Assurance*.

Collectively it is the responsibility of SNF Project management to ensure that the appropriate level of QA requirements are being planned, that applicable guidance is appropriately interpreted and communicated, and that QA requirements and practices are effectively implemented. SNF Project management shall also ensure that the appropriate level of QA requirements are defined and transmitted to other organizations that are performing activities within the SNF Project.

The independent government QA inspection of SNF Project Construction functions is provided by the AI organization. The AI organization is responsible for assuring that project quality requirements are satisfied in accordance with the design documents, specifications, and acceptance inspection plans.

Specific AI organization responsibilities are defined in RL letter, 97-PMD-055, *Contract No. DE-AC06-96RL13200 - Inspection of Construction Procedures*, dated August 25, 1997, and HNF-PRO-2000, *Construction Program Execution Phase*.

10.2.6 Startup/Production Integration

The Startup/Production Integration organization is responsible for reviewing the constructing testing activities, performing the pre-operational tests for newly constructed SSC and overseeing ORR preparations.

10.3 Verification and Validation

Verification and validation involves a formal process to confirm that SSC meet expected design and functional performance criteria. On this project, design verification is the responsibility of the Engineering Design Authorities as described in Section 7.5.1, *Design Authorities*.

10.4 Interface with Operations

Section 16.5, *Interface with Construction Projects Organization*, defines the Operations organization process for conducting facility modification or equipment installation work for the operational facilities in the K Basins. The Construction Projects organization works closely with Operations to ensure continuity of operations and to avoid delay in Construction Project execution. These requirements extend to the CSB and CVD facilities as construction transitions to operations.

10.5 Safety, Health, and Environmental Compliance

Project Managers manage assigned SNF Project activities in a manner to protect the health and safety of the environment, workers, and the public as specified in Section 14.0, *Safety, Health, Emergency Planning, and Environment*. Safety and Environmental Compliance assign dedicated personnel to each Project Manager.

10.6 Operability and Maintainability

Operability and maintainability are critical to minimizing risks to fuel movement operations and storage. Continuous dialog and cooperation between the Construction Projects organization, Operations, Engineering, and Procurement is essential.

10.6.1 Warranty Management

FH has no direct warranty obligation to RL for the SNF Project. Warranties have been specified and procured for several systems and components, as specified in individual supplier contracts. The warranty program requires close coordination with Engineering, Procurement, and Operations. The Construction Projects organization is responsible for central coordination of the warranty program during construction, testing, procurement, and transition to Operations.

10.6.2 Spare Parts Program

The Construction Projects organization is responsible for development of spare parts requirements and initial inventory procurement. This is accomplished by working with Design Authorities, Cognizant Engineers, Operations, Procurement, and equipment suppliers.

Lists are provided for each major piece of equipment and document the recommended spare parts for one year of operation and maintenance. Each list references the equipment it pertains to, the manufacturer, and the manufacturer's part number for each part.

The Maintenance and Work Control organization is responsible for the receipt, storage, inventory, maintenance, distribution, and replenishment of spare parts.

10.6.3 Tooling

Many of the systems and components procured for the SNF Project are unique one-of-a-kind items and require special tools for operations and maintenance. The Construction Projects organization, working with Design Authorities, Operations, and Procurement centrally manages the development of requirements and the procurements of special tools. The Maintenance and Work Control organization centrally controls and maintains special tools.

10.7 Training

Project direct, shared, matrixed, and contract staff fulfill training requirements as specified in the SNF Projects Training Plan. In the case of staff matrixed from functional organizations (e.g., Engineering, Nuclear Safety, QA, ES&H, Contract), the training requirements are integrated into applicable training plans managed by the functional managers.

10.8 Turnover

Turnover of new SSC and modifications or upgrades to existing SSC is executed as defined in Section 15.0, *Start-up Testing, Turnover and Acceptance*. Turnover is executed in a manner that:

- Is consistent with the approved project baseline (scope, budget, schedule)
- Ensures that Operations has the essential documentation needed to operate and maintain the provided SSC

- The Construction Projects Organization will be eliminated when major construction activities are completed; remaining construction activities will be managed through Operations.

11.0 EXTERNAL INTERFACE AND COMMUNICATIONS

The SNF Project clearly identifies objectives, responsibilities and approaches for conducting effective communications with external stakeholders and our employees. The SNF Project communicates on a regular basis with personnel who represent the interface organizations as shown in Section 11.1.

SNF Project communications are used to effectively enhance communications throughout the SNF Project. The purpose of these actions is to increase overall morale, improve safety communications, and to provide a simple means of quickly disseminating Project announcements, policies and changes.

The objective of communication is to effectively manage external and employee communications. The desired outcome is to attain accurate perception of Project performance, issues, successes, and failures and to reduce the burden of excessive oversight and other externally imposed burdens. Effective communications also contributes to fulfilling the Project's responsibilities to its employees and as a "good neighbor" within the region.

11.1 Interface Organizations

Provided below is a brief description of the interface organizations and opportunities for communication with each.

11.1.1 U.S. Environmental Protection Agency

The EPA's primary role at Hanford and for the SNF Project is management and oversight of the cleanup mission through the Tri-Party Agreement. Cleanup of the K Basins is governed under Tri-Party Agreement Milestone M-34-00. The EPA is the lead regulatory agency for the SNF Project and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) is the statutory authority under which cleanup of the fuel, sludge, debris, and water in the K Basins is conducted.

The EPA also maintains control of the National Emission Standards for Hazardous Air Pollutants (NESHAP) program, which regulates air emissions (non-radioactive) under the Clean Air Act (CAA). The Notice of Construction (NOC) describes how air emissions are controlled from the K Basins, CVD, CSB, and miscellaneous support activities. The SNF Project prepares NOCs and RL submits them to EPA for approval.

EPA, along with Ecology, periodically conducts multi-media inspections of activities covered by environmental regulations at the Hanford Site. The activities include activities covered by the Tri-Party Agreement and activities outside the scope of the Tri-Party Agreement. Various statutory authorities form the basis for these inspections (e.g., Resource Conservation and Recovery Act of 1976 [RCRA], Toxic Substance Control Act of 1976 [TSCA], CERCLA, CAA, Clean Water Act [CWA], and Safe Drinking Water Act [SDWA]). These inspections have been infrequent and have not been focused on the SNF Project. Fines and penalties for non-compliance with regulatory requirements may be assessed.

The SNF Project maintains numerous interfaces with RL and EPA, some of which are routine meetings (e.g., quarterly Tri-Party Agreement milestone reviews, weekly management interface meetings, etc.). Others are on an as needed basis, such as interfaces during Tri-Party Agreement milestone negotiations, inspections, or technical/policy issue resolution. The parties maintain frequent, informal dialog and early notification on issues to foster a positive working relationship.

11.1.2 Washington State Department of Health

The Washington State Department of Health (WDOH) is responsible for oversight of radiological air emissions from SNF Project facilities. The NOCs describe how air emissions are controlled and monitored at the K Basins, CVD facility, CSB, and miscellaneous support activities. The SNF Project prepares the NOCs and RL submits them to WDOH and EPA (as applicable) for approval. The EPA maintains approval authority over K Basins NOCs, as the K Basins are covered under the CERCLA action. The EPA depends on WDOH as a technical resource and typically follows WDOH's recommendations. The process used for K Basins emissions is described further in DOE/RL-99-89, *Remedial Design Report and Remedial Action Work Plan for the K Basins Interim Remedial Action*. The WDOH has authority over NOCs for the CVD facility and the CSB (WAC 246-247). Primary interface opportunities consist of biweekly routine technical exchange meetings and dialogue on specific technical and policy issues pertaining to radiological air emissions. The WDOH and EPA also conduct inspections of radiological air emissions sources on a periodic basis. Fines and penalties for non-compliance with NOC requirements may be assessed.

11.1.3 Washington State Department of Ecology

Ecology is responsible for oversight of hazardous waste activities at the K Basins under the State of Washington Dangerous Waste Regulations (WAC-173-303). The Dangerous Waste Regulations are the state's authorized program that operates in lieu of the Federal program, the RCRA. The active SNF Project facilities are not considered "treatment, storage, or disposal facilities" for dangerous waste, so these facilities and operations are not subject to the Hanford Site-Wide Dangerous Waste Permit. However, a small amount of dangerous and mixed waste are generated at the K Basins, so this facility is subject to WAC-173-303 requirements regarding less than 90-day accumulation and storage of waste. Substantive requirements of the Dangerous Waste Regulations are met, as described in DOE/RL-99-89, *Remedial Design Report and Remedial Action Work Plan for the K Basins Interim Remedial Action*.

The SNF Project interfaces with Ecology on issues such as waste designation (e.g., basin sludge), development of data quality objectives and sampling and analysis plans, closure of inactive facilities (e.g., 1706-KE Waste Treatment System), and transfer of debris and other waste from the K Basins to the Environmental Restoration Disposal Facility. Interface also occurs during quarterly Tri-Party Agreement milestone review meetings, dangerous waste generator inspections, and multi-media inspections with EPA.

11.1.4 Defense Nuclear Facilities Safety Board and Board Staff

Under its enabling statute (Public Law 100-456), the DNFSB is responsible for independent, external oversight of all activities in DOE's nuclear weapons complex affecting nuclear safety. The Board reviews operations, practices, and occurrences at DOE's defense nuclear facilities and makes recommendations to the Secretary of Energy in the areas of public health and nuclear safety. In the event Board reviews disclose an imminent or severe threat to public health and safety, the Board is required to transmit its recommendations directly to the President, as well as to the Secretaries of Energy and Defense. DNFSB Staff members, including Hanford on-site representatives, assist the Board in these activities through observation and communication with DOE and contractor personnel.

Interface opportunities consist of close communication with the DNFSB Staff on-site representatives and meeting with one or more staff members from Washington D.C. on specific technical issues on a periodic basis. The SNF Project technical staff provides input to RL to support a weekly teleconference with DNFSB Staff, based on specified agenda topics and supplies information requested by the Staff. The Board also visits the Hanford Site once or twice a year and generally holds a public meeting, at which the SNF Project and other Hanford projects are discussed.

11.1.5 Independent Review Panel

During the initial development and approval of the SNF Project SARs, the DOE's SNF regulatory policy specified that an Independent Review Panel (IRP) be formed to provide periodic high-level external oversight to SNF Project activities. The IRP charter was to advise the Manager of RL regarding the effectiveness of the SNF Project pursuant to implementation of the DOE policy for spent nuclear fuel. The IRP was comprised of three members, external to the DOE complex. These individuals had broad technical backgrounds and were selected for their professional stature, technical capability, and experience applicable to the SNF Project. In the process of fulfilling their charter, the IRP members conducted interviews, reviewed and commented on nuclear safety documents, and attended presentations by staff and management from RL and the SNF Project.

The IRP members conducted their oversight as a concurrent activity to the establishment of nuclear safety regulatory requirements and consistent with the SAR preparation process. The IRP members met with RL, DOE, and contractor personnel from the SNF Project on a recurring basis to keep abreast of the SNF Project activities. From time to time, DOE identified further activities or areas that the IRP reviewed. Analysis, conclusions, and approvals provided by the IRP within the context of its chartered responsibilities were made within the time allotted by the SNF Project schedule.

Specifically, the IRP was chartered to:

- Review, comment upon and approve the SNF Regulatory Strategy document
- Evaluate and approve WHC-SNF-DB-003, *Regulatory Requirements Document* for Nuclear Regulatory Commission (NRC) Equivalency
- Evaluate and concur with SAR and Safety Evaluation Reports (SER) that were prepared for the SNF Project
- Concur with the safety authorization basis for final approval to operate the SNF Project facilities and activities.

The IRP's principal point of contact was the RL SFO Director, with support from the SFO liaison to the IRP. The Director, SFO designated additional staff to interface directly with the IRP. The Manager, Regulatory Interface & Technical Support, was the Contractors primary point of contact to interface with RL on IRP matters.

11.1.6 Regulatory Requirements Team

During initial development and approval of the SNF Project SARs, the regulatory strategy included a Regulatory Requirements Team (RRT) established for the SNF Project. The RRT was comprised of individuals from RL's SFO and the DOE Office of Nuclear Material and Facility Stabilization (EM-60). EM-60 membership included one individual from the Northwest/Oak Ridge/Chicago Office (Richland Policy, Planning and Evaluation Team [EM-65]) and one individual from the National Spent Fuels Program Office (EM-67). DOE membership also included one representative from the Assistant Secretary for Environment, Safety and Health, Office of Engineering Assistance and Site Interface (EH-34). An individual appropriately designated by the SNF Project Director was also included on the team. The RRT was chartered with the responsibility of identifying, concurring on, and adopting the appropriate nuclear safety and other specific issue-related requirements that applied to the SNF Project. The RRT met using video teleconferencing as the meeting forum as necessary for the purpose of resolving issues and obtaining timely DOE and contractor approval of applicable nuclear safety requirements. From time to time, the RRT convened meetings at which members were present at the same location. The RRT was co-chaired by the DOE EM-67 representative and an individual designated by RL's Technical Integration and Support Team of the SFO. RRT roles and responsibilities and assigned individuals are documented in the SNF RRT Charter.

The Engineering Manager was the Contractors principal point of contact to interface with RL in support of the RRT.

11.1.7 Nuclear Regulatory Commission Equivalency Policy

It is RL's policy that the K Basins SNF Project will achieve "nuclear safety equivalence" to comparable NRC licensed facilities. Accordingly, the SNF Project has instituted a special Regulatory Policy (K Basin SNF Project Regulatory Policy). RL Letter 95-SFD-167, *Implementation of the K Basins Spent Nuclear Fuel Project (SNFP) Regulatory Policy*, dated September 12, 1995, is the RL letter invoking NRC equivalency on the SNF Project. RL and DOE-HQ have approved this regulatory policy. The policy is applicable to design and construction of new SNF Project facilities. The policy is implemented using the same technical requirements as those applied by the NRC to comparable licensed facilities and by adopting appropriate features of the NRC licensing process.

DOE has established this policy for three primary reasons:

- To achieve a set of requirements that is technically defensible and cost effective

- To achieve in the design and construction of the SNF Project facilities a level of nuclear safety comparable to that of NRC-licensed commercial nuclear facilities
- To enhance public understanding and confidence in the safety of new facilities by following a project-specific regulatory strategy.

The NRC “nuclear equivalency policy” constitutes a nuclear safety goal that is applied to the SNF Project in addition to applicable and appropriate DOE Orders and requirements. The policy does not apply to, nor does it supersede, environmental requirements and other non-nuclear safety matters (e.g., the Occupational Safety and Health Administration [OSHA] requirements). DOE Orders and appropriate Federal, state, and local statutes and regulations will address these requirements.

The policy is implemented by selection of additional requirements that are applied by the NRC to the design/construction of licensed facilities. The RRT, in conjunction with the managing contractor, researched the NRC requirements, compared these to the DOE requirements, and identified additional requirements to apply to the design and construction of new facilities. These requirements were approved for implementation by the IRP and are documented in HNF-SD-DB-003, *Additional NRC Requirements*, and for the MCO in HNF-SD-DB-005, *Spent Nuclear Fuel Project Multi-Canister Overpack*.

The Engineering Manager is the Contractors principal point of contact to interface with RL in support of NRC equivalency policy matters.

11.1.8 U.S. General Accounting Office

The U.S. General Accounting Office (GAO) conducts periodic audits of SFO and FH, regarding performance on the SNF Project. Comprehensive audits were performed in FYs 1998 / 1999. The GAO audit team may spend up to four months conducting the review and issuing the report and may consist of 40 or more interviews and review of extensive project records. Draft reports are issued to DOE-HQ for review and the final report is issued to the Congressional Committee that requested the audit. GAO may also perform a hearing before the Committee regarding its findings. The most recent audit report serves as the benchmark for the next audit. Interface opportunities include entrance and exit meetings for audits, interviews during audits, providing documents upon request, and reviewing and commenting on draft audit reports.

11.1.9 Hanford Advisory Board

The HAB is a formal board, sanctioned under the Federal Advisory Committee Act, for the purpose of advising DOE, EPA, and Ecology on matters pertaining to planning and implementation of activities related to the Tri-Party Agreement. The HAB may advise RL to take certain actions that affect the SNF Project. The SNF Project senior management may interface directly with the HAB, or its subcommittees, on specific issues as requested by RL; however, the contractor does not have any other direct communication with the HAB. The SNF Project typically provides information to RL, in preparation for HAB or HAB committee meetings. The primary FH point of contact with the HAB is the FH Office of External Affairs.

11.1.10 Tribal Nations

The SNF Project is committed to a consultation relationship with Native Americans having possessory and usage rights, by treaty, on the Hanford Site. The nations and/or tribes include the Yakama Indian Nation, the Confederated Tribes of the Umatilla Indian Nation, and the Nez Perce Tribe. The SNF Project conducts briefing meetings with representatives from each tribe and/or nation on approximately a quarterly basis to keep the Native Americans apprised of significant activities on the Project. Meeting locations are generally alternated between tribal offices and Richland. Key documents and strategies containing decisional information are submitted to the tribes for review and comment concurrent with the decision making process at RL, in accordance with an memorandum of agreement between RL and the Yakama Indian Nation. The intent of this activity is to ensure that appropriate dialogue is held with the Native Americans and that their concerns are adequately resolved during the decision-making process as the SNF Project proceeds with planning and implementation of the work.

11.1.11 Media

Stories and information about the SNF Project are developed systematically, on a planned schedule, to achieve a pro-active, rather than a reactive, position with regard to the media. Benefits expected include the achievement of a credible public position that the Project is accomplishing work, meeting commitments, and acting responsibly. This provides the media reporters with a more complete perspective of the Project so they can report individual stories in proper context. This approach also builds a ready file and body of information about the Project for multiple uses.

Significant accomplishments in the Project provide opportunities to go public with information about the achievements. Other opportunities for interface include periodic media tours and press briefings to update the media on general Project progress.

11.1.12 Education/Outreach

Education/Outreach consists of interacting with and informing the colleges, universities and high schools in the Northwest (and sometimes further) of activities, strategies, and progress in the SNF Project. This activity helps educate them on the relevance and the costs and benefits of cleanup. It also gives them information necessary to make informed comments regarding cleanup alternatives.

11.1.13 Employee Communication

Employees, including subcontractors, who support the SNF Project, are the key to successful project completion. The SNF Project management endeavors to provide early and accurate information about the Project status and direction to the employees. The most direct method of communicating with all employees on a variety of issues is the *From the Directors* notice that is sent to all employees via e-mail. The articles about the Project in the *Hanford Reach* also provide useful information to all employees. Certain issues are communicated to all employees in prescribed formats, such as Integrated Environment, Safety, and Health Management System (ISMS) and safety improvement plan briefings. Managers and supervisors have the responsibility to communicate down information about the Project to their employees during staff meetings and other special topic meetings.

