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River Corridor Closure Contract

Planning for the Transition to Long-Term Stewardship Under the River Corridor Closure Contract

February 2007

Author:

C. S. Cearlock

Washington Closure Hanford

Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Assistant Manager for River Corridor



Addressees
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If you have any questions or comments, please contact John Sands, of my staff, on (509) 372-2282.

Sincerely,



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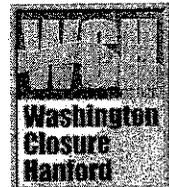
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ACRONYMS

BPA	Bonneville Power Administration
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
CLUP	Comprehensive Land-Use Plan
CVP	cleanup verification package
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy, Richland Operations Office
Ecology	Washington State Department of Ecology
EM	DOE Office of Environmental Management
EPA	U.S. Environmental Protection Agency
ERC	Environmental Restoration Contractor
ERDF	Environmental Restoration Disposal Facility
FIMS	Facility Information Management System
FOST	Finding of Suitability to Transfer
HAB	Hanford Advisory Board
HCP EIS	<i>Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement</i>
IC	Institutional Controls
LIGO	Laser Interferometer Gravitational-Wave Observatory
LM	DOE Office of Legacy Management
LTS	long-term stewardship
LTS&M	long-term surveillance and maintenance
MAP	Mitigation Action Plan
NDAA	National Defense Authorization Act
NARA	National Archives and Records Administration
NEPA	<i>National Environmental Policy Act of 1969</i>
O&M	operation and maintenance
OU	operable unit
RAR	remedial action report
RCCC	River Corridor Closure Contract
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
ROD	record of decision
RSVP	remaining sites verification package
SIS	Stewardship Information System
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
Tri-Parties	DOE, Ecology, and EPA
TSD	treatment, storage, or disposal
USFWS	U.S. Fish and Wildlife Service
WCH	Washington Closure Hanford
WIDS	Waste Information Data System
WM PEIS	Waste Management Programmatic Environmental Impact Statement

KEY TERMS AND DEFINITIONS

CERCLA Decision Document: Refers to *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* action memorandums; records of decision (for both interim and final actions); record of decision amendments; and explanation of significant difference documents.

Cleanup Verification Package (CVP) or Remaining Sites Verification Packages (RSVP): Documents prepared after completion of remedial actions that support source waste site reclassification. The package will document the remedial action process, verification sampling results, and attainment of the remedial action objectives under the appropriate land use.

End State: The final condition/standards to which specific areas will be addressed by cleanup actions and/or institutional controls, with consideration to the anticipated future land uses.

Engineered Controls: Controls designed to isolate or to contain waste or materials (e.g., caps, entombment of facilities, contaminant immobilization).

Final Closeout Report: Site completion is documented through a final closeout report. The final closeout report documents compliance with statutory requirements and provides a consolidated record of all removal and remedial activities for an entire National Priorities List site. Because it is the final record, the final closeout report must be complete and able to stand alone. The final closeout report describes how the cleanup was accomplished and provides the overall technical justification for site completion.

Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS): A land-use plan consisting of several key elements, which identifies the U.S. Department of Energy's preferred alternative. One of the key elements is a land-use map that establishes the Hanford Site's five geographic areas – the Wahluke Slope, the Columbia River Corridor, the Central Plateau, All Other Areas of the Hanford Site, and the Fitzner-Eberhardt Arid Lands Ecology Reserve. The plan depicts the planned future uses for each of these areas using a set of nine land-use designations that define the permissible uses for each area of the site. The plan also identifies the planning and implementing policies and procedures that will govern the review and approval of future land uses. These elements together create the Hanford Comprehensive Land-Use Plan.

Finding of Suitability to Transfer (FOST): A determination that a property is environmentally suitable for transfer by deed for the intended purpose because the requirements of *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* Section 120(h)(3) or 120(h)(4) have been met for the property, taking into account the potential risk of future liability.

Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement): A legally binding agreement between the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the State of Washington Department of Ecology. The agreement is the mechanism for achieving compliance with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) remedial action provisions and with the *Resource Conservation and Recovery Act of 1976* (RCRA) treatment, storage, and disposal unit regulations and corrective action provisions. More specifically, the Tri-Party Agreement (1) defines and ranks CERCLA and RCRA cleanup commitments, (2) establishes

Key Terms and Definitions

responsibilities, (3) provides a basis for budgeting, and (4) reflects a concerted goal of achieving full regulatory compliance and remediation, with enforceable milestones.

Institutional Controls: Generally include nonengineered restrictions on activities and access to land, groundwater, surface water, waste sites, waste disposal areas, and other areas or media that contain hazardous substances to minimize the potential for human exposure to the substances. Common types of institutional controls include procedural restrictions for access, fencing, warning notices, permits, easements, deed notifications, leases and contracts, and land-use controls.

