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Spent Nuclear Fuel Cask and Transportation System Functions and Requirements

AT Kee

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Abstract: This document provides the Functions and Requirements for the
Spent Nuclear Fuel Cask and Transportation Subproject. It provide the
requirements basis for the subproject to support conceptual and
definitive designs.

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Spent Nuclear Fuel Cask and Transportation System Functions & Requirements

Prepared for the
U.S. Department of Energy
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Hanford Operations and Engineering Contractor for the
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ACRONYMS

CSB	Canister Storage Building
F&R(s)	Functions and Requirements
IPS	Integrated Process Strategy for K Basins SNF
MCO	Multi-Canister Overpack
PFD	Process Flow Diagram
SNF	Spent Nuclear Fuel

DEFINITIONS

Canister. Metal (aluminum or stainless steel) container used to store reactor fuel rods/elements. Canisters containing fuel are configured in a double-barrel shape.

Cask. Container which provides shielding and containment for SNF during transfer.

Conditioning. Processing of SNF by physical, chemical or mechanical means to prepare the SNF to meet predetermined requirements for safe and compliant storage or disposal. Does not include packaging.

Confine. To retain the solid form of radioactive material inside a boundary.

Constraints. Restrictions or limitations that must be met. Constraints are used to screen alternative strategies and are always nontradeable by the designer (as opposed to requirements which are tradable).

Contain. To retain the solid and gaseous forms of radioactive material inside a boundary.

Contamination. Radioactive and/or other hazardous material in any place where it is not desired, particularly where its presence may be harmful.

Conveyance. Device used for transferring the package.

Decontamination. The activities employed to reduce the levels of radioactive and/or other hazardous contamination in or on structures, equipment, materials, and personnel.

Function. Specific actions, activities, or processes that achieve or support the achievement of the mission. That which must be achieved by the collective effects of all constituent parts. It is synonymous with "purpose."

Interface. System boundary across which material, data, and/or energy passes.

Load-Out Pit. The portion of the K Basin utilized for outloading of the fuel, fuel canisters, MCOs, and casks.

Multi-Canister Overpack. Item that houses SNF in a configuration which is to be determined. Designed specifically for K Basin SNF only.

Package. SNF and its packaging.

Packaging. Material which provides containment and shielding (e.g., MCO and cask) for SNF.

Path Forward. Integrated activities to achieve a defined strategy for final disposition of SNF.

Requirement. Requirements define how well a function must perform. Requirements set limits on functions and also limits on the outputs from functions. A requirement is a description of a mandatory condition under which a function must be performed. Requirements are documented in technical specifications, statutes, regulations, Secretary of Energy Notices, DOE orders, Department of Energy Richland Operations Office (DOE-RL) Directives, or other official direction from the DOE customer.

Spent Nuclear Fuel. Nuclear fuel that has been withdrawn from a nuclear reactor following irradiation and the constituent elements that have not been separated by reprocessing.

Systems Engineering. The systematic approach used to transform technical goals and objectives into an optimized, operational, physical system that achieves its mission. The iterative technical and management process applied throughout a system life cycle that produces and maintains a well defined and documented system technical baseline.

Technical Baseline. The documented functions, requirements, and configuration from which the program will acquire an operational system. The technical baseline is maintained under configuration control, and is the basis for technical performance measurement.

Transfer. Movement of materials within the confines of the Hanford Site.

1.0 INTRODUCTION

1.1 BACKGROUND

The *Spent Nuclear Fuel Project Technical Baseline Document Fiscal Year 1996* (WHC 1995d) describes the mission and programmatic functions and requirements of the Spent Nuclear Fuel (SNF) Project. This latest revision includes changes made to the technical baseline as a result of incorporating the *Integrated Process Strategy for K Basins Spent Nuclear Fuel* (WHC 1995a) (IPS). The IPS contains the path forward for retrieval, containment, transfer, conditioning, and interim storage of SNF currently stored in the K Basins (excluding other Hanford Site SNF). The path forward projects include a fuel retrieval system, multi-canister overpack, vacuum drying system, cask and transportation project, canister storage building, hot vacuum conditioning system, and water and sludge treatment process.

This document marks the departure point for all Cask and Transportation Subproject technical activities. This document further defines the overall SNF Project technical baseline by developing the lower tier hardware functions and requirements for the Cask and Transportation System. The technical functions and requirements establish the entire requirements basis for the Cask and Transportation Subproject.

