2. To: (Receiving Organization) Distribution		3. From: (Originating Organization) Systems And Materials		4. Related EDT No.: NA							
5. Proj./Prog./Dept./Div.: 10250		6. Cog. Engr.: Dennis P. Lund		7. Purchase Order No.: NA							
8. Originator Remarks: Please approve the attached FFTF Transition Mission Analysis Report. All previous comments have been incorporated and/or resolved. Mark column (H), sign and date next to your name.				9. Equip./Component No.: NA							
				10. System/Bldg./Facility: FFTF							
				12. Major Assm. Dwg. No.: NA							
				13. Permit/Permit Application No.: NA							
11. Receiver Remarks:				14. Required Response Date: NA							
15. DATA TRANSMITTED											
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition			
1	WHC-SD-FF-MAR-001	N/A	0	FFTF Plant Transition Mission Analysis Report	N/A	2	1	1			
16. KEY											
Approval Designator (F)		Reason for Transmittal (G)			Disposition (H) & (I)						
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)		1. Approval 2. Release 3. Information 4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)			1. Approved 2. Approved w/comment 3. Disapproved w/comment 4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged						
(G)	(H)	17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)							(G)	(H)	
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	1	Cog.Eng. D.P. Lund	<i>[Signature]</i>	5-22-95	R3-56	CENTRAL FILES	<i>[Signature]</i>	5-22-95	L8-04		
1	1	Cog. Mgr. R.R. Borisch	<i>[Signature]</i>	5/22/95	R3-56	OST 1	<i>[Signature]</i>	5-22-95	L8-07		
-		QA N/A									
-		Safety									
-		Env.									
1	2	FFTF; S. Guttenberg	<i>[Signature]</i>	5/15/95	N2-53						
1	2	FFTF; T.M. Burke	<i>[Signature]</i>	5/17/95	N2-01						
18.		19.			20.			21. DOE APPROVAL (if required) Ctrl. No.			
<i>[Signature]</i> 5/22/95 Signature of EDT Date Originator		N/A Authorized Representative Date for Receiving Organization			<i>[Signature]</i> 5-22-95 Cognizant Manager Date			☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments			

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

RELEASE AUTHORIZATION

Document Number: WHC-SD-FF-MAR-001, Rev. 0

Document Title: FFTF PLANT TRANSITION MISSION ANALYSIS REPORT

Release Date: 5/24/95

**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Chris Willingham
C. Willingham

5/24/95

TRADEMARK DISCLAIMER. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors.

This report has been reproduced from the best available copy. Available in paper copy and microfiche. Printed in the United States of America. Available to the U.S. Department of Energy and its contractors from:

U.S. Department of Energy
Office of Scientific and Technical Information (OSTI)
P.O. Box 62
Oak Ridge, TN 37831
Telephone: (615) 576-8401

Available to the public from:

U.S. Department of Commerce
National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161
Telephone: (703) 487-4650