12.0 QUALITY ASSURANCE

Public safety, onsite worker safety, and protection of the environment are overriding considerations for the SNF Project. The commitment to safety by RL and the SNF Project dictates management and verification activities to ensure safety and environmental considerations are reflected in the design, procurement, construction, and operation of the SNF Project. For purposes of this document, QA is of those planned and systematic actions necessary to provide adequate confidence that the SSC perform satisfactorily in service. The level of QA being applied is determined on the consequence of failure of the activity with relation to safety, cost, and schedule.

12.1 Organization and Responsibilities

The QA Organization identifies and interprets requirements, provides programmatic guidance to the Project, and performs surveillances to verify Project compliance to requirements. The organizational charter is shown in Appendix C.

12.2 Quality Assurance Plans

The *Spent Nuclear Fuel Project Quality Assurance Program Plan* (QAPP) is prepared by SNF Project QA for SNF Project management, as the overall SNF Project program plan, supplying criteria, requirements, and upper-level implementation documents.

This QAPP provides for applying a graded QA program for SNF Project facilities and subprojects. The QAPP matrix provides the links from requirement through implementing source. The QA organization is responsible for the technical content of the QAPP and matrix.

Changes to the QAPP and matrix are reviewed and approved by SNF Project QA to ensure that the plan meets the requirements for a graded QA program as applicable and specified in:

- 10 CFR 71, Subpart H, *Quality Assurance*
- 10 CFR 72, Subpart G, *Quality Assurance*
- 10 CFR 830.120, *Quality Assurance*
- DOE ORDER 414.1A, *Quality Assurance*.

12.3 Subcontractors and Vendors

SNF Project contractor participants, including subcontractors and vendors, are required to implement QA programs commensurate with the contract document requirements. For work performed by contractors already having DOE-approved QA programs, the Project QA requirements are defined in a letter of instruction, or similar document, which may result in the contractor developing a project-specific QAPP. Subcontractors and vendors are required to submit their QAPP to the management contractor upon request for review and approval.

13.0 CONTINUOUS PERFORMANCE IMPROVEMENT

Continuous Performance Improvement (CPI) represents the application of quantitative methods and human resources to improve the services and processes. SNF Project supports a CPI environment aimed at improving project performance in the areas most important to RL. Integrating CPI into the execution of the Project and into the Project culture is accomplished by establishing the appropriate systems to ensure involvement of Project personnel with a specific focus on achievement of Project objectives.

13.1 Organization and Responsibilities

The SNF Project Director is responsible for the overall direction of CPI activities on the Project by providing visible leadership and direction. The Project Director also provides recognition to those individuals and teams who enhance the Project's quality efforts and added value through the application of these CPI principles. The Project Director promotes a proactive QA audit and surveillance program, which highlights areas for improvement.

The PI&RS Manager provides the consistent thread for Project improvement processes and is responsible directly to the SNF Project Director to ensure that communication with RL and between disciplines is as effective as possible and that attention is properly focused on improvement strategies. The PI&RS Manager responsibilities on this Project includes, but is not limited to:

- Assisting Project management in development and implementation of Project CPI processes and programs
- Promoting involvement and participation of personnel
- Initiating and monitoring performance measurement systems and (formal and informal) feedback systems such as corrective action management, self assessments, and performance indicators

The entire Project team is responsible to apply the CPI concepts to their daily work. CPI encourages and empowers every team member to continuously evaluate his or her work processes and determine how the work can be performed more effectively. The Project team should actively develop and implement strategies to minimize rework, identify *opportunities for improvements*, initiate actions to change requirements that are no longer valid (in order to facilitate improvement or prevent reoccurrence of problems), and identify lessons learned that are appropriate for sharing with others. Anyone on the Project may be called upon to participate in teams to improve multi-discipline work processes.

13.2 Communication

Communication is integral to the CPI process. Formal methods of communication applied on this project include CPI topics at meetings, newsletters, pictorial displays of progress on goals and actions, Work Process Improvement (WPI) status reports, CPI discussions at staff meetings, all hands meetings, job-site safety celebrations, and recognition celebrations.

13.3 Project Improvement Strategies

13.3.1 Alignment

Alignment is a CPI process that ensures that the strategies and processes used on a project contribute to the attainment of RL expectations and requirements and, ultimately, their satisfaction. The process provides an opportunity to understand RL expectations and translate intentions into actions. Alignment sessions with subcontractors, suppliers, licensors, etc. will be held as appropriate.

13.3.2 Project Performance Indicators

The SNF Project establishes and tracks performance indicators to assess performance of selected functions, processes, or programs. These indicators are provided to senior management and posted in areas where the affected staff is able to see them. AP MS-1-007, *Goals and Performance Indicators*, establishes specific guidelines for this program.

The performance indicators measure those areas that have the greatest impact on the SNF Project, such as safety, efficiency, and conduct of operations.

SNF Project performance is also measured through PIs as discussed in Section 8.4, *Performance Incentives*.

13.3.3 Work Process Improvement

WPI is used by teams and individuals to analyze and streamline work processes on a project. Specific work processes are targeted by management and teams established as necessary to study and implement improvements. This effort is to comply with ISMS and enhanced work planning activities.

Improvement strategies are also identified as a result of Value Engineering Reviews, Constructability/Maintainability/Operability Reviews, or from a variety of internal and external assessments.

13.3.4 Lessons Learned

Sharing lessons learned within and between subprojects is critical to the SNF Project continued success and demonstrates to RL that we have a mechanism in place to share the experience among subprojects. Managers at all levels are responsible for initiating lessons learned in coordination with the SNF Project Lessons Learned point of contact (LLPOC) as required by AP MS-2-016, *Managing SNF Project Lessons Learned*.

The LLPOC works with project management, design authorities, cognizant engineers, corrective action management (CAM), and managers to coordinate the lessons learned program, including:

- Ensuring relevant lessons learned from prior subproject phases are made available for review by project personnel
- Ensuring that lessons learned on each subproject are captured for sharing with future projects
- Ensuring that site-wide and DOE complex-wide lessons learned are available to workers and work planners
- Ensuring that the SNF Project lessons learned are shared with other PHMC subcontractors per HNF-PRO-067, *Managing Lessons Learned*.

The lessons learned program is an essential input to the Automated Job Hazards Analysis (AJHA) work control process.

13.3.5 Investigation of Abnormal Events

The SNF Project maintains a process to categorize, report, and investigate events or conditions that could adversely affect safety, health, the environment, QA, security, or operations, as required.

The categorization of occurrences and subsequent notification requirements is addressed in SNF Project APs. The APs implement the requirements of PHMS Topical Area, *Emergency Management*, and HNF-PRO-060, *Reporting Occurrences and Processing Operations Information*.

Occurrences and abnormal events provide experiences and information that is useful in preventing recurrence. SNF Project APs for lessons learned are used to process critiques of occurrences. Such procedures enable SNF Project personnel to avoid problems experienced by other facilities or organizations, incorporate good work practices, and improve safety and efficiency.

13.4 Project Recognition Program

A project-specific recognition plan has been developed to incorporate key Project objectives. A balanced recognition plan is designed to reinforce appropriate behaviors in the accomplishment of key Project objectives while acknowledging both individual and team contributions.

Rewards can be both extrinsic (recognition, awards) and intrinsic (responsibility for outcomes and an opportunity to provide input). The opportunity to see one's ideas put into practice is a powerful motivator. Team incentives are designed to reinforce teamwork. This Project supports the concept that participating in teams to improve work processes and having more control as to how the work is actually executed reduces frustrations and provides valuable intrinsic rewards.

Project personnel recognition programs are managed by the HR office and vary based on the organization of RL, HAMTC, and FH.

13.5 RL Feedback Systems

RL and FH Project personnel are integrated to the extent possible to ensure timely feedback on critical project issues. RL is included in surveys used to gather information to identify improvement needs. Joint staff meetings are held to keep RL informed of critical issues and decisions. Monthly project reviews are held in order to keep RL and SNF Project management informed of project status. A monthly progress report is prepared by SNF Project management for discussion at the review.

13.6 Corrective/Preventive Action

CPI addresses the resolution of any non-conformance audit findings. The QA Representative identifies areas for improvement by analyzing any findings of audits, reviews, and surveillance's. Project management and the discipline leads also review audits and other reports.

Where appropriate, audit recommendations are incorporated into the Project. Any WPI opportunities identified are investigated. Project management determines the steps needed to identify root causes so that corrective actions can be made to prevent recurrence. When these result in ideas that are considered appropriate, they are incorporated into the Project. Appropriate preventive actions are established.

QA and the Corrective Action Program managers monitor application and effectiveness of corrective/preventive actions.

The SNF Project follows HNF-PRO-052, *Corrective Action Management (CAM)*, and SNFP-MD-012, *Corrective Action Management*, to identify, document, and manage a wide range of problems: any situation, condition, occurrence, or event that is abnormal, unexpected, inconsistent with requirements or regulations or contrary to expectations. The CAM process defines methods for initiating, tracking, trending, and closing actions meeting established criteria.

The Corrective Action Program Manager in the PI&RS organization is responsible for reviewing cause codes identified by management for positive and negative trends.

13.7 Oversight and Assessment Programs

SNF Project management demonstrates interest in workers' activities to a degree that affects safety, morale, motivation, and general work practice attitudes in a positive manner through involvement in work activities and direct personal observation. Touring work place areas with the associated actions of communicating expectations and goals, making observations, promoting discussions, correcting deficiencies, collecting feedback, and making improvements is a priority for management personnel.

Assessments are central to the CPI process and identify opportunities for improvement and for understanding the degree of compliance with contractual and regulatory requirements. HNF-PRO-246, *Management Assessment*, provides site-wide guidelines, and AP MS-1-036, *Management Assessments*, defines the Project's approach to management assessments. Table 13-1, *SNF Project Management Assessments*, shows the various assessment programs that are being managed as an integrated program.

Assessments within the SNF Project are conducted at four levels. Within the levels, assessments are conducted at the Process, System, or Program level and include Management Assessments, Independent Assessments, and Worker Assessments.

- External Assessments (Level IV): Independent Assessments directed and conducted by an agency external to the SNF Project; typically review programs overall effectiveness or focus on a current Project issue. These assessments generally result in formal reports and may require significant Project follow-up. External assessments are further discussed in Section 13.8, *External Reviews*.
- Internal Oversight Assessments (Level III): Management and Independent Assessments are conducted by SNF Project assessors usually independent of the line organization being assessed. These assessments are conducted to assess programmatic effectiveness and to seek resolution to emerging issues. Assessments in this level include the QA surveillance program and management directed assessments. These assessments generally result in establishing corrective actions and may include Deficiency Tracking System (DTS) entries.

- Line Management Assessments (Level II): Management and Independent Assessments are conducted by line managers to assess the degree of procedural application and effectiveness of selected processes or programs. These assessments are self-evaluations of internal operations. Examples are S/RID assessments, ISMS assessments, and various programmatic and work process assessments.
- Worker Assessments (Level I): Employee self-assessments are conducted by personnel of their individual work efforts. The primary focus is to self-assess processes, products, and services provided and compare to defined expectations.

Figure 13-1, *Integrated Assessment Program*, graphically shows the four levels of assessments and their relationship to the Corrective Action program.

13.8 External Reviews

Ongoing independent external reviews provide continuing assurance that potential Project risk areas are adequately identified and addressed. External reviews provide feedback to the Project to validate progress and to provide recommendation for continued performance improvement. HNF-PRO-1837, *Cooperating with Outside Audits, Inspectors, and Investigations*, provides additional guidance. Key external reviewers include:

- The Congressionally sponsored DNFSB, whose primary focus is review of nuclear safety issues within the Project
- The AI Team from FH provides independent QA/QC oversight of construction for RL
- The Facility Evaluation Board (FEB) from FH provides Independent Technical Assessments
- The Independent Program Assessment (IPA) office from FH QA.

Table 13-1
SNF Project Management Assessments

Level	Type	Required By:	Managed By:	Objective	SNF Project Owner	Deliverable & Disposition	Schedule Format
IV	External	DOE Orders HNF PROs Other External guidelines	FDH or RL Staff	Program effectiveness Current issues/inquiries	Director	Published reports through organizational channels	As announced or coordinated
	Balanced Score Card	PHMC Prime Contract	FDH Contracts	To conduct integrated simultaneous assessment of all PHMC major Subcontractors	Contracts Manager	Annual Report by FDH and provided to RL	Quarterly Assessments
	Directed Assessment	Good Management Practices HNF PROs	AP MS-1-036	Target known or potential problem areas or critical functions of special interest to Directors	Director	Tailored Report to central file	As needed
III	QA Surveillance	DOE/RW-0333P for OCRWM	AP QA-11-006	- Surveillance of Program Implementation - Stand alone program	QA Manager	Documented report to responsible manager	Published Annually; Multiple monthly assessment
	Readiness Assessments	DOE O 425.1	HNF-PRO 055	Independent team review of readiness for start-up or restart.	Operations	Readiness Review Report	As needed
	Departmental Assessment	10 CFR 830 HNF PRO 246 Other HNF-PROs	AP MS-1-036	Management effectiveness and efficiency of Programs Systems/Processes	Director All Managers	Report to responsible manager and to MA Coordinator	Annual plan with updates as needed
	MIF	DOE Order 5480.19	AP MS-1-008	- Observe daily activities related to work performance	Operations	Logbook summary	Daily on working days
II	MOP	Conduct of Ops		- Specific functional area topic - One time observation	Operations	Comment sheets and checklists	Scheduled quarterly
	MBWA			- Informal management oversight - Primarily for Operations and Projects	All Managers	Informal Mentoring Notes	None
	S/RID Phase I	RLP 1380.4 HNF-PRO-265	AP MS-1-010	Verify implementing procedures for source requirements	Functional Area Managers	Central Data base	Revised / added requirements Unscheduled
I	S/RID Phase II	RLP 1380.4 HNF-PRO-265	AP MS-1-010 S/RID Plan HNF-1721	- Procedural compliance - Verify application in the field - 3 year mandatory review - Complete by 05/00 (MSA for Startup)	Functional Area Managers	Central database Assessment Form	Established by MSA Plan and S/RID Annual Assessment Plan
	MSA/OIR	DOE O 425.1	MSA Plan HNF-2039	Procedural compliance	Operations	Affidavit MSA data base • Appraisal forms • Evidence package	Master schedule tied to WBS
	ISMS	HNF-NP-003	ISMS Plan SD-SNF- PLN-012	Requirements Implementation & Procedural Compliance	Director	Safe work practices Tailored report to central file	ISMS Implementation Plan
I	Worker	No Requirement Driver	Supervisors / Employees	Self assessment of employees own work - Procedural adherence and accomplishments	All Employees	Informal	Unscheduled

Figure 13-1
Integrated Assessment Program

14.0 SAFETY, HEALTH, EMERGENCY PLANNING, AND ENVIRONMENT

The SNF Project will protect the health and safety of the environment, workers, and the public. To meet this obligation, the SNF Project is committed to providing a safe environment for its employees, conducting work in a safe manner, ensuring employees receive adequate training and instruction on safety, and fostering a positive attitude that encompasses the concept of safety first. This section of the PEP summarizes the safety, health, and environmental activities required during the engineering, procurement, construction, and operation phases of this project.

14.1 Organization and Responsibility

Senior management is active and visible in aspects of the safety program. Senior management is routinely involved by participating in safety meetings, reviewing safety performance, and being present in the workplace.

Line management is directly responsible for protecting the workers, the public, and the environment. Line management visibly demonstrates their commitment to, and responsibility for, safety and environmental protection by routinely being present in the workplace and by being responsive to worker safety concerns. Line management provides the necessary resources to effectively address safety, environmental, programmatic, and operational considerations. A line manager is an individual who has the responsibility and the authority for getting the job done.

All employees are responsible and accountable for performing work in a safe, proper, and efficient manner. Employees must understand and comply with approved procedures, identify unsafe or potentially unsafe conditions, and initiate actions to correct safety deficiencies, including stopping work if necessary. Everyone has the responsibility and authority to stop work when, in their opinion, it is unsafe to proceed.

Specific safety responsibilities, including the Master Safety Rules and Worker's Bill of Rights, are included in HNF-PRO-074, *Safety Responsibilities*.

14.2 Program Objectives

The objectives of the project safety, health, and environmental programs are to:

- Protect the lives and health of employees on the project, and the general public
- Prevent damage to property, materials, supplies and equipment
- Protect the environment

- Avoid work interruptions from such occurrences during the design, construction and commissioning, and subsequent operation and maintenance of the facility.

Individuals working on the Project must ensure that activities that fall within their range of expertise and responsibility comply with the project safety, health, and environmental requirements and lead to achievement of the project objectives in these areas.

It is the firm belief of Project management that incidents are preventable through commitment, participation, and cooperation of parties involved by:

- Emphasizing prevention, by taking actions that reduce both the likelihood of an accident as well as the consequences of an accident
- Ensuring application of statutory requirements
- Ensuring compliance with applicable regulations, permit conditions, and project standards and procedures
- Issuing clear and concise instructions
- Providing adequate resources
- Ensuring compliance

There will be 100% reporting of incidents. Reporting of “near-misses” is encouraged, with the objective of avoiding future incidents. Lessons learned through analysis of incident investigations will provide input for future activities.

14.3 Integrated Environment, Safety and Health Management System

The SNF Project safety program is based on HNF-MP-003, *Integrated Environment, Safety and Health Management System Plan*. ISMS integrates requirements and safety elements into the work planning and execution process to effectively protect the workers, public, and the environment. The SNF Project has defined its ISMS description in AP MS-1-039, *ISMS Description*. ISMS does not replace or change existing safety and work control improvement initiatives, but rather builds on those initiatives through integration and coordination. The ISMS supports the DOE goals to safely cleanup Hanford and manage the site’s legacy waste and to ensure that work is accomplished safely. ISMS is based on eleven Guiding Principles and seven Core Functions.

The eleven ISMS Guiding Principles are:

- Line management responsibility for safety and environmental performance defined
- Clear roles and responsibilities defined
- Competence commensurate with responsibilities
- Balanced priorities
- Safety and environmental standards and requirements identified
- Hazard controls tailored to work being performed
- Operations authorization
- Worker involvement
- Communication and stakeholder involvement
- Continuous improvement
- Senior management involvement

The seven ISMS core Functions are:

- Establish ES&H Policy
- Define the scope of work
- Identify hazards and requirements
- Analyze hazards and implement controls
- Perform work within controls
- Feedback and improvement
- Management review

14.4 Safety and Health Programs

PHMS Topical Area *Occupational Safety and Health* defines the safety standards and requirements for the SNF Project.

SNF Project personnel recognize that doing their job safely is as much a part of job performance as their work skills, and that they are responsible for identifying and reporting unsafe, or potentially unsafe, work conditions and behaviors. SNF Project personnel have the right and the obligation to not proceed with a job they consider unsafe. The SNF Project is committed to the DOE Voluntary Protection Program (VPP); a behavior-based approach to ensure the safety of the public and our employees; improvements achieved through Enhanced Work Planning/Hanford Occupational Health Process (including Employee Job Task Analyses); and, every employee's involvement in safety through effective use of the Employee Zero Accident Council (EZAC).