1.2 PURPOSE

The Cask and Transportation Functions and Requirements (F&Rs) document specifies the functions, requirements, and interfaces applicable throughout the life of the Cask and Transportation System. The Cask and Transportation F&Rs also:

- o Define the Cask and Transportation mission;
- o Define the functions that the Cask and Transportation System needs to perform to accomplish its mission and document its requirements basis;
- o Implement the requirements set forth in Section 2.1.1 of the *Spent Nuclear Fuel Project Management Plan* (WHC 1995b), which requires functions and requirements documents for each SNF Project Subproject;
- o Establish the functional requirements baseline.

This document is organized in seven sections. Sections 1.0, Introduction, and 2.0, Mission and Scope, provide brief introductions to the document and the Cask and Transportation Subproject. Sections 3.0 through 6.0 provide the functional requirements baseline (Section 3.0, Cask and Transportation System Background, 4.0, Recommended Process Sequence and Interfaces, 5.0, Function Analysis, and 6.0, Requirements Analysis). Section 7.0, References, lists all the sources referenced in this document.

2.0 MISSION AND SCOPE

2.1 MISSION

The mission of the Cask and Transportation System has been derived from the Spent Nuclear Fuel Project Mission. In order to achieve the SNF Project mission, the scope of the Cask and Transportation Subproject must be completed. The Cask and Transportation Subproject is to:

- Provide shielding of the loaded MCO;
- provide containment of the loaded MCO during transfer;
- transfer of the loaded MCO in the K Basins and to cold vacuum drying; and
- transfer of the loaded MCO to the Canister Storage Building (CSB)

The mission of the Cask and Transportation Subproject is to provide safe, economic and environmentally sound transfer of the SNF from the K Basins to the CSB.

2.2 SCOPE

The scope of the Cask and Transportation Subproject includes the definition and acquisition of the cask, transportation system, and necessary support equipment to achieve the mission. The Cask and Transportation Subproject procures the cask, transportation system, and all necessary support equipment (excluding facility installed equipment at K Basins and the CSB). The acquisition of the Cask and Transportation System includes design, fabrication, test, production, qualification, documentation, and training for the Cask and Transportation System. Management of these activities and organizational relationships, roles, and responsibilities are further described in the Project W-443 Cask/Transportation Subproject, Project Management Plan (WHC, 1996a).

2.3 CONTEXT

The *Spent Nuclear Fuel Project Technical Baseline Description Fiscal Year 1996* (WHC 1995d) contains the top-level functional breakdown for the SNF Project. The Cask and Transportation Subproject continues the functional breakdown of three of these SNF Project functions: Function 2.4.1.9 Provide Cask and Transportation System, Function 4.1.1.8.3.4 Prepare and Remove SNF, and Function 4.1.1.8.3.6 Transfer SNF.

3.0 CASK & TRANSPORTATION SYSTEM BACKGROUND

As the Spent Nuclear Fuel Project has matured, many decisions have been made which have affected the functions which the Cask and Transportation System must perform. These have been developed through numerous studies, assessments and decision documents. These documents include the following:

- Independent Technical Assessment, *Dry Storage of N Reactor Fuel*, (ITA 1994a)
- *Trade Study for K Basin Spent Nuclear Fuel Removal and Conditioning*, (Parsons 1995a)
- *Hanford Spent Nuclear Fuel Project Recommended Path Forward*, (WHC 1994a)
- *Integrated Process Strategy for K Basins Spent Nuclear Fuel*, (WHC 1995a)

This document reflects the current configuration as documented in the SNF Project documentation and the integrated process strategy. It has been determined from these studies that the Cask and Transportation Subproject shall provide the functions further described in Section 5.0 of this document.

4.0 RECOMMENDED PROCESS SEQUENCE AND INTERFACES

The Cask and Transportation Subproject supports several activities and functions within the SNF Project. Many of these functions are not within the scope of the Cask and Transportation Subproject. As a result, the Cask and Transportation Subproject has many interfaces. These interfaces are identified in Interface Agreement Coversheet/ Interface Scope Sheets and are further defined by Interface Control Sheets. Interface Control will be accomplished and maintained as described in the *Spent Nuclear Fuel Project Interface Control Plan* (WHC 1995h).

The Cask and Transportation Subproject interfaces with the following SNF Subprojects and Facilities:

- o Fuel Retrieval Subproject
- o Multi-Canister Overpack
- o Cold Vacuum Drying facility and systems
- o Canister Storage Building
- o K Basin Operations

Each physical interface is defined in detail on an Interface Control Sheet. These sheets are controlled, and maintain the current interface information.