SUPPORTING DOCUMENT

JE 5/25/95
1. Total Pages **15** 18

2. Title

FFTF Plant Transition Mission Analysis Report

3. Number

WHC-SD-AF-MAR-001

4. Rev No.

0

5. Key Words

FFTF Mission, Mission Analysis Report, FFTF
Transition Mission

6. Author

Name: DP Lund

Signature

DP Lund

Organization/Charge Code 10250/K123C

7. Abstract

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC

DATE **MAY 25 1995**

STA 4

13

FFTF Plant Transition Mission Analysis Report

D.P. Lund

January 1995

Prepared for FFTF Baseline
Control Working Group

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED 25

MASTER

CONTENTS

1.0 INTRODUCTION	1
1.1 PURPOSE	1
1.2 BACKGROUND	1
1.3 SCOPE	1
1.4 PROBLEM STATEMENT	2
2.0 MISSION ANALYSIS	3
2.1 MISSION STATEMENT	3
2.2 MISSION OBJECTIVES	3
2.3 MISSION DEFINITION	3
2.3.1 Initial Conditions	4
2.3.2 Final Conditions	5
2.3.3 Constraints	6
2.3.4 Mission Boundaries, Environment and Interfaces	9
2.3.4.1 Mission Boundaries	9
2.3.4.2 Mission Environment	9
2.3.4.3 External Interfaces	9
2.3.5 Resources	10
2.4 MISSION EVALUATION	10
2.4.1 Mission Risk Areas/Factors	10
2.4.2 Measures of Effectiveness	10
3.0 GLOSSARY	11
4.0 REFERENCES	12

FFTF PLANT TRANSITION MISSION ANALYSIS REPORT

1.0 INTRODUCTION

1.1 PURPOSE

This report presents the results of the Fast Flux Test Facility (FFTF) Transition Project mission analysis. Hanford systems engineering (SE) procedures call for a mission analysis. The mission analysis is an important first step in the SE process.

1.2 BACKGROUND

The FFTF is a 400 megawatt (thermal) sodium-cooled, fast flux test reactor owned by the Department of Energy (DOE). "Fast flux" means the neutrons move faster (have higher energy) in a sodium-cooled reactor than they do in a typical water cooled "thermal" reactor. The FFTF was designed and operated primarily to test fuels and materials for advanced nuclear power plants. FFTF has no capability to generate electric power. The FFTF is located north of Richland, Washington, on the Hanford Site. Construction of FFTF began in 1970, with initial reactor startup in February 1980, and achievement of unrestricted full-power operation in April 1982.

A two-year effort by the Governor of the State of Washington, in cooperation with the state congressional delegation and with the endorsement of DOE, was unsuccessful in identifying a long-term mission for FFTF. Thus, in April 1992, the DOE placed the facility in standby status. An independent review team was appointed by Secretary of Energy Hazel O'Leary to evaluate the capabilities, feasibility and possible future mission of FFTF. The independent review team's recommendation that the FFTF be shut down was given to the Secretary in late September 1993. A phased process to place the FFTF into a safe shutdown condition was ordered to begin on December 15, 1993, by Secretary O'Leary.

1.3 SCOPE

The scope of the FFTF Plant Transition is defined as including:

- Deactivation of the FFTF plant, and ancillary support facilities within the FFTF fenceline. The FFTF Transition Project Plan (WHC-SD-FF-SSP-004, Rev. 1) provides all the major elements and ensuing deactivation activities necessary to transition the FFTF and related facilities to a shutdown state in a safe, environmentally sound, and cost effective

manner. Specific end-point criteria and a surveillance and maintenance plan will be developed to facilitate the turnover of the FFTF to the Environmental Restoration Contractor (ERC).

- The following facilities are included: FFTF, and all ancillary support facilities located inside the FFTF fenceline. Facility numbers are as follows: 405; 408-A; 408-B; 408-C; 491-E; 491-S; 491-W; 4621-E; 4621-W; 4717; 403; 483; 484; 4721; and 4703. Bulk liquid sodium, process fluids, lubricating oils, and other hazardous materials will be removed.
- The following legacy nuclear materials are included as classified by DOE 5633.3A Control and Accountability of Nuclear Materials: category IC or IIID unirradiated fuel; category IVE irradiated fuel; and category IC, IIC or IIID irradiated fuel. Other legacy materials include special fuel (DNM/Gas Leaker fuel, sodium bonded test assemblies, and lithium bonded assemblies) and radioactively contaminated liquid sodium.
- Project activities include: reactor defueling; unirradiated fuel washing and disposition; irradiated fuel washing and dry cask storage; sodium systems drain and accommodation of sodium residuals; auxiliary systems shutdown; and bulk sodium conversion to a form suitable for disposition. Hazardous, radioactive and nuclear materials will be removed from the facilities or stabilized sufficiently to ensure long-term safety and regulatory compliance, and enable subsequent successful D&D. Water and electricity will be turned off in deactivated facilities. Appendix A-2 in the FFTF Transition Project Plan contains specific information on the planned shutdown status of FFTF systems and facilities upon completion of deactivation.
- The Maintenance and Storage Facility (437), Maintenance Facility (4713-B) and Operations Support Building (4710), are not included in the scope of FFTF deactivation. These will remain available to support other Hanford missions. The Water Pump Houses (481 and 481-A), Water Storage Tanks and wells will remain in operation. Electrical services may be switched off, but will remain operational to serve the 400 Area.