14.4.1 Voluntary Protection Program

The SNF Project implements programs and processes to meet the guidelines of the DOE's VPP, a behavior-based approach to ensure the safety of the public and our employees. The charter, found in Appendix C, defines the composition and responsibilities of the SNF Project VPP Steering Committee. The SNF Project safety program includes a number of activities to ensure these five keystones of the VPP are implemented:

- Management commitment
- Employee involvement
- Work site analysis
- Hazard prevention
- Facility specific safety and health training

14.4.2 Employee Zero Accident Council

The SNF Project EZAC provides leadership to achieve maximum accident prevention and injury reduction in the SNF Project. EZAC convenes to coordinate resolution of safety issues that have been brought to the Council's attention.

The EZAC goal is to reduce injuries, prevent accidents, promote a safer and more healthful working environment, and promote communication between management and labor regarding industrial and radiological safety issues. Any safety issue brought before the EZAC are satisfactorily resolved.

The EZAC charter, found in Appendix C, defines the composition and responsibilities of the Council.

14.4.3 Job Hazard Analysis

SNF Project managers and supervisors are responsible for ensuring that facilities and work activities are evaluated to identify any hazards, prior to allowing work to begin. The AJHA is the primary means for identifying ES&H hazards and regulatory requirements associated with a specific facility or specific work activity.

The SNF Project manager or supervisor responsible for the completion of the work ensures the safety of employees by implementing the requirements for assessing work related hazards in accordance with HNF-PRO-079, *Job Hazard Analysis*, and AP MN-7-004, *Prejob Briefings*.

14.4.4 Safety Meetings

Each SNF Project functional manager will conduct safety meetings to discuss safety issues pertinent to both on and off the job activities. The function's personnel will determine topics of safety meetings. SNF Project employees will participate in safety meetings. These meetings will be conducted and documented be in accordance with PHMS, Topical Area *Occupational Safety and Health*, and HNF-PRO-075, *Safety Communications*.

14.4.5 Design Safety

Safety will be addressed during the engineering phase of the project by utilizing sound engineering practices for relevant safety issues. This project will adhere to the following general safety-related considerations:

- Special RL requirements
- Sound engineering and construction practices
- Plant operations and personnel safety
- Hazardous materials storage and handling
- Governmental regulatory standards
- Verifying the design of items important to safety through checking or other appropriate means (e.g., technical/peer reviews or alternate calculations).

Aspects of the facility are considered when evaluating designs against safety and health requirements and objectives, i.e., during construction, normal operation, emergency operation, shutdown, and maintenance.

14.5 Industrial Hygiene

The SNF Project assures the health and safety of employees by:

- Anticipating, recognizing, and evaluating hazards in the work place
- Bringing solutions and recommending controls to the appropriate levels of management which initiate immediate and long-term solutions
- Communicating appropriate risk information to employees and management.

Facility Operations and the Maintenance and Work Control organizations work together to implement controls that reduce and/or eliminate hazards of industrial hygiene in accordance with PHMS Topical Area, *Occupational Safety and Health*. Appropriate laws and regulations that regulate health hazards of industrial hygiene are also reviewed, and those requirements communicated to management and staff in a manner that is easily understood and implemented.

It is the SNF Project industrial hygienist(s) primary job to help identify health and safety issues and propose reasonable and cost-effective systems of control from these tried and true methods: substitution, isolation, ventilation, personal protection, work practices, and employee education and training.

14.6 Environmental

The SNF Project develops, maintains, and implements APs that ensure compliance with the applicable environmental requirements and regulations in the SNF Project work processes. These requirements are identified in the S/RID, site-wide and facility-specific environmental permits, the Tri-Party Agreement, and other compliance orders. SNF Project management ensures that aspects of major actions at the facility that significantly affect the environment are evaluated through an established National Environmental Policy Act (NEPA) screening process.

Specific procedures and standards for implementing environmental requirements are developed based on applicable site-wide and facility specific requirements.

14.6.1 Environmental Compliance Program

The environmental compliance program consists of the following elements:

- **Environmental Requirements Identification:** Environmental requirements are identified in S/RIDs and permits, which are part of the authorization envelope. Configuration control is established on these requirements and their implementation. Implementation is through administrative or technical procedures, process standards, training, design or performance specification, or a combination of these mechanisms, as appropriate.
- **Environmental Reviews and Self Assessments:** Reviews of project and facility documentation are performed to verify applicable environmental requirements have been identified in design input documents and have been satisfied in design output documents as drawings, specifications, and procedures. Self-assessments are performance based to verify applicable environmental requirements are being carried through the work process.
- **Environmental Monitoring:** Monitoring of facility liquid effluents and airborne emissions are conducted to satisfy applicable DOE, EPA, and state regulations. Analytical data is compiled, evaluated, and reported in several externally released documents.
- **Environmental Surveillance:** Assessments of the near-field environment surrounding operational facilities are made to determine any impacts on ambient air quality, flora, fauna, groundwater, and other affected ecosystems.
- **Environmental Permitting:** Permit applications to external regulatory agencies are prepared. Permit terms and conditions are implemented in applicable project and facility documentation and/or training.
- **Environmental Documentation:** Documentation in the form of environmental assessments or technical input to Environmental Impact Statements (EISs) is prepared to satisfy DOE's NEPA documentation requirements. Environmental documentation also comprises documentation prepared under CERCLA to satisfy decisional analyses, (i.e., Record of Decisions [RODs]). In this case, CERCLA documentation is considered equivalent to NEPA documentation, to preclude redundancy between the two programs.
- **Site-Wide Issue Resolution:** Environmental issues affecting multiple Hanford facilities and contractors are managed through a PHMC contractor forum, which includes the SNF Project.

- **Waste Management:** Planning for the treatment and/or disposal of new waste streams is conducted by addressing governing regulatory requirements and the receiving facility's waste acceptance criteria. Solid waste generated during the course of operations is managed in accordance with State and Federal regulations.

14.7 Emergency Management

The SNF Project provides properly trained personnel using approved procedures in emergency management for emergency situations where actions are necessary to protect the safety and health of site workers and the public. Emergency situations that could arise include hazardous/radioactive spills and releases, fires and explosions, transportation accidents, natural events, and security contingencies.

Emergency management for the SNF Project follows and implements the applicable provisions of:

- PHMS Topical Area, *Emergency Management*, which incorporates the requirements of DOE/RL-94-02, *Hanford Emergency Response Plan*
- DOE-0233, *Emergency Plan Implementing Procedures*, RLEP 1.0, *Recognizing and Classifying Emergencies*, Appendix 1-1.A, *100 K Area*.

Appropriate SNF Project personnel are trained to these procedures to ensure satisfactory response to emergency situations.

Each SNF Project organizational director/manager develops and implements required emergency management program elements that include the following:

- Developing a building emergency plan (BEP) based upon facility specific hazard analyses
- Developing plans, procedures, and an employee training program based upon actions required by the BEP
- Assigning/designating a building emergency director (BED) who will implement the BEP during appropriate events
- Assigning/designating a building emergency response organization (ERO) who will perform under the direction of the BED
- Establishing interfaces with other elements of the emergency organizations outside of the SNF Project.

14.8 Safeguards & Security

The SNF Project establishes protection measures to manage risk associated with unauthorized access to government facilities; damage or destruction arising from deliberate acts of arson, civil disorder, riot, sabotage, terrorism, or vandalism; and deter and prevent theft of government property and special nuclear material (SNM). The Project safeguards and security program utilizes access control, and other cost-effective measures to facilitate the protection of government facilities and property, and to aid in the protection of personnel.

The SNF Project Director and management team assures that protection is provided for Project properties, facilities, and materials according to the provisions of RL Order RLID 5632.1B, *Asset Protection Requirements*, DOE Order 5632.1C, *Protection and Control of Safeguards and Security Interests*, and PHMS Topical Area, *Safeguards and Security*.

Access to SNF Project areas is restricted. Personal identification access badges are worn at all times as required by HNF-PRO-412, *Security Badges*. Personal identification codes are required to gain access to the Project facilities during off-hours.

Classified material, such as Nuclear Safeguard Materials, is maintained by the Project in accordance with HNF-PRO-224, *Document Control Program Standards*.

Specific K Basins requirements to activate and control basin sensors, for key control, escorting, and for the two-person rule are defined in AP SS-1-011, *Security Control for the 105 KE and 105 KW Basins*. Safeguard of SNM is discussed in Section 16.6, *Special Nuclear Material*.

14.9 Pollution Prevention and Waste Management

The SNF Project develops, coordinates, and implements a pollution prevention and waste minimization program that complies with Federal and State laws, regulations, and DOE Orders. This program focuses on a cost-effective reduction in the generation and disposal of hazardous, radioactive, and mixed wastes at SNF Project facilities and includes the following elements:

- Requirements for the preparation, implementation, and updating of waste minimization plans
- Requirements for communicating waste minimization plans to employees and providing the appropriate waste minimization training
- Requirements for developing annual waste minimization goals.

The pollution prevention and waste minimization program is implemented within the SNF Project, in accordance with the requirements defined within HNF-PRO-462, *Pollution Prevention*.

SNF Project personnel adhere to the requirements of the waste minimization program. The SNF Project Operations support managers develop procedures, and administer and maintain this program.

15.0 START-UP TESTING, TURNOVER, AND ACCEPTANCE

The SNF Project confirms that the SSC have been procured, constructed, and installed to design requirements. The SNF Project is responsible for preparing test specifications and procedures with defined acceptance criteria to confirm that SNF Project SSC meet design and operational specifications for both normal and off-normal conditions. The strategy establishes a sequence of tests and support activities for the successful completion of SNF Project startup milestones.

The SNF startup is a defined sequence of inspection and test activities that culminate with successful startup. Startup activities begin with witnessing or validation of Factory Acceptance Tests (FATs) and Construction Acceptance Tests (CATs) and continue through preoperational and operational testing.

The SNF Project pre-operational test program is an integration of traditional CATs with the system testing requirements of traditional operational test procedures (OTPs). This combination of acceptability verification activities consolidates performance of factory, construction, and pre-operational acceptance tests (PATs) to demonstrate that SSC operate safely and satisfactorily as specified.

15.1 Organization & Responsibility

Effective transition from physical construction to functional operation requires the integrated efforts of RL, FH AIs, and SNF Project Engineering, Construction Projects, and Operations. Specific startup responsibilities of each SNF Project organization are defined in the respective Organization Charters, Appendix C, *SNF Project Charters*.

15.1.1 RL

RL has responsibility to perform selected technical surveillance and provide reviews and comments on specified startup related documents. RL approvals are required on the Construction Completion Document (CCD) form, as discussed below.

15.1.2 RL/FH Acceptance Inspection

The independent QA inspection of SNF Construction Projects, including testing and witnessing required by RL is provided by the FH QA AI organization. The AI is responsible for assuring that project quality requirements are satisfied in accordance with approved design documents, specifications, and acceptance inspection plans. The AI develops and controls the official Project punchlists and signs the CCD form, as discussed below.

15.1.3 SNF Project

Key organizations involved in Project Startup activities include:

- **Operations** - Controls operating facility SSC following the pre-operational test phase for the Greenfield projects (i.e., CSB and CVD) and throughout pre-operational testing of modifications and additions for K Basin facilities. The Operations organization participates throughout the startup process, with an ultimate focus on total system operability, maintainability, and the training and qualification of operations personnel.
- **Construction Projects** - Responsible for overall facility construction and CAT. The Construction Projects subproject managers, with the support of dedicated Design Authorities, prepare integrated construction turnover schedules, review and approve test procedures, witness testing, and participate in the development of the official Project punchlists and the turnover of test results.
- **Engineering** - Provides Design Authorities and participates on the Test Review Board. Engineering develops and preserves the Project technical baseline throughout the design, construction, startup testing, and operations of SSC.
- **Startup** - Develops, coordinates, and implements the SNF Project pre-operational test program safely and efficiently, with support for both construction acceptance and operational testing. The Startup organization comprises technically competent test engineers, administrative support, and program personnel who report to the Startup/Production Integration Manager and are a matrix organization to Operations and Construction Projects for support of CATs. The performance of this organizational arrangement provides for independence of the startup organization in demonstrating that the SSC are installed as designed and constructed. The interrelationship of the Startup Organization with the Operations and Construction Projects organizations is further defined in a MOU between the Manager of Construction Projects, Manager of Projects Operations, and the Manager of Startup, see Section 2.6.1, *SNF Project Memorandums of Understanding*.

Table 15-1, *Startup Testing Key Activities and Organizational Responsibility*, summarizes the key tasks and organizational responsibilities for the multiple organizations involved with CATs and PATs.

The Readiness Preparation organization plans, organizes, and implements the ORR process, including the development and implementation of the ORR Plan of Action as discussed in Section 15.6, *Management Self Assessment / Operational Readiness Review*.

SNF PROJECT
PROJECT EXECUTION PLAN
Chapter 15 – Start-Up Testing, Turnover,
And Acceptance

Table 15-1
Startup Testing Key Activities and Organizational Responsibility

Organization	Test Phase		
	Physical Completion of Construction & Construction Acceptance Testing (CAT) (CCD - Part I)	Preoperational Acceptance Testing (PAT) & Approval of Test Results (CCD - Part II)	Operational Testing
Construction	Complete Construction to Design Requirements (by Systems) Review and Concur with AI Plan Maintain Configuration Management of SSC through CAT Conduct CATs & identify exceptions Prepare test report and exception list Sign CCD Part Ia & Ib	Transfer jurisdictional control to Startup for testing Support Startup testing	Assist with dry-run testing as appropriate
Design Authority & Engineering	Provide detailed design requirements Define test requirements and acceptance criteria for SSC Review, analyze and approve test results (OP10-025)	Define test requirements and acceptance criteria for SSC Resolve design related issues resulting from testing Review, analyze and approve test results (OP10-025)	Ensure continuity of Technical baseline through ORR and fuel movement operations Assist and witness dry run testing as appropriate
Startup Group	Define functional systems to be tested (OP10-005) Develop component test procedures (OP10-006) Schedule CTPs (OP10-012) Provide preventive maintenance and interim custody (OP10-008, OP10-019 & OP10-026) Prepare test specifications (OP10-023)	Develop subsystem test procedures (OP10-015) Schedule PAT (OP10-012) Assume Jurisdictional Control of System for Testing (OP10-008, OP10-019, OP10-026) Conduct CTP & PAT & identify exceptions (OP10-004, OP10-017) Prepare test reports and exceptions list (OP10-004, OP10-017 & OP10-024)	
Joint Test Group	Review & approve test specifications (OP10-003 & OP10-023)	Review & approve test specifications & procedures Concur with Test results (OP10-025)	No involvement
Acceptance Inspector	Prepare AI Plan (HNF-PRO-2000) Review & Approve Test Procedures Witness CATs Prepare official punch list for SSC & identify exceptions Sign CCD Part Ia Track completion of exceptions & sign CCD Part Ib. Observe and support testing process	Review & Approve Test Specifications & Procedures Witness Preoperational Acceptance Tests (PATs) Prepare official punch list for each functional system & identify exceptions Sign CCD Part II	No involvement
Operations		Prepare for MSA/ORR Observe and support testing Prepare maintenance and operating procedures Sign CCD Part II Program oversight Review test specifications and procedures Sign CCD Part II to formally accept completed work.	Conduct dry-run testing Train and test operator skills Validate operating & surveillance pro's Program oversight
Quality Assurance	Programmatic oversight Approve AI Plan Sign CCD Part I to formally accept completed work.		Prepare for DOE-ORR
RL			

15.2 Start-up Testing

The SNF Project performs a series of tests prior to acceptance of completed work for beneficial use by Operations. Test specifications and test procedures are developed and implemented that reflect regulatory requirements, current industry standards, pertinent manufacturer information, and best management practices. Testing of acquisitions, modifications, and additions prior to final turnover to operations involves CATs, component testing, and PATs conducted in accordance with HNF-PRO-286, *Test Control*, and SNF Project APs. The Startup test program is described in a series of APs unique to the SNF Startup Organization. A formal Test Review Board is responsible for approval review of the test specifications and procedures, as prescribed by AP OP-10-003, *Joint Test Group*.

Prerequisite testing of select key components is the responsibility of the SNF Startup organization with matrix responsibility to the Operations and Construction Projects Managers. The Startup organization provides confidence that installed SSC and completed facilities meet established safety bases and specified functional requirements. This organization is involved in the three phases of pre-operational testing as well as a fourth phase, dry run operational testing. The startup organization is responsible for developing CATs for implementation by Construction Projects, the development and implementation of prerequisite testing of key components, the conduct of PATs, and dry run operational testing for the training of Operations personnel.

- **Factory and Construction Acceptance Testing:** FATs and CATs are conducted to demonstrate and document that physical construction is complete and in accordance with approved design and engineering documents. Both FATs and CATs are passive, non-energized tests performed prior to pre-operational testing. The FATs and CATs are the responsibility of SNF Construction Projects, with support from Startup, Engineering, and Operations organizations.
- **Pre-operational Acceptance Testing:** The PAT is the preferred means of the SNF Project to demonstrate and document that completed systems and projects meet specified performance requirements. This testing is specifically designed to demonstrate that the constructed product is capable of performing its intended function and that PATs are conducted in accordance with detailed procedures prepared by Startup, then reviewed and approved by the responsible Design Authority and the SNF Project Test Review Board. Each PAT may be conducted as a single test or may be preceded by a series of individual component or partial system tests with a focus on specific critical aspects of an SSC. For the SNF Project, the PATs are the responsibility of the Construction Projects organization, with support from Engineering and Operations. Successful completion of the PATs completes the Project prior to operation.

- **Operational Testing:** Dry run operational testing is conducted by the Operations organization Facility Managers to demonstrate that Operators are competent to operate the systems and equipment and to demonstrate the effectiveness of operating and associated procedures. Systems are brought online and operated under both anticipated normal operating conditions and off-normal conditions, using simulated nuclear material.

15.3 Turnover and Acceptance

The process for acceptance of completed construction verifies that facilities and systems have been constructed and installed in accordance with approved plans and specifications. Pre-operational testing precedes the acceptance of completed work to verify the construction meets approved project acceptance criteria prior to operation. At this time, facilities or structures may be accepted for beneficial use to allow the user or sponsor custody. The process is described in HNF-PRO-2000, *Construction Program Execution Phase*. This procedure prescribes the use of a CCD as the record of transfer of completed facilities from construction to operations. The two-part CCD form serves to document satisfactory completion of construction and the transfer of the completed facility/system to the user. The three components of the CCD form are:

- **CCD Ia:** Signature of Part Ia of the CCD documents physical completion of construction following CAT. As appropriate, a punchlist of exceptions may be attached to the form.
- **CCD Ib:** Signature of Part Ib documents that the exceptions list attached to CCD Ia has been completed.
- **CCD II:** Signature of Part II documents completion of PAT and Operational Testing.