5.0 FUNCTION ANALYSIS

Systems engineering analysis decomposed and tailored the SNF Project functions identified in Section 2.3 and the *Spent Nuclear Fuel Project Technical Baseline Document Fiscal Year 1996* (WHC 1995d) to establish hierarchy and define lower-tier functions that need to be performed to accomplish the mission of the Cask and Transportation Subproject. The functional breakdown for the Cask and Transportation Subproject is traceable to the SNF Project functional breakdown and in turn to the Hanford Site functional breakdown. The function breakdown for the Cask and Transportation Subproject is shown in:

- Figure 1, Cask and Transportation System Hardware Function Hierarchy, which shows the functions to be performed by the Cask and Transportation System
- Figure 2, Cask and Transportation System Hardware Function Relationship to Other SNF Project Functions, which shows the relationship of the Cask and Transportation System hardware functions to the SNF Project functions.

The function definitions for the Cask and Transportation System are contained in Table 1, Cask and Transportation System Function Definitions. Cask and Transportation System functions shown on Figure 1 are hardware functions and are labeled as CTS-F-X.X to denote this distinction.

Figure 1. Cask and Transportation System Hardware Function Hierarchy

Figure 2. Cask and Transportation System Hardware Function Relationship to Other SNF Project Functions

SNF Subproject Functions

SNF Project Functions

Cask and Transportation System Hardware Functions

1. Task and Transportation System hardware functions shown in dashed-line boxes support the SNF Project or SNF Subproject functions under which they fall; they are not direct decompositions

Note:

Table 1. Cask and Transportation System Function Definitions.

Function Number	Function Title and Definition
2.4.1.9* (SNF Project Function)	<u>Provide Cask and Transportation System.</u> Define, design, fabricate, construct, procure, test, and accept Cask Transportation equipment and procedures.
4.1.1.8.3.4* (SNF Project Function)	<u>Prepare and Remove SNF.</u> Obtain the Multi-Canister Overpack (MCO) including the MCO rerack baskets. Retrieve the canisters, separate the SNF from the canisters, clean and rerack the SNF and load the MCO rerack baskets into the MCO. Seal MCO, load into cask, and transfer to vacuum drying module.
4.1.1.8.3.4.7*	<u>Package SNF.</u> Establish primary and secondary containment for SNF during preparation and removal of SNF from the K Basin, vacuum drying of SNF, and transportation of SNF to the CSB.
4.1.1.8.3.4.7.2*	<u>Establish Secondary Containment Containment.</u> Provide containment boundary for SNF during normal conditions of transportation.
4.1.1.8.3.4.8*	<u>Remove SNF.</u> Move a package from the K Basin load-out pit to a staging area within the K Basin facility and move an empty package from the staging area to the load-out pit.
4.1.1.8.3.6* (SNF Project Function)	<u>Transfer SNF.</u> Obtain Cask and Transportation Vehicle, load and ship the MCO containing cold-vacuum dried SNF to the Canister Storage Building.
4.1.1.8.3.6.1*	<u>Handle Package at K Basin.</u> Move a package from a staging area within the K Basin facility onto the conveyance and move an empty package off the conveyance to the staging area.
4.1.1.8.3.6.2*	<u>Transfer Package.</u> Transfer the full or empty package between the K Basin facility, the Vacuum Drying Module, and the CSB.

*Not all activities described within this function apply to the Cask and Transportation Subproject.

Table 1. Cask and Transportation System Function Definitions.

Function Number	Function Title and Definition
4.1.1.8.3.6.4*	<u>Control Contamination.</u> Provides ability to decontaminate or minimize contamination of the exterior and interior surfaces of the cask system and the exterior surfaces of the MCO, and verification that the decontaminated areas meet acceptance limits.
4.7.2.3.1*	<u>Receive Shipment</u> Transfer of fully loaded MCO to the CSB for staging prior to conditioning.
CTS-F-1.0	<u>Provide Containment.</u> Provide level of containment for MCO contents.
CTS-F-1.1	<u>Load MCO into Secondary Containment</u> Allow placement of an empty or loaded MCO for transfer, into a reusable secondary containment shell (Cask).
CTS-F-2.0	<u>Transfer SNF to CSB.</u> Provides mechanism to move Spent Nuclear Fuel, contained within an MCO and secondary containment, between the K Basins and CSB. Also includes movement of empty to the K Basins.
CTS-F-2.1	<u>Provide System to Move MCO.</u> Provides the equipment (Cask and Transporter) necessary to facilitate the transportation of the full or empty MCO.
CTS-F-2.2	<u>Provide Load/Unload Capability.</u> Provides the features necessary for loading the (full or empty) cask from a receiving or staging area onto the conveyance or unloading the cask from the conveyance to a receiving or staging area.
CTS-F-2.3	<u>Enable Securing of Package.</u> Provides the equipment and features needed to enable and facilitate the securing of the (full or empty) cask onto either the conveyance, receiving area support structures, or staging area support structures.