1.4 PROBLEM STATEMENT

The research and development mission at FFTF does not exist anymore. The FFTF facility is expensive to maintain and operate, and nuclear, radioactive and hazardous materials are not properly dispositioned. FFTF must be deactivated in a manner such that safe and compliant D&D operations can take place with acceptable risk and with only minimal maintenance and surveillance required to maintain the facility for 20 years or more while awaiting D&D.

2.0 MISSION ANALYSIS

2.1 MISSION STATEMENT

The purpose of the FFTF Transition Project is to prepare FFTF for Decontamination and Decommissioning (D&D). This will be accomplished by establishing a passively safe and environmentally secure configuration of the FFTF Plant, that can be preserved for several decades. The project removes reactor fuel, disposes unirradiated fuel, washes and dry cask stores irradiated fuel, shuts down auxiliary systems, drains the sodium systems, addresses the sodium residuals, and converts the bulk sodium into a form suitable for disposition. Ancillary support facilities within the FFTF fence line will be deactivated. During deactivation, appropriate portions of the safety envelope will be maintained to ensure deactivation takes place in a safe and regulatory compliant manner. Stakeholders will also be actively involved during deactivation.

2.2 MISSION OBJECTIVES

- Establish a safe and environmentally secure configuration for the plant, and retain that configuration for at least a 20-year horizon.
- Implement cost-effective deactivation approaches while ensuring the required safety envelope is defined and maintained during deactivation.
- Achieve compliance with Environmental, Safety, and Health codes and standards during deactivation.
- Involve stakeholders as required in the development and execution of the FFTF Transition Project.
- Apply lessons learned from previous liquid metal reactor and commercial deactivation experience.
- Meet Tri-Party Agreement and DOE FFTF transition milestones.

2.3 MISSION DEFINITION

In addition to the mission statement, the activities required to deactivate FFTF can be further defined through an understanding of the initial conditions prior to deactivation, the final endpoint or conditions desired upon completion of the mission, the constraints under which the mission must be performed, and the resources that are available to enable the mission. The following paragraphs describe the initial and final conditions, the physical boundaries and programmatic interfaces, and the resources to achieve FFTF deactivation. A diagram of the initial conditions, final conditions,

WHC-SD-FF-MAR-001, Revision 0

constraints, resources and interfaces required to perform the FFTF Transition Mission are shown in Figure 1.

WHC-SD-FF-MAR-001, Revision 0

2.3.1 Initial Conditions

LEGACY FACILITIES, EQUIPMENT AND NON-NUCLEAR MATERIALS. The reactor is shutdown and the decay heat level is approximately 100 kilowatts or less. Fuel is present within the reactor vessel, Interim Decay Storage (IDS) vessel and in Fuel Storage Facility (FSF) storage vessels. Sodium is present in the reactor, IDS, and FSF vessels, and in the three primary and secondary cooling loops. The secondary loop sodium pumps are operating on main motors to keep the sodium at approximately 400 degrees Fahrenheit (sodium freezes at 208 degrees F). The primary loop sodium is being circulated at low flow by operation of "pony" motors. Decay heat of irradiated fuel components and heat trace systems are also available to keep the sodium molten.

All ancillary facilities are operational.