15.4 Jurisdictional Control and Interim Custody

Jurisdictional control of SSC is clearly defined and carefully administered throughout the transition process, from construction to operation. When ready for pre-operational testing, the SSC are released by Construction Projects to the Startup organization. At this time, Startup accepts administrative authority and jurisdictional control of the SSC until final turnover to Operations.

Functional systems are released on a scheduled basis within predefined test boundaries provided by the SNF Startup Organization. These are custody boundaries developed and documented during system and subsystem scoping, as defined in AP OP-10-005, *Startup System and Subsystem Scoping*. Responsibility for jurisdictional control and custody of SSC and for maintenance of the completed facility or system is accepted by the Startup organization pending completion of the PAT. The completion of this testing is a prerequisite for turnover of SSC to Operations, as defined in AP OP-10-008, *Startup Custody Management of Structures, Systems, and Components (SSC)*.

The transfer of SSC from Construction Projects to Operations involves the formal release of jurisdictional responsibility and authority. The CCD process, defined in HNF-PRO-2000, *Construction Program Execution Phase*, as discussed earlier in this chapter, and implementing SNF Project APs provide for the transfer of care, custody, and jurisdictional control. The three phases of the CCD require signatory acceptance of responsibility for this jurisdiction, in accordance with regulatory requirements and SNF Project criteria.

15.5 Test Schedule

A Startup schedule is developed and maintained for each subproject and is integrated into the overall SNF Project integrated schedule. Activities are addressed by functional system level using CPM.

For testing conducted in the K-Basin operating facilities, the Startup organization schedule for pre-operational testing is integrated into the Operations integrated schedule.

15.6 Acceptance of Completed Construction

The Startup Organization is responsible for the conduct of prerequisites and PATs to validate the acceptance of completed construction and facilitate transition of new and modified facilities to Operations as defined in the previous Chapter. The SNF Project Startup Organization is matrixed to the Manager of Construction Projects during this transition. Details of this agreement are found in a MOU (see Section 2.6.1, *SNF Project Memorandum of Understanding*).

16.0 OPERATIONS

16.1 Organizations and Responsibility

The Operations organizational structure within the SNF Project is defined by the organizational chart in Figure 3-5 and the Charter in Appendix C. Changes to the Operations organization charts can be recommended by anyone within the SNF Project. Operations controls reviews. The affected manager and the SNF Project Director approve changes.

Organizational responsibilities within the Operations organization are defined by the job descriptions. Job descriptions for managers are changed consistent with changes to the organizational charts. Operations maintain sub-manager job descriptions, and the sub-managers maintain job descriptions for the managers in their chain of command.

16.2 Authorization Envelope

The Operations organization ensures the facility is operated and maintained in a safe and efficient manner, and that applicable Federal, State, and PHMC requirements are satisfied. This is accomplished by maintaining the facility within the requirements of the safety/authorization basis documents, environmental protection basis documents, and the ES&H requirements basis (S/RIDs), which define and establish the operating envelope for the SNF Project.

SNF Project authorization basis documents, including the SARs and TSRs are developed, maintained, and controlled in accordance with SNF Project APs.

Nuclear Safety provides dedicated personnel as specified in Section 7.4, *Nuclear Safety Management*, necessary to successfully execute project nuclear safety commitments. This includes:

- Technical support staff for the maintenance of required safety/authorization basis documentation
- Technical support staff to respond to specific safety/authorization basis technical issues.

16.3 Conduct of Operations

Conduct of Operations is a culture that results in safe, efficient performance of activities. The SNF Project uses the guidelines of DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, to achieve this culture.

Operations maintain an applicability matrix summary to indicate the portions of the DOE Order that apply to SNF Project activities, and the method of achieving conformance. APs and/or operating procedures are developed and issued to implement the requirements identified in the applicability matrix summary.

16.4 Maintenance

16.4.1 Conduct of Maintenance

Conduct of Maintenance is described in DOE Order 4330.4B, *Maintenance Management Program*. The SNF Project uses the guidelines of this policy document to control the activities of the Project via Operations Maintenance and Integrated Work Management functions.

Maintenance and Integrated Work Management maintain the Maintenance Implementation Plan (MIP) to indicate the portions of DOE 4330.4B, which apply, and how they are implemented by Operations. Administrative and/or maintenance procedures are issued to implement the applicable sections of DOE 4330.4B, in accordance with the MIP. Maintenance documentation is established, as appropriate, to define maintenance objectives, expected performance levels, and to clearly define Maintenance and Integrated Work Management responsibilities and accountability.

16.4.2 Material Control

The SNF Project implements a material control program which defines the specific requirements to be complied with for pre-procurement, receipt, storage, and issuance of materials, parts, and components to be utilized for maintenance activities. This program encompasses the management of designated staging areas at the 100 K Area by the SNF Project, Operations Maintenance and Integrated Work Management organizations.

16.5 Interface with Construction Projects Organization

Facility modification and equipment installation work performed by the Construction Projects organization in the K Basins, CVD, and CSB is coordinated with the Integrated Work Management organization in Operations. Work is controlled in accordance with AP MN-7-002, *Work Control*, for operations procedures or work activities that describe how work will be authorized and controlled. In addition, work packages are evaluated in accordance with AP OP-7-003, *K Basins Project Review Process*. Work requires successful completion and approval by the Management Review Board before work in the field commences. The Integrated Work Management organization assigns oversight to work packages as required by AP MN-7-005, *Roles and Responsibilities of Person in Charge (PIC) and Field Work Supervisor*.

16.6 Special Nuclear Material

The SNF Project maintains control and manages SNM in accordance with the provisions of DOE Order 5633.3B, *Control and Accountability of Nuclear Materials* and HNF-PRO-502, *Material Control and Accountability Plan*. Deviations from order requirements are documented in approved variances and waivers. The SNF Project Director appoints a SNM point of contact that resolves SNF Project material control and accountability concerns.

16.7 Chemical Management

The SNF Project has developed, implemented, and maintained a Chemical Management System (CMS) to control the acquisition, storage, use, transportation, and final disposition of chemicals. Goals are to:

- Assure compliance with applicable regulatory and statutory requirements
- Protect the worker, general public, and environment
- Support a consistent site-wide approach to chemical management

CMS focuses on reducing the variety, volumes, and hazard level of chemicals in use; controlling chemical inventory; and promoting safe and efficient use. A graded approach will be employed.

CMS is implemented within the SNF Project in accordance with HNF-PRO-2258, *Chemical Management*.

16.8 Quality Assurance

The Operations organization is responsible for the implementation of applicable QA requirements under the programmatic guidance of the SNF QA Manager. Collectively, it is the responsibility of SNF Project management to ensure that the appropriate level of QA requirements are planned, interpreted, and communicated, and that QA requirements and practices are effectively implemented. SNF Project management ensures the appropriate level of QA requirements are defined and transmitted to other organizations that perform activities within the SNF Project.

16.9 Integrated Work Management

Managers in the Operations organization individually manage facility or functional requirements using separate level IV schedules to ensure successful mission execution within their respective organizations. The Integrated Work Management organization, in a supporting role, integrates the multiple Operations schedules to ensure priority, focus, and continuity of effort on a daily, weekly and long-range basis. The Integrated Work Management organization is the single point of control for the integration of competing requirements for daily operations, construction, training, testing, and maintenance activities. The Integrated Work Management Manager initiates problem resolution meetings as necessary to resolve and remove barriers to effective Project execution.

16.9.1 Work Control

The SNF Project Work Control organization is the foundation of the Projects ISMS and Enhanced Work Planning (EWP) program. The Work Control organization manages and controls work accomplished for the Project's facilities. Work planning, work package preparation, scheduling for maintenance, and pre-approved work at SNF Project facilities are controlled through the JCS. Work controlled by the JCS includes, but is not limited to:

- Corrective maintenance
- Preventive maintenance
- Predictive maintenance
- Modifications
- Fabrications
- Temporary modifications
- Compliance surveillance
- Support of operating configuration changes.

Work requests, work package preparation, and schedules that detail work planning with respect to time and resources are administratively controlled.

16.9.2 Minor Construction and Project Support

Minor Construction and projects support will be responsible for the identification, prioritization, and funding to support facility modifications required to meet operational needs, alleviate safety concerns, or allow facilities to be transferred to the Environmental Restoration Program after spent nuclear fuel has been removed from the K basins. All work activities will be coordinated and integrated with the Integrated Work Management organization. All work activities will be controlled in accordance with AP MN-7002, *Work Control*.

16.10 Management Self Assessment / Operational Readiness Review

An ORR is a disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems to ensure that a facility will be started and operated within its approved safety envelope, as defined by the facility's authorization basis. The ORR process is defined in HNF-SD-SNF-POA-001, *Plan of Action for SNF Project Fuel Handling and Process Operations ORR*, and is conducted in accordance with DOE Order 425.1, *Startup and Restart of Nuclear Facilities*, and RLID 425.1, *Startup and Restart of Facilities*.

The initial step in the readiness process is for the SNF Project to accomplish the actions defined in HNF-2039, *Management Self-Assessment (MSA) Plan*. The MSA Plan consists of Assessment Objectives, Expectations, Criteria, and Actions to verify everything is in place for safe start of fuel relocation. Toward the end of these activities, the Management Team will conduct an internal self-assessment using the same MSA Plan criteria to verify readiness to start fuel relocation. The Senior Managers in the Operations Organization manage this portion of the readiness preparation process.

When readiness is verified as satisfactory, the SNF Project declares readiness for a PHMC independent team ORR. The final verification of readiness for fuel relocation is an ORR conducted by an independent DOE team.

16.11 Integrated Safety Management

The SNF Project has adopted the defense-in-depth safety principles relative to design, construction, and operation. The safety processes, requirements, and responsibilities to be applied to the Project are defined in AP MS-1-039, *ISMS Description*. The ISMS Description describes the graded approach to safety analysis for assessing work activities to identify the potential hazards, and the means of prevention or control. This integrated approach reduces the level of safety risk associated with activities of Project facilities. The ISMS Description also identifies the authorization approach to be used for each of the subprojects, the scope of subproject safety analysis activities, and review and approval requirements (see Section 13.3, *Integrated Environment, Safety and Health Management System*).

17.0 RADIOLOGICAL CONTROL

The SNF Project ensures the radiological safety of workers, the public, and the environment. This encompasses the ALARA principles, contamination control, and safe radiological practices.

17.1 Radiation Protection

The SNF Project conducts radiological work at SNF Project facilities within the requirements of the following documents:

- HNF-5173, *PHMC Radiological Control Manual*
- DOE Order 5480.11, Radiation Protection for Occupational Workers
- DOE/EH-0256T, DOE Radiological Control Manual
- 10 CFR Part 835, Occupational Radiation Protection

The SNF Project, Radiation Control group provides radiation safety services to the SNF Project. These services include, but are not limited to:

- Radiological surveillance
- *Job-specific radiation monitoring*
- Entry and access control to radiological areas
- Employee counseling regarding radiological issues
- Preparing radiation work permits (RWPs)
- Providing radiological release surveys
- Review and approval of technical work documents (technical procedures, work packages, construction work packages, etc.), for radiological work or work in radiological areas, including changes to these documents
- Providing radiological expertise during design of new facilities or modifications to existing facilities
- Reviewing and approving ECNs for radiological systems or systems in radiological areas

- Participating as an integral part of the Radiological Design Review process.

Persons performing work in one of the SNF Project areas comply with radiological safety requirements as specified in RWPs, and as communicated by Radiation Control.

17.2 Housekeeping and Contamination Control

The SNF Project ensures a safe and organized working environment for personnel in office and industrial areas.

Cleanliness and good housekeeping are considered essential. A good radiological control program can only exist in a clean, organized work place. Cleaning up after each job is automatic for each person; radiological control is not separated from good housekeeping; they go together.

17.3 As Low As Reasonably Achievable

The SNF Project applies ALARA criteria to work performed at its facilities including planning tasks/jobs, and building or facility modifications.

The SNF Project ALARA philosophy minimizes occupational and environmental exposures to radiological, hazardous substances or conditions (commensurate with sound economic and operating practices). Radiological ALARA requirements are administered through AP Topical Area, *Radiation Protection*, which implements site procedures on ALARA. The Hanford Site procedures incorporate the requirements of HNF-5173, 10 CFR 835, Occupational Radiation Protection, and ISMS items related to planning radiological work. Activities involving radioactive materials and/or areas and conditions are conducted in accordance with the SNF Project ALARA program. Exposure to hazardous conditions or materials conducted in accordance with safety, waste management, and pollution prevention programs.

The SNF Project Director implements and maintains the ALARA program plan.

18.0 PROJECT TURNOVER AND CLOSEOUT

18.1 Organization and Responsibility

The Project Director is responsible for initiating the turnover process and Project closeout. Upon establishment of end-point criteria, a Project closeout responsibility matrix and checklist is completed to identify the groups and individuals to assist with turnover and closeout.

Subproject managers implement closeout of their respective subprojects following turnover of their facilities to Operations, as discussed in Section 15.0, *Start-up Testing, Turnover, and Acceptance*.

18.2 Turnover of the CSB

Responsibility for the CSB following SNF relocation is determined by RL, including responsibility for both facility operations and maintenance, and for fuel custodial services.

18.3 Turnover of 100 Area K Basins

The SNF Project will turn over the K Basin area and facilities to the RL contractor responsible for ER following deactivation.

18.4 End-Point Criteria

Final turnover procedures and the end-point criteria are established to specifically define the process and standards for turnover of the CSB and the 100 K Area. End-point criteria are established in alignment with RL and the designated WM-02 and ER contractors.

18.5 Closeout

Administrative, financial, and contractual closeout of the subprojects and the SNF Project are conducted in accordance with contract requirements and PHMS Procedures. Closeout requirements include:

- Settling outstanding issues and completing final negotiations with the subcontractors and vendors regarding change orders, claims, or adjustments.
- Transferring required property, project documents, and engineering information as stipulated in the contract and PHMC Procedures.
- Disposing of other project records by either destruction or forwarding to the records holding area

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APPENDIX A

**SNF PROJECT
TECHNICAL BASELINE DEFINITION**

SNF Project Technical Baseline Hierarchy consists of six tiers. One tier represents site level baseline documents and five tiers describe project baseline documents. Technical Baseline describes the "What" of the Project.

External Requirements are outside the SNF Technical Baseline. Examples include Laws, Regulations, Orders, and National Standards. They are drawn upon by requirements documents included within the Technical Baseline.

Procedures are outside the SNF Technical Baseline. They define the "How" behind the way project workscope is to be accomplished.

Supporting Documentation is outside the SNF Technical Baseline. It provides a foundation for the Technical Baseline. Examples of Supporting Documentation are 1) Technical Baseline Validation Team Report; 2) Enabling Assumptions; 3) Alternative studies; 4) detailed analysis white papers; and 5) issue closure records.

WBS No.	Baseline Component	Baseline Document
Tier O: Site Level		
1.0	Hanford Site Environmental Management Specification	DOE/RL-97-55
1.0	PHMC Statement of Work	DE-AC06-96RL13200, Para C.3.C
Tier 1: Acquisition Executive		
1.3.1	Mission Statement	RL-D96-007, Project Plan/Charter
1.3.1	Project Objectives	RL-D96-007, Project Plan/Charter
Tier 2: RL Project Level		
1.3.1	Environmental Management Project Specification	DOE/RL-97-55, Hanford Site Environmental Management Specification, Rev 0H, Section 4.2.3 Note: Requires AM Approval
1.3.1	Facility Description	MYWP Sect 1.3.1
1.3.1	Facility Technical Logic	MYWP Sect 1.3.2
1.3.1	Life Cycle Functional Descriptions	MYWP Sect 1.3.3 excluding Life Cycle Functional Requirements
1.3.1	Facility Boundary Diagram	MYWP Sect 1.3.4
1.3.1	Interface Descriptions	MYWP Sect 1.3.5 excluding Summary-Level Forecast
1.3.1	WBS Dictionary	MYWP Sect 2.0
1.3.1	Programmatic Planning Assumptions	SNF Database
1.3.1	Acceptance/Turnover Criteria outside SNF Project Boundaries	Not Available
Tier 3: RL Subproject Level		
Functions & Requirements (F&Rs)/Functional Design Criteria (FDCs)		
1.3.1.1.12	K Basin SNF Characterization Shipping F&R/FDC	WHC-SD-SNF-FRD-007
1.3.1.1.13	Project W-405 (Essential K Basin Upgrades) F&Rs/FDC	WHC-SD-W405-FDC-001
		WHC-SD-W405-FDC-002, Fire Protection Task
		WHC-SD-W405-FDC-003, 100K Water Supply & Distribution
		WHC-SD-W405-FDC-004, Maintenance Shop Upgrade
1.3.1.1.13	Dose Reduction F&Rs/FDC	WHC-SD-SNF-FRD-001
1.3.1.1.14	FRS F&R/FDC	WHC-SD-SNF-FRD-008
1.3.1.1.15	IWTS F&R/FDC	HNF-SD-SNF-FDC-003, K West IWTS
		HNF-SD-SNF-FDC-002, K East IWTS
1.3.1.1.16	Debris Removal F&R/FDC	HNF-SD-SNF-FRD-021, Dummy Elevator Pit Debris Removal
		WHC-SD-SNF-FRD-009
		WHC-SD-SNF-FRD-018
		SNF-5502, KW Canister Cleaning System
1.3.1.1.17	MCO F&R/FDC	WHC-SD-SNF-FRD-016
1.3.1.1.18	C/T F&R/FDC	WHC-SD-SNF-FRD-011
1.3.1.1.30	CSB F&R/FDC	WHC-SD-SNF-FRD-010
1.3.1.1.41	CVD F&R/FDC	WHC-SD-SNF-FRD-020
1.3.1.1.60	Site-wide SNF Project Management Plan, Appendix A	HNF-SD-SNF-PMP-018

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WBS No.	Baseline Component	Baseline Document
1.3.1.1.60	Performance Specification for Concrete Storage Pads as part of 200 East Area Interim Storage Area	HNF-2074
1.3.1.1.60	Performance Specification for FFTF Transloading System	In Development
1.3.1.1.60	Repackaging System FDC	In Development
1.3.1.1.60	PWR Core 2 SNF Canister Specification	SNF-5190, Performance Specification for the Shippingport Spent Fuel Canister
1.3.1.1.60	Specification for Fuel Drying Shippingport PWR Core 2 Blanket Assemblies	HNF-4032, Performance Specification, Fuel drying and Canister Inerting System for Shippingport PWR Core 2 Blanket Assemblies Stored Within Shippingport PWR Core 2 Canisters
1.3.1.2.50	Sludge Removal F&Rs/FDC/PDC	WHC-SD-SNF-FDC-004, Sludge Removal System (superceded by SNF-4961)
		WHC-SD-SNF-FDC-005, Sludge Retrieval System,
		WHC-SD-SNF-FDC-006, Sludge Loadout System
		WHC-SD-TP-PDC-035, Packaging Design Criteria for the K Basin Sludge Transport System
		WHC-SD-SNF-FRD-003, Sludge Retrieval & Packaging
1.3.1.2.50	Transition Project F&R	SNF-4961, Functions and Requirements for the Transition Project
Conceptual Design Reports		
1.3.1.1.13	Dose Reduction CDR	WHC-SD-SNF-DRR-001, Concept Design Review for K-East Basin Dose Reduction, Vol. I
		WHC-SD-SNF-DRR-002, Concept Design Review for K-East Basin Dose Reduction, Vol. II
		WHC-SD-SNF-DRR-003, Conceptual Design Review Report for K Basin Dose Reduction Clean and Coat Task
1.3.1.1.14	Fuel Retrieval System (FRS) CDR	L/B-SD-SNF-RPT-09
1.3.1.1.17	MCO Loading Station	HNF-SD-SNF-CDR-010, Conceptual Design Report for the Hanford K East and K West Basin MCO Loading System
1.3.1.1.30	CSB CDR	SNF CSB Conceptual Design Report Issued by Fluor Daniel, Inc. Under WHC Contract TVW-SVV-370252 in Jul 1995
		WHC-SD-W379-DR-001, SNF CSB CDR Review Committee Report
1.3.1.1.41	CVD CDR	WHC-SD-SNF-CDR-003
		Sludge Conceptual Design Package from Mid Columbia