Table 1. Cask and Transportation System Function Definitions.

Function Number	Function Title and Definition
CTS-F-3.1	<u>Provide Load/Unload Capability.</u> Furnishes the features necessary for loading the (full or empty) cask onto the conveyance, receiving area, or staging area, also includes unloading the full or empty cask.
CTS-F-3.2	<u>Enable Securing of Package.</u> Provides the equipment and features needed to enable and facilitate the securing of the (full or empty) cask onto the transfer equipment.
CTS-F-3.3	<u>Enable Package Handling.</u> Provides the equipment and features needed to enable and facilitate the handling of the empty cask, the cask holding an empty MCO, and the package (full MCO and Cask) either at the K Basins; Vacuum Drying Facility; the Canister Storage Building and Hot Vacuum Conditioning.
CTS-F-4.0	<u>Enable MCO Functions.</u> Provides a configuration which to allows the MCO to achieve the functions of loading, containment, confinement, maintain critically safe, vacuum drying, safety functions and transfer of SNF, which are provided for by the MCO subproject.
CTS-F-4.1	<u>Enable SNF Loading into the MCO.</u> Provides the ability for SNF to be loaded in to the MCO while the MCO is in the cask.
CTS-F-4.2	<u>Enable MCO Sealing.</u> Provides a configuration to allow the sealing of the MCO while contained in the cask system. MCO sealing will be provided for by the MCO subproject.
CTS-F-4.3	<u>Enable MCO Safety Functions.</u> Provides configuration necessary to enable venting, inerting, purging and pressure relief of the MCO, which is provided for by the MCO.
CTS-F-4.4	<u>Enable Cold Vacuum Drying.</u> Provides the ability for the MCO to be cold vacuum dried while in the cask.

Table 1. Cask and Transportation System Function Definitions.

Function Number	Function Title and Definition
CTS-F-5.0	<u>Control Contamination.</u> Provides ability to decontaminate or minimize contamination of the exterior and interior surfaces of the cask system and the exterior surfaces of the MCO, and verification that the decontaminated areas meet acceptance limits.
CTS-F-6.0	<u>Provide Shielding.</u> Provide radiation shielding during transfer and temporary storage of the MCO.

6.0 REQUIREMENT ANALYSIS

Requirements have been imposed on the Cask and Transportation Subproject as a result of the requirements allocation process which has been applied to the SNF Project requirements basis. The SNF Project requirements basis represents constraints imposed against the Hanford Site that are passed on to SNF Project functions, including the SNF Project Functions 2.4.1.9 Provide Cask and Transportation System and 4.1.1.8.3.6 Transfer SNF, which are performed solely by the Cask and Transportation Subproject, and SNF Project Function 4.1.1.8.3.4 Prepare and Remove SNF, which is performed partially by the Cask and Transportation System.

Table 2 provides a list of source documents which have been found to contain requirements that may apply to the Cask and Transportation Subproject. These sources will be analyzed and the specific requirements will be incorporated into specifications and design documents as applicable. When conflicting or contradictory requirements are found, the design authority will select the preferred requirement or generate a derived requirement.

Table 2. Cask and Transportation System Requirement Sources

TECHNICAL REQUIREMENTS
<p>Requirement Reference:</p> <p>10 CFR 71 - Packaging and Transportation of Radioactive Materials</p> <p>10 CFR 72 - Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste</p> <p>10 CFR 830.120 - Quality Assurance Requirements</p> <p>10 CFR 835 - Occupational Radiation Protection</p> <p>29 CFR 1910 - Occupational Safety and Health Protection Standards</p> <p>40 CFR 191 - Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High Level and Transuranic Radioactive Waste</p> <p>49 CFR 172 - Dimensional Specifications for Recommended Placard Holder</p> <p>49 CFR 173 - Shippers - General Requirements for Shipments and Packaging</p> <p>49 CFR 393 - Parts and Accessories Necessary for Safe Operation</p> <p>49 CFR 397 - Transportation of Hazardous Materials: Driving and Parking Rules</p> <p>49 CFR 571 - Federal Motor Vehicle Safety Standards</p> <p>RCW 46.37 - Vehicle Lighting and Other Equipment</p> <p>RCW 46.44 - Size, Weight, Load</p> <p>WAC 446-50 - Transport of Hazardous Materials</p> <p>WAC 470-12 - Transporting Rules</p> <p>SEN-35-91 - Nuclear Safety Policy</p> <p>DOE Order 1300.2A - Department of Energy Technical Standards Program</p> <p>DOE Order 1540.1A - Material Transportation and Traffic Management</p> <p>DOE Order 1540.2 - Hazardous Material Packaging for Transport - Administrative Procedures</p> <p>DOE Order 1540.3A - Base Technology for Radioactive Material Transportation Packaging Systems</p> <p>DOE Order 4330.4B - Maintenance Management Program</p>