The FFTF complex contains approximately 260,000 gallons of bulk sodium. 140,000 gallons of primary loop sodium is activated and contains sodium 22 (.52 micro curries per gram with a 2.6 year half-life), cesium 137 (.1 nano curries per gram with a 30 year half-life), plutonium 239 (1.2 pico curies per gram with approximately a 1000 year half-life), and tritium (.16 micro curies per gram with an eleven year half-life). The secondary loop sodium, approximately 66,000 gallons, contains some tritium (.064 micro curries per gram). The FSF and IDS contain the remaining sodium, approximately 54,000 gallons, which contains small quantities of sodium 22, cesium 137, plutonium 239 and tritium, due to fuel transfer operations and the fact that both contain, or have contained, failed fuel assemblies.

LEGACY NUCLEAR MATERIALS. Legacy nuclear materials include: 333 highly irradiated category IVE fuel components; 11 irradiated fuel components that by the year 2030 will be either IC or IIID; 32 unirradiated (green) fuel components; 6 sodium bonded metal fuel assemblies; one lithium bonded fuel assembly; and two intact DNM/Gas leaker fuel assemblies.

Approximately two core equivalents of fuel assemblies exist inside the reactor vessel and In Vessel Storage (IVS), one core equivalent of fuel assemblies inside the Interim Decay Storage (IDS), and two core equivalents of fuel assemblies in the Fuel Storage Facility (FSF).

2.3.2 Final Conditions

DEACTIVATED FACILITY(s). Deactivated facilities include the FFTF Plant and ancillary support buildings inside the FFTF fenceline.

The FFTF Transition Project Plan provides all the major elements and ensuing deactivation activities necessary to transition the FFTF and related facilities to a shutdown state in a safe, environmentally sound, and cost effective manner. Specific end-point criteria and a surveillance and maintenance plan will be developed to facilitate the turnover of the FFTF to the ERC. Deactivated facilities are transferred to the ERC for D&D or to the

Transition Resources for Beneficial Use function which is described in WHC-EP-0722, "Systems Engineering Functions and Requirements for the Hanford Cleanup Mission: First Issue." Due to the activation of materials and activated corrosion products, it could be more than 20 years before D&D would occur, making it essential that the facilities be placed in a minimum safe, stable and environmentally compliant condition that requires minimal surveillance and maintenance, and resulting in an unoccupied facility status wherever possible.

ON-SITE NUCLEAR MATERIALS. Nuclear materials must be removed, or stored for an interim period and may need treatment and/or stabilization. Nuclear materials that must be considered include: category IC and IIID unirradiated fuel; category IVE irradiated fuel; category IC and IIID irradiated fuel; special fuel (DNM/Gas Leaker fuel, sodium bonded test assemblies, and lithium bonded assemblies); and radioactively contaminated liquid sodium. The sodium bonded test assemblies will be shipped to the Experimental Breeder Reactor-II in Idaho for consolidation. The irradiated fuel could be stored for an interim period onsite or at some other location. The unirradiated fuel could be sent to the Plutonium Finishing Plant protected area for storage.

TRANSITIONED REUSABLE RESOURCES TO BENEFICIAL USES. Bulk sodium removed from FFTF will be converted to a hydroxide for use at TWRS during treatment of tank waste sludge. Spare parts and other plant equipment will be transferred or buyers sought.

WASTES GENERATED DURING DEACTIVATION. Wastes generated during deactivation include: hazardous waste; radioactive waste; liquid effluents; and liquid metal residuals. Hazardous waste would go to the solid waste function. Radioactive waste would go to tank farms or solid waste. Liquid effluents would go to the aqueous waste function. The liquid metal residuals will be retained in the plant systems (frozen and inerted) for later disposition during D&D.

2.3.3 Constraints

DEFINED WORK PACKAGES. Defined work packages at this level constitute the technical baseline for the current fiscal year. They define the intended work scope in broad terms, generally at a program level.