WBS No.	Baseline Component	Baseline Document
1.3.1.2.50	Sludge Removal (Sludge Retrieval System, Sludge Loadout, Sludge Retrieval and Packaging)	To Be Developed
1.3.1.2.50	Transition Project	To Be Developed
1.3.1.1.60	Repackaging Cell CDR	Not Available
Tier 4: Contractor Project Level		
Process Flow Diagrams (PFDs)		
1.3.1.1	Process Flow Diagram Level 0	H 020825867, Summary H 020825868
1.3.1.1.14	Process Flow Diagram Level 1	H 010081159, KE Basin FRS,
1.3.1.1.14	Process Flow Diagram Level 1	H 010081164, KW Basin FRS
1.3.1.1.16	Process Flow Diagram Level 1	H 010081158, KE Basin Debris Removal
1.3.1.1.16	Process Flow Diagram Level 1	H 010081163, KW Basin Debris Removal
1.3.1.1.17	Process Flow Diagram Level 1	H 010081169, MCO
1.3.1.1.18	Process Flow Diagram Level 1	H 010081168, C/T
1.3.1.1.20	Process Flow Diagram Level 1	H010081155, KE Basin Water System
1.3.1.1.20	Process Flow Diagram Level 1	H 010081161, KW Basin Water System
1.3.1.1.20	Process Flow Diagram Level 1	H 010081156, KE Basin Solid Waste Storage & Support
1.3.1.1.30	Process Flow Diagram Level 1	H 020825869, CSB
1.3.1.1.41	Process Flow Diagram Level 1	H 010081166, CVD
1.3.1.2.50	Process Flow Diagram Level 1	H 010081167, Sludge Removal
1.3.1.1.60	Process Flow Diagram Level 1 for Sitewide SNF	FFTF SNF PFD NRF TRIGA SNF PFD PWR Core 2 SNF PFD LWR SNF PFD
Site Arrangement Drawings		
1.3.1.1	SNF Project General Arrangement, Level 0	H-2-826598
1.3.1.1.13 1.3.1.1.14 1.3.1.1.15 1.3.1.1.16 1.3.1.1.20 1.3.1.1.41 1.3.1.1.50	SNF Project 100K General Arrangement, Level 1	H-1-81568
1.3.1.1.30 1.3.1.1.40 1.3.1.1.60	SNF Project 200E General Arrangement, Level 1	H-2-826599
1.3.1.1.60	SNF Project 400 General Arrangement, Level 1	H-4-302541
1.3.1.1	SNF Subproject Assumptions	Within Basis of Estimate
Tier 5: Contractor Integration Level		
1.3.1.1	SNF Project Product Specification	HNF-SD-SNF-OCD-001
1.3.1.1	Technical Databook	HNF-SD-SNF-TI-015
1.3.1.1	105-K Basin Material Design Feed Specification	HNF-SD-SNF-TI-009, 105-K Basin Material Design Basis Feed Description for Spent Nuclear Project Facilities

WBS No.	Baseline Component	Baseline Document
1.3.1.1.20	Process & Instrument Diagrams (P&IDs) for K Basins	
	KE Fuel Storage Basin P&ID Legends, Notes & Key	H-1-51837, Sheet 1
	KE Fuel Storage Basin P&ID, Cooling Water System	H-1-51837, Sheet 2
	KE Fuel Storage Basin P&ID, Water Cleaning System	H-1-51837, Sheet 3
	KE Fuel Storage Basin P&ID, Demineralized System	H-1-51837, Sheet 4
	KE Fuel Storage Basin P&ID, Reclaimed Drain Water System	H-1-51837, Sheet 5
	KE Fuel Storage Basin P&ID, Compressed Air System	H-1-51837, Sheet 6
	KE Fuel Storage Basin P&ID, Glycol System	H-1-51837, Sheet 7
	KE Fuel Storage Basin P&ID, Block Diagram	H-1-51837, Sheet 8
	P&ID Water Quality Laboratory	H-1-80549
	P&ID Filter/Backwash System 100-K Area	H-1-80802
	Compressed Air P&ID for 165/190 KE	H-1-80803
	Compressed Air P&ID for 183KE	H-1-80804
Tier 6: Contractor Subproject Level		
1.3.1.1.12	Intra-project Interface Control Agreements/Drawings	A list of all interface control documents is available from SNF Project Engineering Systems organization
Drawings		
1.3.1.1.20	Essential Drawing List for K Basins	HNF-SD-SNF-EDL-001
1.3.1.1.30	Essential Drawing List for CSB	In Development
1.3.1.1.41	Essential Drawing List for CVD	SNF-5335 Preliminary Spent Nuclear Fuel Cold Vacuum Drying Facility Essential and Support Drawing List
Principal Specifications of Major Subprojects		
1.3.1.1.13	Dose Reduction	WHC-S-0375, 105K East Basin Dose Reduction Project Decon and Seal Task
1.3.1.1.14	Preliminary design of the Spent Nuclear FRS Project	WHC-S-0427
1.3.1.1.14	Spec for conceptual design of the Spent Nuclear Fuel Retrieval Subproject systems	WHC-S-0438
1.3.1.1.14	Design of the SNF Project Fuel Retrieval Subproject	HNF-S-0461
1.3.1.1.15	Spec for design, fabrication, testing and technical support for the K West Basin Water Treatment System	HNF-S-0564
1.3.1.1.16	Spec for Debris Removal	WHC-S-0525, Spec for Pressure Washer to Decontaminate KE Poles & Fuel Storage Hangers WHC-S-0433, Spec for K Basin Canister Crusher

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WBS No.	Baseline Component	Baseline Document
1.3.1.1.17	Spec for MCO automated welding system	WHC-S-0469
1.3.1.1.17	Spec for SNF MCO	HNF-S-0426
1.3.1.1.17	Spec for MCO fabrication	HNF-S-0453
1.3.1.1.17	Spec for SNF K East and K West MCO Loading system	WHC-S-0546
1.3.1.1.18	Spec for C/T System	WHC-S-0396
1.3.1.1.30	Spec for SNF CSB	WHC-S-0425
1.3.1.1.30	Spec for procurement of CSB MCO Handling Machine	HNF-S-0468
1.3.1.1.41	Performance spec for the K Basin SNF Vacuum Drying module	HNF-S-0435
NA	As-Builts/Title III	
Other Documents		
1.3.1.1.20	K Basins Safety Equipment Lists	HNF-SD-SNF-SEL-001, Safety Equipment List for K Basins
1.3.1.1.30	CSB Safety Equipment Lists	SNF-5591, Spent Nuclear Fuel Project Canister Storage Building Safety Equipment List
1.3.1.1.41	CVD Safety Equipment Lists	HNF-SD-SNF-SEL-002, Spent Nuclear Fuel Project Cold Vacuum Drying Facility Safety Equipment List
NA	Vendor Data	Not Available
1.3.1.2.50	Design Reports	SNF-5161, K Basins Sludge Retrieval System 90 Percent Design Review Report

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APPENDIX B

**SNF PROJECT
REVIEW AND APPROVAL MATRIX**

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DOCUMENTS	Organizational Managers							
	Project Director	Proj. Cont. Mgr	Contracts Mgr	Chief Engineer	Design Authority	Operations Mgr	Cognizant Proj. Mgr	Sludg. Debris ... Mgr
	QA Mgr (3)	SH&EP Mgr	PI&RS Mgr	Responsibility				

ENGINEERING DOCUMENTS									
Functions & Requirements / Functional Design Criteria	A			C	P/C	C	C	R	C(3)
Drawings									
• Drawing Tree				P/A	P/C	C	A	R	R
• Site Arrangement Drawings				P/A	C	C	C	C	C
• Process Flow Diagrams (PFDs)					C	C	C	R	R
• Process & Instrumentation Diagrams (P&IDs)					R	R	P/A	R	R
• General Arrangement Drawings					P/R	A	A		
• Mechanical, Electrical, Instrument & Control					P/A*	A	A	R	
Intra-Project Interface Control Agreements / Drawings / Data Sheets					P/A	R	R		R
System Design Descriptions					C	C	P/A		C(3)
Process Description				P/A	C	R	C		C(3)
Design Specifications					C	R	P/A		C(3)
Equipment Specifications					C	R	P/A		C(3)
Design Reports (Conceptual, Preliminary, Final)					C	R	P/A		C(3)
Compliance Matrices					C	R	P/A		C(3)
Supporting Documents									
• Engineer Analysis (Stress, Seismic, Thermal, etc)				A	C*		P		
• Peer Review Report				A	C*		P		
• Computer Code (V&V) Report				P/A	C*		P*		
• Trade Studies				P/A	C*				
Engineering Tests (Plans, Procedures, Reports)						C*	P/A	R	C(3)
Engineering Change Notices (ECN)									
Plant Equipment List						A	P		

See requirement for original document per this matrix

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DOCUMENTS	Organizational Managers										Responsibility	
	Project Director	Proj. Cont. Mgr	Contracts Mgr	Chief Engineer	Design Authority	Operations Mgr	Cognizant Proj. Mgr	Sludge, Debris ... Mgr	QA Mgr (3)	SH&EP Mgr		PI&RS Mgr
Configuration Management Plan	A			P/C		C	C	R	R	C(3)		
Tech Manuals				C	A		P					
Vendor Information (VI) Files					A		P					
Tech Data Book (Supporting Analysis)				P/A	R*					C(3)		
Data Quality Objectives (DQO)				P/A	R*	C*	C*		C			
Failure-Mode, Effects, & Criticality Analysis (FMECA)				P/A*	P/A*							
Value Engineering Analysis		R		P/A*			P/A*					
Reliability, Availability, and Maintainability (RAM) Reports				P/A		R	P/A*					
ALARA Reports				P/A		C*	C*					
Alternative Generation Analysis (AGA)				P/A								
Fuel Product Specification				P/A	C	C						
OPERATIONS DOCUMENTS												
Operating Scenarios and Campaign Plans	A			P/C*	R	P/C*						
ISMS Implementation Plan	A					P/C			R			
Training Procedures (Administration)						P/A						
S/RID	A						A*				P	
S/RID Implementation Plan	A										P/A	
Essential Drawings List				P/A	R	C			R			
Operating and Maintenance Manuals				C		C	P/A		R			
Operational Test Procedures (OTP)				C		P/A	R					
Operating Procedures					C	P/A			R			
Surveillance Procedures (includes Preventative Maintenance and Calibration)												
Repair/Maintenance Work Packages				R	C	P/A	C			C(3)		
				R	C	P/A			R			

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PM/S Datasheets				R	P/A				
Training Plans					P/A				
Hazardous Waste Disposal Plan					P/A				
Waste Management Plan					P/A				
MSA Implementation Plan	A	R	R	R	P/C	R	R	R	
Corrective Action Report								P/A	P
ORR Plan	A	R	R	C	P/R	C	R	C	C
Plan of Action (POA)	A		R		P/C		R	R	R
ENGINEERING (SAFETY) DOCUMENTS									
Hazards Analysis Report				P/C	C				
Preliminary Safety Evaluations				P/C	C	A			
Supporting Safety Analysis				P/C	C	A			
Preliminary Safety Analysis Report (PSAR)	A			P/C	R	C			R
Risk Analysis				P/C	C	A			
Safety Assessment Document (SADs)	A			P/C (4)	R	C			
Safety Equipment List (SEL)				P/A (4)	C	C			
Safety Topical Reports	A			P/C (4)	R	C			
Final Safety Analysis Report (FSAR)	A			P/C (4)	R	C			
Operational Safety Requirements (OSR)				P/C (4)	R	A			C*

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Technical Safety Requirements (TSR)	A			P/C (4)	R	C	C*			
Fire Hazard Analysis (FHA)					R		P/A			
Criticality Safety Evaluation Report (CSER)				P/C	R	A*	A*			
PROCUREMENT / CONTRACTS DOCUMENTS (5)										
Contract	P/A*	P/A*	A	P/A*		P/A*	P/A*	P/A*	P/A*	P/A*
Contract Modifications	P/A*	P/A*	A	P/A*		P/A*	P/A*	P/A*	P/A*	P/A*
Requisitions	P/A*	P/A*	A	P/A*		P/A*	P/A*	P/A*	P/A*	P/A*
Purchase Orders	P/A*	P/A*	A	P/A*		P/A*	P/A*	P/A*	P/A*	P/A*
Statements of Work			R	P/A*			P/A*			C(3)
PROJECTS DOCUMENTS										
Detailed Work Schedules	P/A*	P/A*	P/A*	P/A*	R	P/A*	P/A*	P/A*	P/A*	P/A*
Project Files Index							P/A			P/A*
Procurement Specifications			R	C*	R	R	P/A			C(3)
Fabrication Specifications			R	R*	R	R	P/A			C(3)
Construction Specifications			R	R*	R	R	P/A			C(3)
Fabrication / Shop Drawings			R	R*	R/A*		P/A*			
Installation Drawings			R	R*	R		P/A			
As-built Drawings			R	C*	R	C	P/A			
Construction Acceptance Test (CAT) (Plans, Procedures, Reports)					R	R	P/A			C
Factory Acceptance Test (FAT) (Plans, Procedures, Reports)					R	R	P/A			C
Performance Acceptance Test (PAT) (Plans, Procedures, Reports)				R		P/A	C			C

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DOCUMENTS	Organizational Managers											Responsibility
	Project Director	Proj. Cont. Mgr	Contracts Mgr	Chief Engineer	Design Authority	Operations Mgr	Cognizant Proj. Mgr	Sludg, Debris ... Mgr	QA Mgr (3)	SH&EP Mgr	PI&RS Mgr	

	P/A	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*
Performance Agreements (PAs)	P/A	R*	R*	R*	R*	R*	R*	R*	R*	R*	R*
DOE Correspondence	A	P/C*	P/C*	P/C*	P/C*	P/C*	P/C*	P/C*	P/C*	P/C*	P/C*
Site Selection Recommendation	A										
Inter-Project Programmatic Agreement / Memo of Understanding	A										
PROJECT CONTROLS DOCUMENTS											
Project Baseline Schedules (PMBS or Level 3)	A	C									
Basis of Estimate (BOE) Books	P/A	P/A	P/A	P/A	P/A	P/A	P/A	P/A	P/A	P/A	P/A
MYWP (Tech, WBS, Cost, and Schedule)	A	P	R	R	R	R	R	R	R	R	R
Change Requests (CRs)	A	R	P	P	P	P	P	P	P	P	P
Deviation Notices (DNs)	A	R/C	P	P	P	P	P	P	P	P	P

- * - As applicable
 C - Concur
 R - Review
 A - Approve
 P - Prepare
 (1) Design Agent
 (2) for Site-Wide SNF Sub-Project
 (3) In accordance with AP 1-023
 (4) Safety Review Board
 (5) Specific levels of approval authority assigned by Project Director
 (6) Only contracts has authority to commit funds to vendor

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APPENDIX C

**SNF PROJECT
ORGANIZATION, COMMITTEE, AND
COUNCIL CHARTERS**

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SNF PROJECT DIRECTOR

CHARTER

The Spent Nuclear Fuel (SNF) Project Director provides project leadership and direction to effectively develop and implement the SNF Project cost, schedule, and technical baselines while implementing the principles of integrated safety management and maintaining a safety conscientious culture.

RESPONSIBILITIES

1. Provide overall management direction to assure safe operations of existing wet storage facilities and cost-effective transfer of spent nuclear fuel to a new dry storage facility for personnel performing the following activities:
 - a. Operations
 - b. Maintenance
 - c. Engineering
 - d. Construction
 - e. Environmental, Safety, and Health
 - f. Quality Assurance
 - g. Planning
 - h. Contracts
 - i. Procurement
 - j. Training
 - k. Scheduling
 - l. Occupational safety and industrial hygiene.
2. Direct the integration of multiple subprojects to successfully achieve project goals within schedule and budget constraints.
3. Develop and oversee the implementation of corrective measures to resolve complex technical and management issues threatening timely completion of the project.
4. Provide leadership and guidance for occupational safety and industrial hygiene issues. This includes providing leadership for implementation of Integrated Safety Management, Voluntary Protection Program, and oversight of project construction activities.
5. Establish the SNF Project organization to support the SNF Project mission. The SNF Project organization chart indicates how the Project implements the management structure outlined in HNF-MP-001, *Fluor Hanford Management Plan*.

QUALITY ASSURANCE CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Quality Assurance (QA) organization develops and maintains the SNF Project Quality Assurance Program Plan, interprets and sets criteria for the project organizations. The SNF Project, QA Manager has overall responsibility for establishing criteria. The SNF Project line organizations have the overall responsibility for performing work activities within the established criteria.

RESPONSIBILITIES

1. Interpret and approve QA program requirements.
2. Identify quality problems; initiating, recommending, or providing solutions to quality problems and verifying those solutions.
3. Perform oversight activities on subcontractor workscope to verify implementation of QA requirements.
4. Overview of project management's implementation of the QA program and implementing procedures.
5. Review project documentation such as:
 - a. Safety analysis reports
 - b. Standards/requirements identification documents
 - c. Project management plans, etc.
6. Prepare and support operational readiness review activities to incorporate QA requirements.

SLUDGE AND SITE-WIDE SNF

CHARTER

These subprojects ensure the safe, interim storage of Hanford non-defense production reactor spent nuclear fuel and disposition planning for all Hanford spent nuclear fuel, and safe disposition of the sludge, debris, and contaminated water contained in K Basins following fuel removal

RESPONSIBILITIES

1. Manage and execute the Site-Wide Spent Nuclear Fuel (SNF) Project.
2. Manage the National SNF Program activity in support of RL.
3. Establish and maintain major interfaces with other Hanford Site Projects and Programs.
4. Manage transition of the SNF Project 100 K Area facilities to the ER contractor. This includes sludge, debris, and water removal from the Basins.
5. WM-02, continuing Canister Storage Building Operations, planning lead.
6. Office of Civilian Radioactive Waste Management Quality Assurance program compliance office for the SNF Project.