**TECHNICAL
REQUIREMENTS**

DOE Order 4700.1 - Project Management System

DOE Order 5400.1 - General Environmental Protection Program

DOE Order 5400.5 - Radiation Protection of the Public and the Environment

DOE Order 5480.3 - Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes

DOE Order 5480.4 - Environmental Protection, Safety, and Health Protection Standards

DOE Order 5480.11 - Radiation Protection for Occupational Workers

DOE Order 5480.22 - Technical Safety Requirements

DOE Order 5480.23 - Nuclear Safety Analysis Reports

DOE Order 5480.24 - Nuclear Criticality Safety

DOE Order 5630.11B - Safeguards and Security Program

DOE Order 5700-6C - Quality Assurance

RLID 5632.1B - Asset Protection requirements

HSRCM-1 - Hanford Site Radiological Control Manual

SNF-RD-PM-001 Rev. 0 - Spent Nuclear Fuel Program Requirements Document

DOE/RL-93-102 - *Fiscal Year 1995 Hanford Mission Plan*, Volume 1, Site Guidance, September 1994

WHC-CM-2-14 - Hazardous Material Packaging and Shipping

WHC-CM-4-2 - Quality Assurance Manual

WHC-CM-4-3 - Industrial Safety Manual

WHC-CM-4-14 - Applied Radiological Controls

WHC-CM-4-29 - Nuclear Criticality Safety Manual

WHC-CM-4-35 - Safeguards Material Control Manual

WHC-CM-4-50 - Safeguards Accounting Manual

REQMT No.	TECHNICAL REQUIREMENTS
	<p>WHC-CM-5-13 K Basin Policy Manual</p> <p>WHC-CM-8-9 - Workmanship Standards</p> <p>WHC-IP-0565 - Safeguards Desk Procedures</p> <p>WHC-EP-0722 - Systems Engineering Functions and Requirements for the Hanford Cleanup Mission: First Issue</p> <p>WHC-EP-0779- Architecture Synthesis Basis for the Hanford Cleanup System</p> <p>ANSI/ANS-8.1 - Nuclear Criticality Safety in Operations with Fissionable Materials Outside Reactors</p>

7.0 REFERENCES

- ITA, 1994a, Independent Technical Assessment (ITA), *Dry Storage of N Reactor Fuel*, September 1994, 2 vols., for U.S. Department of Energy - Richland Operations Office, Richland, Washington.
- Parsons, 1995a, *Trade Study for K Basin Spent Nuclear Fuel Removal and Conditioning*, Revision 0, 4 vols., for Westinghouse Hanford Company, Richland, Washington.
- WHC, 1994a, *Hanford Spent Nuclear Fuel Project Recommended Path Forward*, Revision 0, WHC-EP-0830, 2 vols., Westinghouse Hanford Company, Richland, Washington.
- WHC, 1994b, *Spent Nuclear Fuel Project Technical Baseline Document*, WHC-SD-SNF-SD-002, 4 vols., Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995a, *Integrated Process Strategy for K Basins Spent Nuclear Fuel*, WHC-SD-SNF-SP-005, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995b, *Spent Nuclear Fuel Project Project Management Plan*, WHC-SD-SNF-PMP-011, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995c, *Spent Nuclear Fuel Project Systems Engineering Management Plan*, WHC-SD-SNF-SEMP-001, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995d, *Spent Nuclear Fuel Project Technical Baseline Description Fiscal Year 1996*, WHC-SD-SNF-SD-005, 2 vols., Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995e, *Spent Nuclear Fuel Project Technical Baseline Document Fiscal Year 1995*, WHC-SD-SNF-SD-003, 2 vols., Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995f, *Spent Nuclear Fuel Interface Control Plan*, WHC-SD-SNF-CM-003, Westinghouse Hanford Company, Richland Washington.
- WHC, 1996a, *Project W-443, Cask/Transportation Subproject Project Management Plan*, WHC-SD-W443-PMP-001, Westinghouse Hanford Company, Richland Washington.