DIRECTION AND CONTROL. Direction and control is provided from the Manage function which is described in WHC-EP-0722, "Systems Engineering Functions and Requirements for the Hanford Cleanup Mission: First Issue." Direction is generally provided at a program level. The Manage function must integrate all program and project efforts and make site level decisions to achieve the best overall results at the site level.

MISSION REQUIREMENTS. Mission requirements are physical limits on system design solutions imposed from authority internal or external to the cleanup mission.

WHC-SD-FF-MAR-001, Revision 0

Mission constraints that are internally (self) imposed upon the cleanup mission include:

- Design solutions must inherently improve the safety posture of the site with respect to subsequent operations.
- Only cost effective design solutions will be considered.
- Stakeholder interests must be included in alternative definition and selection.
- Successful alternatives must be capable of resulting in, or contributing to, the rapid progress needed to sustain mission momentum and support.
- The cleanup work must not adversely affect other ongoing or project Hanford Site missions.
- The FFTF Plant configuration shall be maintained and controlled to enable safety and regulatory compliance during deactivation. Records shall be established and archived for reactivating D&D essential systems and providing meaningful D&D characterization information. Configuration Management during deactivation shall be in accordance with requirements established in the "WHC Uniform Configuration Management Approach for Deactivation of Transition Projects", (WHC-SD-HT-RPT-001, Rev. 0) document.
- Materials shall be removed where plant knowledge and expertise is necessary to ensure safe and compliant removal.
- Final facility configuration shall ensure D&D operations are not jeopardized, and facility safety and environmental protection can be maintained during the surveillance and maintenance phase.

On a broad level, externally imposed mission requirements consist of compliance with the following:

- United States Code (USC); these are laws of a general and permanent nature under arrangement of official code of laws of the United States. Examples include: Clean Water Act; National Environmental Policy Act; Resource Conservation and Recover Act of 1976; Comprehensive Environmental Response, Compensation, and Liability Act of 1980; and the Nuclear Waste Policy Act.
- Federal Register (FR); these include, but are not limited to, proposed and final federal agency regulations, policies, documents required to be published by an act of Congress and other federal agency documents of public interest. The Final Environmental Impact Statement for the Disposal of Hanford Defense High-Level, Transuranic and Tank Wastes, Hanford Site, Richland, Washington: Decision of Records is an example of a FR document.

- Code of Federal Regulations (CFR); these are a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. Examples include: Packaging and Transportation of Radioactive Material; Occupational Safety and Health Administration; Identification and Listing of Hazardous Waste; Standards Applicable to Generators of Hazardous Waste; and Shippers-General Requirements for Shipments and Packaging.
- Hanford Federal Facility Agreement and Consent Order (89-10, Rev. 1); this is the agreement between DOE, EPA, and the Washington State Department of Ecology and is more commonly known as the Tri-Party Agreement. The Tri-Party Agreement identifies milestones that quantify actions toward Hanford Site compliance with the Resource Conservation and Recovery Act of 1976, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, and the Washington State Hazardous Waste Management Act.
- Washington Administrative Code (WAC); these are a codification of general and permanent rules published in the Washington State Register by the agencies of the State of Washington. Examples include: Dangerous Waste Regulations; Washington Ambient Air Quality Standards and Emission Limits for Radionuclides; Washington Standard for Protection Against Radiation; and Transportation of Hazardous Materials.
- Revised Code of Washington (RCW); comprises all laws of a general and permanent nature under arrangement of official code of laws of the State of Washington. Examples include: Washington State Environmental Policy Act; Washington Radioactive Waste Act; Washington Industrial Safety and Health Act; and Washington Clean Air Act.
- Executive Order (EO); these are orders or regulations issued by the President, or administrative authority, that can have the effect of law if published in the Federal Register. Responses to Environmental Standards (Aug. 14, 1981; 46 FR 42237) and Superfund Implementation (Feb. 23, 1987; 52 FR 2923) are examples of EOs.
- Secretary of Energy Notices (SEN); these convey direction on processes and procedures which control operations, design, procurements, etc.. SEN-35-91, Nuclear Safety Policy is an example of a SEN.
- U.S. Department of Energy Orders; these are long-lasting directives stating policy or establishing standards of operation. Examples of DOE Orders include: Comprehensive Environmental Response, Compensation, and Liability Act Requirements; Radiation Protection of the Public and the Environment; National Environmental Policy Act Compliance Program; Environmental