CONSTRUCTION PROJECTS CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Construction Projects organization provides detailed design, construction, and turnover of quality facilities and systems that dry and store spent nuclear fuel. Projects include:

1. Facility and system to dry the spent fuel (Cold Vacuum Drying Facility)
2. Facility to provide long-term storage of the K Basins spent fuel (Canister Storage Building).
3. Necessary modifications to the K Basins that house the spent fuel so that retrieval of the fuel is possible.
4. Systems to retrieve the spent fuel (Fuel Retrieval System) from the basins.
5. System to maintain water clarity (Integrated Water Treatment System) while retrieving the spent fuel.

RESPONSIBILITIES

1. Ensure that the designs meet all technical and process requirements, schedules, and budget restraints. Provide a quality design for the Cold Vacuum Drying System and the Canister Storage Building.
 2. Procure materials, equipment, and services that meet projects needs and satisfy Hanford Site requirements.
 3. Fabricate systems and construct facilities to meet all technical specifications, quality standards, schedules, and budgets.
 4. Turn over fully functioning systems and facilities to the Operations organization on schedule and with proper documentation.
 5. Meet Office of Civilian Radioactive Waste Management (OCRWM) requirements, as appropriate, and provide documentation to Operations as part of the Authorization for Beneficial Use turnover
 6. Maintain a working environment where employees (including contractors) are productive and safe from unnecessary hazards and dangers. Employees are free to express safety or quality concerns to management without the fear of retribution.
-

CONTRACTS AND PROCUREMENT CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Contracts Organization executes subcontracts for materials, equipment, and technical services for operations, subprojects, and general support. Contracts provides the business leadership for the project in developing procurement plans and strategies, market surveys, acquisition lead times, contract pricing, and vendor interface.

The Contract Administration function works with the vendor to ensure that all contract terms, conditions, and requirements are met. The Contract Administrator supports the project technical representatives and assures that all business and technical aspects of the contract are met.

RESPONSIBILITIES

1. Assist the project in developing individual or project-wide Contract strategies for requisite acquisition planning. Provide the best suited contract and specification type based on the degree of complexity and required definition. Assess and impart the potential for contract incentives.
2. Implement approved Project Hanford Management Contract (PHMC) procurement policies and procedures to ensure PHMC and Government regulatory and statutory compliance.
3. Develop and implement SNF Project-unique Contract policies and procedures to supplement the Fluor Hanford (FH) system.
4. Verify requirement urgency. Ensure priority requirements are properly managed to support necessary lead times and schedule accelerations.
5. Coordinate pre-award communications with the project technical representative and the proposing companies to maintain process credibility and to facilitate proper and timely contract awards.
6. Provide leadership for technical and price evaluations, coordinate the review activities, and instill the necessary discipline to deliver timely reviews for a quality contract award.
7. Develop and communicate clear objectives and strategies to project personnel regarding contract changes.

8. Establish and maintain contract administration practices that effectively ensure subcontractor compliance with all contract terms, conditions, and requirements.
9. Promote a routine interface on a regular basis with subproject technical representatives to stimulate communications regarding subcontractor performances. Early identification of subcontractors cost, schedule, or technical performances will hasten corrective action and mitigate any resulting damages to either party.
10. Interpret procurement regulatory and statutory applications relative to contractual nonconformances and advise the project of the available courses of action.

SAFETY, HEALTH & EMERGENCY PLANNING CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Safety, Health, and Emergency Planning Organization provides programmatic oversight of the SNF Project Occupational Health and Safety Program, and directly manages the SNF Project Emergency Planning program.

RESPONSIBILITIES

Safety & Health

1. Provide leadership and guidance for occupational safety and industrial hygiene issues.
2. Protect the safety of workers, the public, and environment through the recognition, evaluation, and control of physical hazards that are likely to cause personal injury or damage to the environment.
3. Protect the health of workers, the public, and environment through the recognition, evaluation, and control of occupational health hazards.
4. Implement Project Hanford Management Contract (PHMC) safety, health, and emergency preparedness policies and procedures to ensure PHMC and Government regulatory and statutory compliance.
5. Develop and implement project specific policies, procedures, and programs needed for supplementing established PHMC programs.
6. Promote worker involvement in preventing work place injury and illness through the establishment of a project Voluntary Protection Program and Employee Zero Accident Council.
7. Provide oversight of subcontractor work activities to verify effective implementation of PHMC and SNF Project safety and health requirements.

Emergency Planning

1. Provide leadership for managing unexpected operational and facility emergencies.
2. Manage SNF Project emergency response by identifying, quantifying, documenting, and analyzing potential scenarios that have the potential for creating unexpected interruptions in facility operations, and affecting the safety and health of workers, the public, and environment.
3. Coordinates and integrates SNF Project emergency response activities into the Hanford site emergency response organization.
4. Develops SNF Project specific emergency response guides consistent with Hanford site emergency response guidelines.
5. Evaluates SNF Project emergency response capability by developing and conducting drills and exercises.
6. Coordinates the development and presentation of SNF Project emergency response training to all project personnel.

OPERATIONS CHARTER

CHARTER

Spent Nuclear Fuel (SNF) Project Operations manages and directs SNF Project operational activities in a safe, economic, and environmentally sound manner. All activities, including facility operations and maintenance, new facility startup and testing, handling and storage of spent nuclear fuel, and operational support functions (training, radiological control, etc.), shall be conducted in compliance with U.S. Department of Energy contractual orders and applicable federal, state, and local laws.

RESPONSIBILITIES

1. Provide safe and cost effective interim storage, conditioning, and relocation of spent nuclear fuel from 105 K East and 105 K West basins to dry, passive interim storage within the Canister Storage Building (CSB). Ensure activities are managed in accordance with applicable laws, regulations, and contractual obligations including as necessary interface requirements with other onsite organizations and facilities.
2. Correct and maintain 100 K Area existing physical plant deficiencies by a graded approach. Maintain a safe and environmentally compliant working environment.
3. Develop and monitor performance to Operations goals, objectives, milestones, and assigned company performance agreements. Perform required self-assessments and complete corrective actions with the goal of continuous improvement.
4. Provide operational support to expedite removal of the K Basins' fuel, sludge, debris, and contaminated water in a safe and environmentally sound manner in accordance with the SNF Project mission.
5. Ensure the development and preparation of schedules and financial documents containing program plans, budgets, and other accountability factors for the successful conduct of the SNF Project mission.
6. Provide operational input and review for all operational activities planned for the duration by the SNF Project.
7. Develop and coordinate plant readiness assessments, operational readiness reviews (ORRs), path forward projects, and development of staffing and managing the new SNF Project facilities.
8. Successful and cost-effective execution of SNF Project startup and ORR activities.

9. Execute effective integration and planning of all work activities within the SNF Project facilities.
10. Provide delegation to SNF Project managers to perform the responsibilities and authorities of the position of Operations Manager during the absence of the Operations Manager, for the operation of the SNF Project facilities.
11. Provide detailed design, construction, and turnover of quality facilities and systems that retrieve, transport, and store spent nuclear fuel.

Facility Operations

The SNF Project Operations organization manages and directs all SNF Project activities associated with new facility and system startup, testing, and operations and conducts the ongoing operational activities within assigned facilities in a safe and efficient manner. Operations consists of the Operations managers for the 105KE, 105KW, Cold Vacuum Drying (CVD) Facility, CSB, and the Operations Support Manager. Facility Operations provides the subject matter experts who make up the initial management team for operations and technical support staff for operation of SNF Project facilities. Facility Operations conducts all activities within the boundary of the current safety basis in a manner that ensures compliance with DOE Orders along with applicable federal, state, and local laws. Operations Support supports accountability of Special Nuclear Material (SNM), ensures waste controls are in place and in compliance with U.S. Department of Energy (DOE) Orders, along with applicable federal, state, and local laws.

Operations safely and cost-effectively executes the SNF Project startup and ramp up activities and operations and ensures that workers' safety and health are maintained at a high level of awareness and performance.

1. The SNF Operations managers shall be responsible for overall Facility operation and shall delegate in writing this responsibility as appropriate.
2. Review subproject design for operability, maintainability, and a defined safety basis that can be implemented in the field.
3. Direct all operational activities of assigned facilities. Ensure that all work is performed in accordance with established procedures in a manner that reflects the highest commitment to safety, total quality, and excellence in a timely and cost-effective manner.
4. Manage all operational activities to meet requirements on schedule and within budget.

5. Maintain standard of performance to formal conduct of operations per DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*, as defined in the conduct of operations applicability matrix (AP OP 2-017, Appendix)
6. Provide surveillance data for all systems, conduct analysis and limited retention of data, and maintain an up-to-date state of all facilities and equipment
7. Establish and coordinate the priorities for production and maintenance activities.
8. Ensure all Facility Operations activities are conducted within the boundary of the current safety basis.
9. Establish and maintain excellence in housekeeping.
10. Provide administrative management of the following programs:
 - Occurrence reporting
 - Key control
 - Lock and tag
 - Event investigation
 - Lessons learned
 - Operator aids
 - Water plant operation
11. Develop the operations budget baseline for the K Basins, CVD Facility, CSB, Cask Transportation, Fuel Retrieval System, Integrated Water Treatment System, and Operations Support.
12. Establish and maintain effective working interfaces with subprojects organizations and other Project Hanford Management Contract (PHMC) support organizations.
13. Develop and coordinate staffing for operation of the facilities and systems.
14. Review preoperational test procedures.
15. Designate representatives to support the Test Review Board, as required.
16. Ensure SNM accountability is maintained by establishing and maintaining custodial ownership of the SNM.
17. Ensure all waste control activities meet the requirements of DOE Orders, along with applicable federal, state, and local laws.

18. Provide delegation to the Deputy Operations managers, Facility Shift Managers, or Operating Engineers to perform the responsibilities and authorities of the Facility Operations Manager during the absence of the Facility Operations Managers.

Chemical Management

1. Provide leadership for implementing and managing chemicals that are used within the SNF Project.
2. Implement Project Hanford Management Contract (PHMC) chemical management policies and procedures to ensure PHMC and Government regulatory and statutory compliance.
3. Ensure development of SNF Project specific policies and procedures governing the acquisition, use, storage, transportation, and disposal of chemical products in a manner that minimizes risk to human health and the environment.

Maintenance and Integrated Work Management

Maintenance and Integrated Work Management manages and directs activities for maintenance of SNF Project facilities, and integrates and plans all work activities within the K Basins associated with the installation of basin modifications, the integrated water treatment system, and the fuel retrieval system.

1. Direct all maintenance and work control activities of assigned facilities that affect the SNF Project operations in strict compliance with DOE Order 4330.4B, Project Hanford Management Systems (PHMS), Topical Area, *Maintenance*, and HNF-PRO-069, *Maintenance Management*. Ensure that all corrective and preventative maintenance is performed supporting operations in a manner that reflects the highest commitment to safety, total quality, and excellence in a timely and cost-effective manner, and in accordance with established procedures.
2. Participate in the overview of labor activities, ensure that their assignments and direction are in accordance with the Hanford Atomic Metal Trades Council agreement and that all grievances and employee concerns are addressed promptly and adequately.
3. Provide maintenance resources (allocation and coordination) for general facilities support functions in the assigned areas. This includes transportation services, management of contract support efforts, and procurement of maintenance materials.
4. Ensure SNF Project maintenance personnel are sufficiently trained to meet the requirements of the work assigned.

5. Provide daily direction of maintenance work tasks where needed.
6. Provide work package planning and final package assembly for all job control system (JCS) work packages.
7. Develop and issue daily, weekly, and long-range schedules that support SNF Project mission objectives. Maintain the Level IV Construction Integrated Schedule for all path forward (project) basin modifications.
8. Assemble, track, status, and close out all JCS work packages ensuring document retention requirements are followed.
9. Provide material control of tools, shop stock, staged material, and warehoused equipment.
10. Manage and control the use of measuring and test equipment and provide reverse traceability capabilities.
11. Ensure that pre-job briefings are held addressing all safety and radiological issues, setting the high standards and expectations for each individual taking part in the work.
12. Ensure timely investigations of reported off-normal plant events; e.g., unusual occurrences, Occupational Safety and Health Administration recordables, and lost work day injuries.
13. Establish an integrated approach to manage work in the basins.
14. Monitor performance versus the established schedule and budget estimates and take action to maintain the basins on schedule and on budget.
15. Identify and resolve barriers to complete work activities.
16. Conduct Construction Integration meetings and drive the schedule to ensure work occurs.
17. Identify and implement work planning, scheduling, and implementation process improvements.
18. Provide the startup/testing group's interface with the path forward basin projects and basin personnel.

Procedures

Manage and direct activities related to SNF Project administrative and/or technical procedure development. Procedures are conducted in a manner that ensures compliance with DOE Orders, DOE/RW-0333P, and DOE 5480.20A, along with other applicable federal, state, and local laws.

1. Provide direction and maintain responsibility and control for SNF Project technical and administrative procedures, including development, control, and issuance. Interact with other SNF Project organizations to ensure procedures comply with applicable standards and requirements.
2. Provide procedure writers for the development, implementation, and maintenance of the SNF Project technical procedures' system; e.g., normal operating procedures, fuel handling procedures, in accordance with HNF-PRO-229, *Technical Procedure Standard*.
3. Implement conduct of operations guidelines and ensure that activities for the Procedures group are accomplished in a manner that supports procedure compliance, best management practices, and enhances employees' work environment.
4. Ensure procedures are in compliance with (PHMS) requirements; i.e., providing identified SNF Project functional area owner and lead reviews correspondent to the functional areas of the PHMS. Reviews and updates SNF Project administrative and technical procedures to ensure compliance and clear guidance is maintained.
5. Maintain SNF Project shared-area file server, and electronic notification of changes to server for various SNF Project documentation; i.e., policies, charters, and administrative and technical procedures and documents.
6. Maintain the standards/requirements identification document self assessment database; provide data sorts for performance indicator charts and various other tasks as requested.

Training

Manage and direct a comprehensive performance based training program. Training activities are conducted in a manner that ensures compliance with DOE orders, DOE/RW-0333P, and DOE 5480.20A, along with other applicable federal, state, and local laws.

1. Provide management of a comprehensive performance based training program of appropriate formality and rigor to ensure that personnel are properly trained for the safe and efficient operation of SNF Project activities.

2. Ensure that training programs comply with federal and state regulations, including DOE/RW-0333P, DOE 5480.20A, collective bargaining agreements, and company policies.
3. Provide development and instruction of technical training packages and provide scheduling services for required training for SNF Project personnel.
4. Administer a comprehensive training program for guiding technical procedure development and field implementation for facility systems, and operating practices and routines, including a qualification/certification program as described in DOE 5480.20A.
5. Provide point-of-contact for SNF Project management for all training needs.

STARTUP / PRODUCTION INTEGRATION

CHARTER

The Spent Nuclear Fuel (SNF) Project Startup/Production Integration organization directs and coordinates key SNF Project activities to successfully complete a management self-assessment for operational readiness, independent Operational Readiness Review (ORR) and U.S. Department of Energy (DOE) ORR, per DOE Order 425.1; coordinates Multi-Canister Overpack (MCO) loading and transport between facilities, and ensure special equipment and materials (e.g., MCOs, MCO baskets) are provided to support fuel removal operations. This includes overseeing the financial and schedule activities, updating Startup Notification Report to Fluor Hanford (FH), managing the management self-assessment database and ORR records and consultant reviews related to ORRs. Startup Integration also provides oversight and assistance for SNF Project readiness assessments and develops, coordinates, and implements the SNF Project's preoperational test program and supports the operational test program.

ORR responsibilities include:

1. Develop, maintain, and update the SNF Project's management self-assessment plan for operational readiness that will meet the requirements of DOE Order 425.1, RLID 425.1, and DOE-STD-3006-95.
2. Develop and maintain the SNF Project management self-assessment database containing appraisal forms.
3. Develop and issue necessary plans of action to FH/DOE for all SNF Project activities as required by DOE Order 425.1.
4. Develop necessary plans, desk instructions, and procedures to define and control project readiness determinations, the management self-assessment, and ORR process.
5. Provide interface with the senior ORR advisor from the DOE staff (if assigned), the independent ORR chair, and the FH organization responsible for site ORR coordination, as well as those responsible for project-specific ORR activities.
6. Conduct orientation briefings, with assistance from the SNF Project Training and Support Services personnel for all SNF Project staff associated with the management self-assessment or ORR activities.

7. Provide guidance and on-the-job training for line managers performing the management self-assessment activities and any management self-assessment validation activities to ensure consistency and quality management self-assessment reviews take place.
8. Provide 100 percent review of all management self assessment appraisal forms for accuracy and completeness. This will include field assessment checks of select appraisals.
9. Establish metrics from management self-assessment and ORR progress and track on routine basis for trends that may need corrections. Recommend changes based on results.
10. Routinely monitor activities necessary to assure appropriate implementation of the SNF Project's management self-assessment plan.
11. Ensure implementation (administratively and through field verifications) of requirements from standards/requirements identification documents assigned.

Startup responsibilities include:

1. Manage test planning and scheduling, work force allocation, and budgeting activities for the Cold Vacuum Drying (CVD) Facility, Canister Storage Building (CSB), Cask Transportation, Fuel Retrieval System, and Integrated Water Treatment System.
2. Review and recommend revisions to design and procurement specifications, facility acceptance tests, construction acceptance tests, and contractor submittals as they relate to startup and testing.
3. Support preoperational test specification preparation.
4. Prepare preoperational acceptance test procedures in accordance with applicable test specifications.
5. Establish requirements and implement a system for access and work control during greenfield startup testing.
6. Provide maintenance support for equipment and systems that are turned over to Startup/Production Integration.
7. Manage organizational interface issues between Startup/Production Integration and other groups.

8. Review and acceptance of Project deliverables, which include hardware, software, certified vendor information, drawings, specifications, as-builts information, test and inspection data, operation and maintenance procedures/manuals, and any other documentation related to safe and reliable operation of the SNF Project system, structures, and components (SSC).
9. Direct performance of preoperational acceptance testing and facilitate test deficiency resolution.
10. Assist in field training and operational "dry runs" to ensure that operators, procedures, and equipment are in a final state of readiness.
11. Coordinate control of test equipment, instrumentation, and other materials required to support testing activities.

Production Integration responsibilities include:

1. Control of supply of special equipment and materials (e.g., MCOs, MCO baskets) are provided to support fuel removal operations.
2. Coordinate MCO movement between facilities.
3. Coordinate maintenance/outage schedules between K Basins, CVD, and CSB.

RADIOLOGICAL CONTROL CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Radiological Control Organization administers an occupational radiation safety program, which is in full compliance with 10 CFR 835, *Occupational Radiation Protection*, and in a manner commensurate with HNF-5173, *PHMC Radiological Control Manual*, for the SNF Project.

RESPONSIBILITIES

1. Perform radiological surveillance and monitoring as specified by 10 CFR 835, Subpart E, Article 835.401.
 2. Administer as-low-as-reasonably-achievable (ALARA) Program as specified by 10 CFR 835, Subpart B, Section 835.101.C and 10 CFR 835, Subpart K, including program implementation, design reviews, and work control processes pertaining to radiological work and facilities.
 3. Issue dosimetry in support of 10 CFR 835, Subpart E, Article 835.402. In this context, "field dosimetry" applies to job-specific dosimetry only.
 4. Identify the need for, and location of, air sampling equipment as specified by 10 CFR 835, Subpart E, Article 835.403. Radiological Control personnel obtain readings from these instruments for the purpose of performing occupational monitoring.
 5. Perform radioactive contamination monitoring as specified by 10 CFR 835, Subpart E, Article 835.404.
 6. Provide radiological entry control, and enforce SNF Project-specific entry control criteria, which are consistent with 10 CFR 835, Subpart F, Articles 835.501 and 835.502.
 7. Establish SNF Project-specific radiological posting criteria, which are consistent with 10 CFR 835, Subpart G.
 8. Administer processing of legal record documents (generated by Radiological Control personnel), which document radiological monitoring, surveillance, dosimetry issue, and radiological access control activities.
 9. Ensure that radiological control technicians receive sufficient training as defined by 10 CFR 835, Subpart J, Article 835.903.
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10. Prepare radiation work permits, which specify adequate protective measures for radiation workers as defined by the DOE/EH-0256T.
11. Perform as the SNF Project interpretive authority for 10 CFR 835 and DOE/EH-0256T. The Radiological Control manager may delegate this authority.
12. Maintain a reporting program, which identifies radiological issues, and alerts SNF Project line management to compliance issues associated with 10 CFR 835 and/or applicable DOE Orders governing radiological safety.
13. Provide quick turnaround radiological-count-room services, according to 10 CFR 835, HNF-5173, DOE 5400.5, and quality assurance protocols for:
 - a. SNF Project process water samples
 - b. Radiological control samples (air, smear, soil, and miscellaneous items)
 - c. Fuel storage basin detection monitoring wells
 - d. Radiological release of material and equipment

PROJECT CONTROLS CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Project Controls Organization provides project and subproject support to manage, coordinate, and perform cost control functions including planning, financial management, subproject baseline control, performance measurement and reporting, and emerging problem identification. Project Controls provides scheduling resources to meet project requirements, oversees progress of activities on or near the project critical path, and informs senior management of potential barriers to successful execution of Project activities.

RESPONSIBILITIES

SNF Project Planning

1. Exercise ownership of the integrated schedule for the SNF Project.
2. Oversee progress of SNF Project activities that are either on or near the critical path.
3. Identify schedule improvements to shorten the critical path and increase float for near critical path activities.
4. Identify to SNF Project senior management existing and potential barriers to successful execution of the SNF Project schedule.
5. Provide written reports of critical path activities and potential barriers to senior management.
6. Maintain overall integrated schedule control.
7. Ensure that the integrated schedule is updated and statused weekly.
8. Provide guidance to project managers concerning the resolution of competing priorities.

Cost and Scheduling

1. Ensure subproject work is well organized and defined through development of integrated work breakdown structure and dictionaries.
 2. Ensure disciplined work planning and authorization is performed with the development of plans, cost estimates, subproject authorization directives, control account authorizations, and control account plans.
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3. Coordinate control account manager activities to ensure sound financial control, defined responsibility, and rigorous accountability. Implement controls necessary to ensure costs do not exceed current funding authorization levels
4. Provide financial services to SNF Project subproject matrixed managers to include:
 - a. Work order development, input, tracking, and administration
 - b. Development of estimates at completion and fiscal year spend forecasts
 - c. Monthly cost and schedule variance analyses
 - d. Monthly performance reporting
 - e. Clearing of rejected costs
 - f. Project status reports
 - g. Identification of emerging problems/issues.
9. Provide requirements business management counsel and support to the matrixed managers to adequately monitor and control their project, program, or operation.

Baseline Management

1. Develop definitive baseline documentation for each subproject to delineate scope, schedule, technical objectives, performance goals, and cost estimates.
2. Develop and maintain project baseline summaries for each SNF Project subproject.
3. Coordinate preparation of input to the multi-year work plan, ten-year plans, and the integrated priority list with the subproject management and other SNF Project organizations.
4. Provide primary input to the change control process through the identification of scope changes, assessment of change impacts to existing baselines, and preparation/implementation of deviation documentation.

PERFORMANCE IMPROVEMENT & REGULATORY SERVICES CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Performance Improvement & Regulatory Services organization manages:

- Environmental Protection
- Corrective Action Management
- Self Assessment & Performance Indicators
- Regulatory Interface & Technical Support

RESPONSIBILITIES

Environmental Protection

1. Prepare and ensure timely approval and implementation of environmental permits for the project. Ensure other project and site-wide environmental initiatives are implemented and act as point-of-contact for environmental issues.
2. Perform independent review and approvals ("E") of facility and project documentation (Job Control System work packages, automated job hazard analyses, Functional Design Criteria technical procedures, Engineering Change Notices, etc.) to assure applicable requirements from the environmental authorization base documents have been implemented.
3. Perform routine determinations of radioactive airborne emissions and effluent releases and reporting the same to Fluor Hanford Environmental Protection for site-wide reporting to external parties.
4. Perform and verify weekly basin water loss Technical Safety Requirement calculations including periodic assessment of groundwater quality.
5. Prepare and maintain Facility Effluent Monitoring Plans.
6. Support and respond to regulatory inspections.
7. Scope, plan, and provide for pre-operational environmental monitoring.

Corrective Action Management

1. Manage corrective action program
 2. Mentor project managers in the performance of Root Cause Analysis.
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3. Ensure problems and issues are evaluated and reported in accordance with the Price Anderson Amendments Act.

Self-Assessment

1. Provide a management assessment and performance indicator program for the SNF Project that meets Project Hanford Management Contract criteria and expectations.
2. Assist management with the selection, design, development, and implementation of the Management Assessment Program elements. Assist management of performance indicators.
3. Monitor implementation of the Management Assessment Program and the associated performance indicators, and provide management with status reports.
4. Manage and coordinate maintenance of the Project's Standards/Requirements Identification Document (S/RID) and the S/RID assessment requirements.
5. Provide leadership and guidance for project safeguards and security issues.
6. Provide leadership and guidance for the continuing development and implementation of the Human Performance Improvement program.

Regulatory Interface and Technical Support

Provide Technical Support for the Project and regulatory-related integration of the SNF Project with external Hanford Site, regulator, and stakeholder interests.

1. Provide interface support to the U.S. Department of Energy, Richland Operations Office (RL) for Environmental Protection Agency (EPA) and Washington State Departments of Health and Ecology (WDOH and Ecology).
2. Provide Tri-Party Agreement support to RL.
3. Manage Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) implementation of SNF Project.
4. Interface with Yakama Indian Nation, Nez Perce Tribe, and Confederated Tribes of the Indian Reservation.
5. Provide interface support to RL for Defense Nuclear Facilities Safety Board, including coordination of SNF Project presentations and actions.
6. Provide interface support to RL for the Independent Review Panel.

7. Manage the SNF Project Commitment Tracking Process.
 - Identify commitments embedded in correspondence.
 - Collect commitments identified by project management.
 - Maintain the Commitment Tracking Database of project commitments.
 - Provide management periodic commitment status reports.
8. Manage the SNF Project Document Control/Records Management process.
 - Provide standards for document control management on the SNF project.
 - Manage the contract with the site supplier of document control services.
 - Interface as needed with the site supplier of records management services.
9. Communications Liaison
 - Provide internal and external communication support to the Project Director and is the communications lead for the project.
 - Work with Fluor Hanford Communications and the U.S. Department of Energy, Richland Operations Office (RL) Office of External Affairs to ensure that the full range of external and internal stakeholders and customers receives SNF Project information in a timely, accurate, and responsive manner.
 - Develop and implement communication strategies in the areas of employee communications, media relations, public involvement, special events, as well as printed, electronic, or video products produced in support of those areas.
 - Gather and provide information on current and pending external/internal SNF Project communication issues.
 - Provide communication advice and counsel on other project communication issues.

ENGINEERING CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project, Engineering Organization manages, develops, and maintains the engineering technical baseline; interprets and sets safety standards and regulations; and provides engineering and technical services to the SNF Project and its subordinate organizations.

The position of Chief Engineer reports to the Project Director, SNF Project. The Chief Engineer has overall responsibility for establishing, implementing, and maintaining the Project technical baseline, authorization basis, and nuclear safety regulatory compliance.

As Design Authority for the SNF Project, the Chief Engineer, defines requirements for and ensures the technical adequacy of all SNF Project facilities systems, structures, and components. As such, this authority must ensure that the initial release and changes to all documentation that affect functions, requirements, architecture, interfaces, operability, maintainability, and safety basis are technically sound and consistent with the approved authorization basis.

RESPONSIBILITIES

Chief Engineer, SNF Project

1. Perform the Chief Engineer function and provide interpretive authority for the resolution of technical issues.
2. Establish and maintain an engineering program infrastructure consistent with the SNF Project mission, scope, and program logic.
3. Direct technical integration and coordination to ensure that key SNF Project Engineering goals are achieved.
4. Lead and manage interfaces with customers, the public, and stakeholders in technical matters associated with the SNF Project mission.

Facility Engineering

1. Manage engineering support to all SNF Project facilities to ensure safe operations, to maintain audit readiness, and to define system end states in preparation for system turnover to decommissioning and decontamination.
2. Manage the Corrective Action process for SNF Project Engineering.
3. Maintain configuration control of SNF Project systems, structures, and components by providing technical oversight expertise to the process.
4. Develop and maintain in-depth knowledge of system design, performance, and current condition through regular system walkdowns, system performance reviews, and communications with facility operations and maintenance personnel.
5. Prepare and maintain current system design descriptions, essential and support drawings, technical baselines, and safety basis and approve all documentation affecting facility systems.
6. Prepare unreviewed safety question (USQ) screenings and evaluations for assigned documentation and peer review.
7. Conduct system design reviews and perform and maintain current system assessments.
8. Design, recommend, select, and specify new plant equipment and modifications to systems, structures and components to support the SNF Project facilities using engineering change notices.

Nuclear Safety

1. Provide overall coordination and integration of the SNF Project regulatory matters, including nuclear safety regulations by interfacing with Fluor Hanford, U.S. Department of Energy, and other stakeholders.
2. Prepare all safety analysis documents for the SNF Project facilities and perform independent reviews of activities documented with safety implications.
3. Manage USQ process for SNF Project facilities.

Process Engineering

1. Provide process validation and monitoring requirements for fuel storage processes.
2. Develop thermal-hydraulic models of the multi-canister overpacks in process and storage that will support completion of SNF Project Safety Analysis Report (SAR) and system designs.
3. Produce and maintain process flow diagrams and process requirements and integrate cross-cutting calculations for sub-projects.
4. Provide field, laboratory, or in-situ data on K Basins fuel and sludge by means of visual observations, lift-and-look campaigns, ultrasonic measurements, sludge locations, and depth measurements.
5. Plan and coordinate the shipment of fuel and sludge material to the hot analytical laboratories for measurements. Develop data quality objectives (DQO). Provide DQO and test plans to the laboratories.
6. Interface with laboratories to coordinate cost, schedule, and acceptable level of quality assurance.
7. Maintain Technical Data Book and SNF Project Process Baseline.

Engineering Systems

1. Manage the development, documentation, implementation and assessment of the SNF Project Engineering processes and procedures for establishing and maintaining the SNF technical baseline.
2. Develop and maintain engineering procedures and maintain the Configuration Management Plan.
3. Identify and assign the Design Authorities for all SNF Projects and facilities, subject to the approval of the SNF Project Chief Engineer.
4. Maintain the training and qualification of the Design Authorities.
5. Oversee the adequacy of the technical baseline for the SNF Project, and identify corrective actions as necessary.
6. Assist in the resolution of technical or interface issues.

Technical Operations

1. Plans, directs, and effects all work necessary to ensure that SNF Project technical issues are identified and brought to closure such that project objectives are achieved.
2. Work with managers throughout the project to facilitate identification of technical issues.
3. Ensure that closure plans appropriate to specific issues are prepared.
4. Ensure that closure criteria are developed and consensus on the criteria are achieved.
5. Bring together and direct all engineering, subproject, or corporate resources necessary to achieve closure.
6. Integrate issue resolution into project schedules.
7. Track and status progress for issue closure.

VOLUNTARY PROTECTION PROGRAM - STEERING COMMITTEE CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project Voluntary Protection Program (VPP) Steering Team will provide leadership in the development and implementation of the U.S. Department of Energy VPP; achieve and maintain VPP Star Status; and improve overall worker safety and health within the context of HNF-MD-032, Presidents Zero Accident Council (PZAC), and Employee Zero Accident Council (EZAC).

MEMBERSHIP

Membership Guidelines

Membership of the VPP Steering Team will be representative of the entire SNF Project. All bargaining unit members will be sanctioned by letter from the Hanford Atomic Metal Trades Council (HAMTC) in accordance with the Collective Bargaining Agreement. The VPP Steering Team members will be appointed by letter(s) from the SNF Project Director based on recommendations from the Safety, Health, and Emergency Planning (SH&EP) Manager. The appointed members will normally serve for a term of one year with rotation of members to be conducted by nomination from current membership. Rotation will be staggered so that not all members are replaced at the same time. Selection of new members will occur during the month of September.

Voting Members (One Voting Member from Each Affiliate)

1. Worksite Analysis Functional Team Leader
2. Accident and Record Analysis Functional Team Leader
3. Hazard Prevention & Control Functional Team Leader
4. VPP Application Functional Sub-Team Leader
5. Emergency Response Functional Team Leader
6. Safety and Health Training Functional Team Leader
7. SNF Project EZAC Chair
8. SNF Project VPP Coordinator

Non-Voting Members

1. SNF Project PZAC member
2. SH&EP Manager
3. HAMTC Safety Representative
4. Secretary
5. SNF Project Integrated Safety Management System Advisor
6. Site Level (Fluor Hanford) VPP Advisors

Description of Voting

Each voting member (one voting member from each affiliate) shall have the opportunity to cast one vote on issues that have been put forth before the Steering Team. Members who are absent during a vote shall forfeit their right to vote on the issue. Whenever a tie vote has been cast the issue shall be tabled and put on the next Steering Team agenda for reconsideration. VPP Steering Team meetings may be held, but no votes shall be called or counted unless a quorum of members is present during the meeting. A quorum shall consist of five voting members.

RESPONSIBILITIES

Managers

All managers are responsible for supporting and allowing reasonable time for employees to participate in VPP Steering Team activities.

Project VPP Coordinator and SH&EP Manager

- Schedule VPP Steering Team meetings at least once a month
- Prepare agenda for each VPP Steering Team meeting
- Employee Involvement including contract workers
- Management Leadership
- Track incidence and injury rates
- Plan and budget for VPP
- Evaluate safety and health program
- Benchmark selected VPP activities
- Fluor Hanford VPP Interface
- Project Hanford Management Contract VPP Interface
- Integrated Environmental, Safety, and Health Management System (ISMS) Coordination

Secretary

- Prepare and distribute VPP Steering Team meeting minutes
- Develop and track action log for the VPP Steering Team

Functional Team Leaders

VPP Steering Team Functional Team Leaders will evaluate and confirm documentation exists for the specific areas assigned to them. This will be accomplished through interface with the line organizations with responsibility for that specific area. Team Leaders may also participate in efforts undertaken by the line organizations to achieve this interface.

Functional Team leaders will accomplish their assigned objective by forming “project specific” work teams to develop and complete team assignments. The project specific work teams shall consist of an appropriate number of SNF Project employees, which represent a cross function of SNF Project Organization.

The functional team leader is responsible for identifying adequate personnel resources for accomplishment of assigned tasks and for providing the names of selected individuals to the Project VPP Coordinator. The functional team leader may not select work team members from their own organization without approval from the SH&EP Manager.

Worksite Analysis Functional Team Leader

- Surveys and Analysis
 - Safety Improvement Self Evaluation
 - Hanford General Employee Training
- Self assessments and inspections

Accident and Record Analysis Functional Team Leader

- Review of accident events and investigations
- Data Analysis
- Verification of corrective actions
- Lessons learned

Hazard Prevention and Control Functional Team Leader

- Professional Expertise
- Hazard Controls
- Occupational Medical Program
- Automated Job Hazard Analysis / Job Hazard Analysis
- Hazard Corrective Actions
- Employee Promotion
- Behavior Based Safety Programs

VPP Application Functional Team Leader

- Manage VPP documentation
- Coordinate preparation of VPP Application
- Coordinate VPP Application reviews within the SNF Project
- Submit VPP Application to the VPP Steering Team

Emergency Preparedness Functional Team Leader

- Emergency Procedures
- Emergency Drills
- Emergency Equipment
- Emergency Training
- First Aid

Safety Training Functional Team Leader

- New Employee Training
- Employee Safety Training
- Supervisor/Manager Safety Training
- VPP/ISMS Training

SNF Project VPP Employee Zero Accident Council Chairman

Serve as liaison between the SNF Project VPP EZAC and the SNF Project VPP Steering Team.

SNF Project HAMTC Safety Representative

- Represent HAMTC on safety and health activities for the SNF Project.
- Submit HAMTC nominees to the Site HAMTC Representative for approval to ensure that membership on the SNF Project VPP Steering Team is in accordance with the Collective Bargaining Agreement.
- Ensure that the bargaining unit workers have the opportunity to participate in the SNF Project VPP Steering Team.

SNF PROJECT JOINT RL/SNF CHANGE REVIEW BOARD CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project Joint U.S. Department of Energy, Richland Operations Office (RL)/SNF Change Review Board (CRB) is chartered to provide timely disposition of Project-level change requests that utilize SNF Project contingency and/or impact Project Master Baseline Schedule (PMBS) activities or milestones.

MEMBERSHIP

The joint RL/SNF CRB is comprised of the following members and associates:

Members:

1. RL Office of Spent Nuclear Fuels (SFO) Director
2. SNF Project Director
3. RL SFO Deputy Director
4. SNF Project Controls Manager

Associates:

1. SNF Deputy Project Controls Manager
2. SNF Change Control Administrator

RESPONSIBILITIES

1. Monitor SNF Project contingency use on a bi-weekly basis.
2. Meet bi-weekly, as required, per the change review cycle to review and disposition "Project-CRB" level CRs

SNF PROJECT JOINT RL/SNF PRE-CHANGE REVIEW BOARD CHARTER

CHARTER

The Spent Nuclear Fuel (SNF) Project Joint U.S. Department of Energy, Richland Operations Office (RL)/SNF Pre-Change Review Board (Pre-CRB) is chartered to resolve issues on proposed change reviews (CRs). The team performs a review of all "Project" level CRs. This is to assure that the CR meets the basic quality and content requirements as well as determines that all issues between RL and the contractor are resolved in regards to a specific CR.