Protection, Safety and Health Protection Standards; and Radiation Protection for Occupational Workers.

- U.S. Department of Energy Notices; these are one-time or short-term (less than 1 year) instructions or information. Notices are used to provide immediate dissemination until the information can be incorporated into an order.
- Codes and Standards; these are national or international consensus documents written and critiqued by technical specialists versed in the field of interest. Usually these standards are generated by professional societies.
- U.S. Department of Energy Environmental Management Policy; these are guidelines formulated by the Assistant Secretary for Environmental Management or by the Secretary of Energy.
- Westinghouse Hanford Company Controlled Manuals; these are internal company procedures that are intended to encompass all relevant requirements associated with activities covered in the procedure and describe how the activities need to be performed to ensure compliance. Examples include WHC-CM-4-3, Industrial Safety Manual, etc...

2.3.4 Mission Boundaries, Environment and Interfaces

2.3.4.1 Mission Boundaries. The project's physical boundaries are generally defined by the fence line surrounding the FFTF complex. Spare parts also exist in warehouses outside the fence line. Some facilities inside the fence are excluded. The Maintenance and Storage Facility (437), Maintenance Facility (4713-B) and Operations Support Building (4710), are not included in the scope of FFTF deactivation. These will remain available to support other Hanford missions. The Water Pump Houses (481 and 481-A), Water Storage Tanks and wells will remain in operation. Electrical services may be switched off, but will remain operational to serve the 400 Area.

The programmatic boundaries of FFTF are organizational rather than physical. Examining the interfaces where information, material or energy are exchanged provides additional insight. For example FFTF personnel interface with the following areas and functions:

- Site utilities (sewage, steam, water, electricity)
- Site security, transportation, and custodial services
- Fire protection
- Waste management
- Solid waste

2.3.4.2 Mission Environment. The mission environment is defined as that which exists outside of the FFTF mission. How this environment is expected to

change or remain the same throughout the life of the mission is important in defining the mission. The Relevant attributes of the environment are listed below:

- DOE is expected to use the Hanford Cleanup as its model for environmental restoration. DOE is also expected to be closely involved in the process, and to provide adequate funding.
- The Public generally mistrusts the DOE and current activities, but FFTF has taken an active role to get the public involved and to share information. Activities are currently underway to ensure the public is knowledgeable of FFTF deactivation plans.
- The management of the Hanford Site Cleanup Mission will be strengthened to supply the policy, procedures, and resources to effectively cleanup Hanford.

2.3.4.3 External Interfaces. These interfaces are those entities through which the mission receives or transfers information, material or energy outside of the defined mission including external requirement sources. The following are interfaces related to the FFTF mission:

- Federal Agencies
- State and Local Governments
- Confederated Tribes
- DOE Headquarters and Field Office
- DOE Laboratories
- Government Agencies Sending SNM to PUREX
- Other Hanford Programs and Projects
 - Spent Nuclear Fuel Project
 - TWRS Program
 - Solid Waste Program
 - Aqueous Waste Project
 - PFP Transition Project
 - Site Environmental Monitoring
 - Site Infrastructure
- Environmental Restoration Contractor (ERC)
- Stakeholders
- Other facilities in DOE complex

2.3.5 Resources

ALLOCATED RESOURCES. Allocated resources primarily includes the budget and personnel necessary to carry out the current fiscal technical baseline defined by the Manage function which is described in WHC-EP-0722, "Systems Engineering Functions and Requirements for the Hanford Cleanup Mission: First Issue" with constraints on it as described in Section 2.3.3.