MEMBERSHIP

The following organizations/functions are represented on the Pre-CRB:

- SNF Project Controls
- SNF Schedule
- SNF Engineering Systems
- SNF Operations
- SNF Engineering
- SNF Contracts
- SNF Estimating
- RL Business Management
- RL Subprojects representatives

RESPONSIBILITIES

1. Review presented CRs for accuracy and completeness
2. Review CRs for impacts to the represented organization or function
3. Attend the bi-weekly, as required, pre-CRB meeting to discuss CR issues with CR subproject owner
4. Resolve CR issues with subproject management
5. Forward any unresolved issues to CRB for disposition
6. Recommend CR disposition and presentation to CRB for action

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APPENDIX D

**SNF PROJECT
RISK MANAGEMENT PLAN**

1.0 Overview of the SNF Project Risk Management Process

Risk refers to those activities or factors that, if they come to pass, will increase the probability that the Spent Nuclear Fuel (SNF) Project's goals will not be met. Goals are generally defined in terms of time (schedule) and cost and, to some extent, performance. The major SNF Project goals are established through negotiation with the U.S. Department of Energy (DOE), Richland Operations Office (RL) and project stakeholders (i.e., fuel movement from the K Basins is to begin by November 2000 and is to be completed by July 2004). These goals are documented in *performance incentives (PIs) between RL and Fluor Hanford (FH)*. FH performance in meeting the PIs (or goals) directly impacts the amount of award fee earned from managing the SNF Project.

Many of the risks to the project in meeting its time, cost, and performance goals can be anticipated and controlled. Risk management is the process of identifying and quantifying these risks, and developing and implementing plans and tools to mitigate the identified risks. The risk management process used by the SNF Project, shown in Figure 1, is consistent with the DOE Good Practices Guide, "Risk Analysis and Management" (GPG-FM-007). Oversight of the risk management process is the responsibility of the SNF Project Controls Manager.

Risk management begins concurrently with the development of the project cost and schedule baselines and continues throughout the lifecycle of the project. As shown in Figure 1, the first step in the SNF Project risk management process is to conduct an assessment of the project risks. Risk assessment includes identification and quantification of the project risks. Risks are then documented and maintained in the project risk database for tracking purposes. Risk assessment is followed by a classification of the identified risks according to category of risk (i.e.; programmatic assumption, management risk, technical risk, or standard uncertainty). An analysis of each identified management and technical risk is then completed to determine the degree to which the risk may impact project cost, schedule, and performance goals. Actions are then developed and implemented to reduce or control the risks based on their potential impact to the project. Implementation is based on a management decision to either accept the risk or to proceed with the proposed risk mitigation strategy.

Risk management directly relates to contingency analysis and management (see Figure 1). Contingency is included in the SNF Project cost and schedule baseline as another remedy (mitigation tool) for risk. In the SNF Project, the amount of contingency needed to mitigate project risks and uncertainty is developed from the risks identified through the project risk management process.

Best Estimate to Complete the
Anticipated Scope-of-Work

SNF Project Baseline Cost
and Schedule

Figure 1 . SNF Project Risk Management Process

2.0 Risk Assessment

Risk assessment is the process of identifying and quantifying areas of potential risk to project time, cost, and performance goals. It is a process that begins with initiation of the project and is ongoing throughout each phase of the project lifecycle. It includes risk identification and quantification and documentation of risks in the project risk database.

2.1 Identification and Quantification of Project Risks

In the SNF Project, risks are identified by interviewing individuals having control or responsibility for performing work scope within cost and schedule baselines, principally Project Managers, Subproject Managers, and Design Authorities. These individuals are interviewed by members of the Project Controls team having expertise in risk analysis and familiarity with the SNF Project risk management process.

During the interview process individual risks to project time, cost, and performance goals are identified and described. Identification of risks is not a trivial process; significant probing and analysis of available data is required to comprehensively identify the major risks to the project/subproject. A technical issues management process was established to identify potential technical concerns that may result in project risks. Subproject Managers, Design Authorities, and other key technical personnel are interviewed to identify concerns that are not addressed as part of ongoing work. This process is used to provide engineering management with information needed to assess future work scope and stimulates the identification of project risks that should be considered as part of the risk management process. Risk identification is most effectively accomplished by systematically assessing each element of the work breakdown structure and process flow diagram, which is why each Subproject Manager, at a minimum, is interviewed. The thoroughness with which the risk identification is accomplished determines the effectiveness of the SNF Project risk management process.

Specific information is developed for each identified risk item during the interview process. This information is needed to assess total project risk and determine appropriate contingency requirements. The development of this data relies extensively on past experience and engineering judgment. The specific information obtained is as follows:

- The likelihood, or probability, that the identified risk item will impact the estimated budget for the project. The higher the probability the greater the likelihood that the project budget will be impacted.
- The range of impact or consequence to the project budget should the individual risk item be realized. The budget impact is quantified as a "best estimate" cost that is bounded by estimates for the minimum and maximum potential cost impacts.

- The interdependency of individual risk items. Generally, individual risk items are completely independent of all other identified risks. However, in some cases, individual risk items may be mutually exclusive of one another, that is, if one risk item is realized, then other risk item(s) cannot be realized or, in other words, are avoided. Individual risk items may also be positively correlated to one another, that is, if one risk item is realized, then other risk item(s) are also realized.
- The realization date of each identified risk item. The realization date is the date by which the risk item will have been realized or avoided. This date is used for risk tracking and prioritization.
- The owner of the risk item. The owner of the risk is the individual responsible for taking proactive actions to mitigate and/or completely avoid the potential cost and schedule impact of the identified risk. Ownership is generally assigned to the manager/subproject manager or individual who has responsibility for the project activity(ies) to which the risk applies.

Figure 2 shows the standard report form available from the SNF Project Risk database which documents and tracks all project risks that have a potential budget impact. Risks that are purely schedule related are managed through the SNF project critical path schedule process.

2.2 Development and Maintenance of the SNF Project Risk Database

Risks, once identified, quantified, and described, are entered into and maintained within the SNF Project Risk database. The database is computer-based and utilizes Microsoft Access as the software platform. It is a controlled database with entry/modification/deletion limited to a few project staff. The database has a field for each of the data items described in Section 2.1 above and is capable of generating a risk report for each identified risk item similar to that shown in Figure 2.

SNF PROJECT
PROJECT EXECUTION PLAN
APPENDIX D

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Current_Asp_ID/ Key ID /		Previous Status		Description		Probability		FY99 Cost				FY9905 Cost				BCR No/ Status/ Actual Allocation	
						1st	2nd	Orig	1st	2nd	Orig	1st	2nd	Orig	1st	2nd	
						Qtr.	Qtr.										
Asp ID:	B0220.41.R10			MDO content properties (hydrates and hydrates) quantities and performance characterizations.		10	10	10	10	600	600	600	600	600	600	600	
Key ID:	124									1,700	1,700	1,700	1,700	1,700	1,700	1,700	
Subp :	1.03.01.02.20.41									1,800	1,800	1,800	1,800	1,800	1,800	1,800	
Subp Mgr:	Wiemers, MJ																
SNF Owner:	Wiemers, M																
Risk Status:	Open Risk																
Review	Quarterly																
Frequency:																	
Realization																	
Date:	5/31/99																
<p>Disposition: Included in BCR 98-058 & 98-006 Related to pg. 5 item 4</p>																	
<p>Barrier Status: MDO content properties within expectations at this time.</p>																	
<p>Notes:</p>																	

Figure 2. Standard Report Form for SNF Project Risk Analysis

3.0 Classification and Analysis of Project Risks

The primary objective of risk management is to minimize the impact of project uncertainties on project cost, schedule, and performance goals. The fulfillment of this objective requires the project to commit resources toward the handling and monitoring of identified risks and the development of strategies to mitigate their potential impact. As with any project activity, however, available resources are limited. Furthermore, not all risks pose the same level of potential impact on the Project and therefore do not require the same level of resource commitment. For these reasons, the SNF Project uses a graded approach to risk handling, monitoring, and mitigation.

The graded approach is implemented by first classifying each of the identified risks according to their ownership and category. The second step is to analyze the identified management and technical risks and quantify each according to its potential impact on project cost, schedule, and/or performance goals.

3.1 Classification of Project Risks

The types of risks to which projects are exposed are wide and varied. Some common risks include poorly defined requirements, lack of qualified resources, poor cost and schedule estimating, technical issues, funding delays, etc. While all project risks should be identified to the extent possible, different types of risk are managed differently. In the SNF Project, all identified risks are classified into one of the following four categories:

1) Programmatic Assumption – This is a risk that is assigned to RL as the owner and is therefore not managed within the SNF Project as a risk to the project baseline. Realization of these risks may be justification to increase the approved Life Cycle Cost Baseline for the project. These risks generally have a very high cost impact with a low probability of realization. A list of current programmatic assumptions in the SNF Project is provided in Table 1. Programmatic assumptions are considered a Tier 2 Technical Baseline document and as such, require RL approval for changes through the baseline change control process.

2) Identified Technical Risk – This is a technical risk that, if realized, will result in a potentially large change to a project cost, schedule, and/or performance goal(s). Technical risks in the SNF Project relate primarily to the potential of not meeting a design requirement or the emergence of new data or conditions that may require a significant change to the design or safety basis. Risks in this category may be beyond the control of the risk owner. Included are potential changes to project scope and technical issues that are identified as part of the technical issue management process. Identified technical risks are evaluated and tracked individually.

3) Identified Management Risk – This is a management or programmatic risk that, if realized, will result in a potentially large change to project cost, schedule and/or performance goal(s). Management risks in the SNF Project relate primarily to the potential of not meeting policy or procedural requirements and/or not being able to meet negotiated performance incentive agreements or requirements.

4) Standard Uncertainty – This is a normal/typical risk to the project cost, schedule, and/or performance. Risks included in this category are generally due to inadequacies in design/execution basis and/or estimating methods/data. These risks are not evaluated/monitored as individual risk items, but are included within the uncertainty ranges around the subproject cost estimate in the project contingency analysis. The magnitude of the uncertainty ranges is based on past project history and/or experience on previously concluded projects. The realization of standard uncertainty items is documented in Deviation Notices (DNs) and subsequent Change Requests (CRs) if contingency funds are needed for resolution.

The designated classification of each identified risk is entered and tracked within the SNF Project risk database.

3.2 Analysis of Identified Risks

Not all identified risks are high-level risks that will have a critical impact on the Project. Many are lower-level risks that individually pose minimal risk to the Project. However, the cumulative effect of their combination can have a severe impact on the Project. Therefore, all identified risks, no matter how minimal their potential impact on the Project might be, are evaluated and tracked.

The level of management oversight and tracking of identified risks is dependent upon the potential impact that the risk item has on Project cost, schedule, and performance goals. In the SNF Project, the level of management attention given to an identified risk, as shown on Figure 1, is determined from its position on the probability/consequence matrix provided in Figure 3. All identified risks are categorized as to whether they pose high, medium, or low risk to the project.

Figure 3. Identified Risk Probability/Consequence Matrix

4.0 Risk Handling and Tracking

High-risk items have the potential to cause significant impact to Project cost, schedule, and/or performance goals. This category of risk, therefore, requires frequent reporting so that SNF Project management can be kept informed on activities to mitigate the risks. As shown in Figure 1, each of these risks is statused/updated in the weekly Project Review Meeting. A closure strategy is developed for each to document the formal approach being used to eliminate (if possible), reduce, and/or control the risk item. The closure strategy describes the risk and its potential impact on Project cost, schedule, and performance. It identifies the risk reduction alternatives evaluated, the recommended risk reduction method(s), the impact (cost, schedule, performance) of implementing the risk reduction approach, and the schedule for implementation of the risk reduction approach; and the responsibilities associated with the risk item. The proposed closure strategy can include, but is not restricted to, the following approaches:

- Identify and initiate corrective action(s) through an internal reallocation of Project resources.
- Arrange for outside consultants and experts to assist in the resolution of the problem(s).
- Implement a testing program with the objective of better understanding the problem(s) and eliminating possible causes.
- Implement special research and development activities to provide a backup option.

In some cases a special risk task team may be organized to develop the closure strategy. A result of this risk investigation may be a reassessment of the likelihood and consequence of the identified risk item. The Technical Operations organization oversees closure of high-risk technical issues.

Medium-risk items are updated/statused quarterly so as to keep SNF Project management informed on activities to mitigate the risks. Closure strategies are also developed for these risks, although the level of rigor and effort put into the development of these strategies is significantly less than that for high-risk items.

Low-risk items are handled through the normal Project review, evaluation, and reporting processes. These risks are managed by the subproject manager/owner and are updated/statused annually.

5.0 Risk Mitigation Decision

With the completion of the closure strategy, management then makes the decision to either accept the risk or to implement the plan. Acceptance of the risk means that management is taking the chance that the risk will not be realized and therefore will not invest any Project resources in eliminating or mitigating the risk. If the risk is ultimately realized, then Project resources must be reallocated from elsewhere, such as from Project contingency (through the DN/CR process), to cover the cost of the realized risk.

If the decision is made to implement the proposed closure strategy, then resources will be required to do so. As before, these resources will need to be reallocated from elsewhere in the Project, such as from Project contingency (again through the DN/CR process).

The management decision on whether or not to expend resources to implement a closure strategy for a particular identified risk is complex. In general, however, there are some guiding rules:

All Medium and High Risks. If the cost to mitigate or eliminate the risk were greater than the potential cost impact to the Project if the risk is realized, then the management decision would be to accept the risk and not invest any resources on its mitigation.

- *High likelihood risks (probability of realization is greater than 40%).* If the cost to mitigate or eliminate the risk were less than 25% of the potential cost impact to the Project if it is realized, then the management decision would be to invest in the resources needed to mitigate or eliminate the risk.
- *Low likelihood risks (probability of realization is less than or equal to 40%).* If the cost to mitigate or eliminate the risk were less than 5% of the potential cost impact to the Project if it is realized, then the management decision would be to invest in the resources needed to mitigate or eliminate the risk.

The mitigation cost range between 25% and 100% for high likelihood risks and 5% and 100% for low likelihood risks is a gray area. In these instances, management will consider a variety of variables to arrive at the decision on whether the investment in risk mitigation or elimination is worth the reduction in risk obtained. Variables to be considered include magnitude of the potential cost impact, likelihood of its realization, expected realization date, and the potential impact on the integrated SNF Project schedule.

All Low Risks. Closure strategies are not developed for these risks. Subproject Managers manage these risks within their allocated budgets.

6.0 Contingency Analysis

Contingency is used in the SNF Project to mitigate the consequences of risks to Project cost, schedule, and performance goals. The amount of contingency needed/required by the SNF Project to mitigate its identified and unidentified, or unknown, risks is estimated using Monte Carlo analysis. The Monte Carlo simulation model utilizes as input the same risks identified and quantified through the risk management process described above. The identified risks are each modeled individually for their potential cost impact on the Project. The identified normal risks (or standard uncertainties) are modeled as cost uncertainty ranges around the baseline cost estimates for each subproject.

The contingency analysis does not assume that all of the identified risks will be realized. The purpose of the contingency analysis is to determine the amount of contingency needed to have high confidence that the goals of the Project can be achieved, not to determine the amount of contingency needed to eliminate risk. For this reason the risk management process of continual risk identification, handling, and tracking described previously is necessary. The SNF Project contingency analysis is updated/statused annually.

The use of contingency to mitigate Project risks is formally documented using the SNF Project Integrated Change Management procedure (PC-1-037). This procedure requires the development of DNs that provide advance notice to project management of problem areas. This procedure also requires the development of CRs to formally request project contingency if needed to remedy problem areas and/or mitigate identified risks.

Table 1 List of SNF Project Programmatic Assumptions	
Assumption ID	Assumption Description
001	Safety Analysis activities within the Spent Nuclear Fuel (SNF) Project are the highest risk to meeting the Tri-Party Agreement milestones. All parties must adhere to the baseline schedule as submitted.
002	Reasonable recruiting efforts, within the Project Hanford Management Contract (PHMC) control, will provide adequate candidates for operator and Health Physics Technician (IPT) training. Once trained, SNF staffing will not have major impacts due to other U.S. Department of Energy (DOE) program cutbacks.
003	Confirmatory characterization and process data will not be found to be outside of the current "bounding" assumptions.
004	Process validation during the initial fuel relocation is successful. Operational uncertainties have been incorporated into Witness model simulations as part of the baseline. Since full mockup testing with production personnel has not been possible (to save time and cost), the contractor will maintain the process flow model on a continuing basis such that any required changes in schedule can be reflected as soon as possible in
005	Fluor Hanford (FH) will provide written notification to DOE, Richland Operations Office (RL) within 60 calendar days of any local needs that require reprogramming within the SNF Project.
006	K East will begin operations with a Readiness Assessment (RA).
007	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Regulation <ul style="list-style-type: none"> ▪ The scope of the K Basins CERCLA interim remedial action consists of the following, upon issuance of the ROD: <ul style="list-style-type: none"> – Removing the spent fuel, sludge, debris, and water from the basins – Transferring the spent fuel to the SNF conditioning facility – Treating the sludge to meet waste acceptance criteria of the receiving facility(ies) – Transferring the sludge to the receiving facility(ies) – Pretreating the water and transferring it to the Effluent Treatment Facility – Transferring the debris to appropriate facilities – Deactivating the basins ▪ Does not impact system design ▪ Administrative process does not impact start of fuel movement.

Table 1 List of SNF Project Programmatic Assumptions	
Assumption ID	Assumption Description
008	Office of Civilian Radioactive Waste Management (OCRWM) (RW-0333P Revision 7) Evolving requirements will not significantly impact systems designs, procedures, and fuel movement. Any future changes will be handled by change control on the project.
009	River Protection Project Interface - No impacts at the Canister Storage Building (CSB) to SNF Project baselines (dates, budgets, technical)
010	Annual funding will be consistent with baseline requirements.
011	Deleted per BCR SNF-2000-008.
012	Transfer/receipt of waste streams will not be a limiting factor in attaining readiness for transition to Environmental Restoration (ER).
013	K Basins transition to ER is based on removal of all fuel, sludge, water, and designated debris from the basins.
014	A portion of the Fuel Retrieval System (FRS), Integrated Water Treatment System (IWTS), load out systems, and the Cold Vacuum Drying (CVD) Facility must remain operational for potential processing of residual basin fuel elements or pieces discovered during the Sludge removal process.
015	CSB Operations is turned over to WM-02 at the beginning of fiscal year (FY) 2005 based on completion of welding in FY 2004.
016	Baseline assumes no changes in DOE requirements for nuclear material accountability and no DOE changes in security requirements for the Project facilities.
017	Baseline assumes that a limited number of Multi-Canister Overpacks (MCOs) will be monitored for pressure during the first portion of the fuel retrieval task and that all others will be welded without further monitoring. It is assumed as part of the SNF Contingency Analysis that the Project will investigate a cost effective way to non-intrusively monitor all capped and welded MCOs while in storage to prove that high pressures do not exist in the MCOs.
018	The T-Plant Safety Authorization Basis can be changed to accept sludge for storage in the T-Plant Facility.