MISSION ESSENTIAL CAPABILITIES. Mission essential capabilities include the expertise, facilities, equipment, infrastructure, supplies, information, services and technology to perform the FFTF Transition Project. Typically, these are provided by the Acquire Mission Essential Capabilities function which is described in WHC-EP-0722, "Systems Engineering Functions and Requirements for the Hanford Cleanup Mission: First Issue" with constraints on it as described in section 2.3.3.

2.4 MISSION EVALUATION

2.4.1 Mission Risk Areas/Factors

- Reactor defueling, sodium drain, and other key assumptions specified in the FFTF Transition Project Plan; WHC-SD-FF-SSP-004, Rev. 1 will not significantly change.

2.4.2 Measures of Effectiveness

- How well project objectives are met.
- Timely identification of potentially transferrable resources.
- Timely identification of transition project needs.
- The reduction of surveillance and maintenance costs upon completion of deactivation.

3.0 GLOSSARY

This section contains the definition of words and phrases found in the text of this document.

core equivalents	These are a unit of measure of the residual material in the reactor and process systems.
deactivate	The transition of facilities to a state where the buildings, chemical processing systems and infrastructure are placed in a long term, low cost, minimum surveillance and maintenance, safe condition and are ready for D&D. A facility enters deactivation when the need for a facility to fulfill its current mission does not exist.
D&D	D&D is decontamination and decommissioning and is performed when no other missions are identified. Dismantling and decontamination, mothball for later dismantlement and entombment are all D&D options.
ER	ER is Environmental Restoration. It is an activity contracted to the ER Contractor. They will perform D&D of facilities.
infrastructure	<p>Facility infrastructure is the physical portions of the facility which are implicit to the function of the activities in the structure, such as the heating, ventilation, electricity, etc.</p> <p>Site infrastructure is all utility, support and other service systems that interface with a particular facility complex. Within a facility complex ancillary facilities and structures provide infrastructure.</p>
interim storage	The storage of stabilized materials until these materials are transferred or dispositioned. The duration of storage depends on the availability of suitable storage locations and disposition instructions by the owners (DOE).
mission	A mission is a narrative description of the ultimate goals and highest purpose for an organizational unit, facility or project.
stabilize	This is the process of treating (chemically or physically) material to make it less hazardous.
standby	This term describes the operational status of a process or facility. A facility in standby is not currently operating, but it is operable after appropriate startup checks and testing have been performed. In some cases appropriate repairs and upgrades may be necessary.

WHC-SD-FF-MAR-001, Revision 0

turnover	Turnover is the transaction which transfers responsibility from the current organizational unit (Transition Projects) to the ER contractor.
----------	---

4.0 REFERENCES

1. 9452199; March 29, 1994; Hanford Site Systems Engineering Management Plan; Westinghouse Hanford Company.
2. 9453650; May 25, 1994; Hanford Site Systems Engineering Manual; Westinghouse Hanford Company.
3. WHC-EP-0722 Rev. 0; January 1994; Systems Engineering Functions and Requirements for the Hanford Cleanup Mission: First Issue; Westinghouse Hanford Company.
4. WHC-SD-FF-SSP-004 Rev. 1; March 1994; Fast Flux Test Facility Transition Project Plan; Westinghouse Hanford Company.
5. WHC-SD-HT-RPT-001 Rev. 0; June 30, 1994; WHC Uniform Configuration Management Approach for Deactivation of Transition Projects; Westinghouse Hanford Company.
6. DOE/EA-0993D; January 1995; Environmental Assessment, Shutdown of the Fast Flux Test Facility, Hanford Site, Richland, Washington
7. DOE 5633.3A; Control and Accountability of Nuclear Materials