Land-Use Controls: Any restriction or control, including institutional controls, arising from the need to protect human health and the environment that limits use of and/or exposure to any portion of that property, including water resources. Institutional controls encompassed by this term include those involving real estate interests, governmental permitting, zoning, public advisories, deed notices, and other legal restrictions. The term may also include restrictions on access, whether achieved by means of engineered barriers, such as a fence or concrete pad, or by human means, such as the presence of security guards. In addition, the term may involve both affirmative measures to achieve the desired restriction (e.g., night lighting of an area) and prohibitive directives (e.g., no drilling of drinking water wells).

Long-Term Stewardship (LTS): The management of the risks (human health and environmental) associated with any residual contamination and the management of the Hanford Site's cultural, biological, and natural resources that remain after the cleanup mission is complete. LTS activities encompass monitoring, maintenance, record-keeping, institutional controls, and other activities necessary to ensure protection of human health and the environment from post-cleanup residual hazards.

Miscellaneous Restoration: A River Corridor Closure Contract scope element that includes removing abandoned railroad lines, abandoned above-grade utilities, clean surface concrete debris, and abandoned fences that are not otherwise addressed by the regulatory documents (e.g., records of decision). All below-ground debris and structures are excluded from the miscellaneous restoration scope.

Orphan Site: A manmade feature, item, or activity area within the river corridor that meets the Tri-Party Agreement TPA-MP-14 guideline criteria for waste site identification, is not identified for characterization or cleanup within the existing regulatory framework (e.g., records of decision and work plans), and has been presented to and accepted by the Washington Closure Hanford Field Remediation Closure Project, the U.S. Department of Energy, Richland Operations Office, and the regulators.

Record of Decision (ROD): A legal document that selects a *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) remedy and certifies that the remedy selection process was carried out in accordance with CERCLA and, to the extent practicable, in accordance with the "National Oil and Hazardous Substances Pollution Contingency Plan." The ROD is prepared by the lead regulatory agency and documents the selected interim or final remedial actions for a group of waste sites or operable unit, and must be signed by the U.S. Environmental Protection Agency.

Key Terms and Definitions

Remedial Action Report (RAR): A report that documents the cleanup activity that occurred at an operable unit and demonstrates that the cleanup goals specified in the record of decision have been achieved.

Remedial Design Report/Remedial Action Work Plan: A report that documents the technical specifications for the design, construction, and implementation of the selected remedy.

River Corridor: A portion of the Hanford Site that is defined by the River Corridor Closure Contract. The river corridor is more than 563 km² (139,000 ac) in size and is bounded on one side by the Columbia River. For the purpose of this document, the river corridor is subdivided into reactor/operational areas and interim areas.

River Corridor Closure Contract (RCCC): The RCCC is a contract between the U.S. Department of Energy and Washington Closure Hanford for the cleanup of the Hanford Site river corridor that includes safety, cost performance, and schedule performance requirements.

Remaining Sites Verification Packages (RSVP): See the definition of Cleanup Verification Package.

Source Operable Unit (OU): Multiple waste sites grouped together for the purposes of investigation and subsequent cleanup actions. Within the river corridor, source OUs include the location or the zone of highest soil concentrations of the contaminants of concern. The primary criteria for placement of a site into a source OU includes geographic proximity, similarity of waste characteristics and site type, and the possibility for economies of scale.

Stewardship Element: A manmade feature, item, or activity area within the river corridor that does not meet the Tri-Party Agreement TPA-MP-14 guideline criteria for waste site identification, is not part of Miscellaneous Restoration scope, and is anticipated to remain after completion of the River Corridor Closure Contract. Examples may include, but are not limited to, groundwater wells, building foundations, and physical hazards.

Stewardship Information System (SIS) Database: A relational database consisting of three components: waste sites, facilities, and orphan sites. The types of information that will be entered in the database include photographs, cleanup data, site evaluations, reference documents, and other similar site-specific information.

Waste Information Data System (WIDS): An electronic database containing waste site information for the Hanford Site. The database identifies waste management units on the Hanford Site, describes the current status of each unit, and includes other descriptive information. The system is maintained by the U.S. Department of Energy in the WIDS change control system, which documents and traces additions, deletions, and other changes dealing with the status of waste management units. The information in the database also reflects the official list of waste sites and/or releases that require remedial investigation or action under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*.

Waste Site: Referred to as a "Waste Management Unit" in the Tri-Party Agreement; an individual location on the Hanford Site where waste has or may have been placed, either planned or unplanned, as identified in an action plan.

1.0 INTRODUCTION

This *Planning for the Transition to Long-Term Stewardship Under the River Corridor Closure Contract* (draft *RCCC LTS Transition Plan*) describes the Washington Closure Hanford (WCH) proposed approach to meet the requirements for long-term stewardship (LTS) to maintain the protectiveness of the source unit cleanup remedies performed within the river corridor at the U.S. Department of Energy (DOE) Hanford Site. Cleanup actions within the river corridor began in 1994 under the Environmental Restoration Contract (ERC). In August 2005, the ERC transitioned to the River Corridor Closure Contract (RCCC) for completion of source unit cleanup actions in the river corridor. DOE defines river corridor closure as completion of all of the activities required to deactivate, decontaminate, decommission, and demolish excess facilities; place former production reactors in an interim safe and stable condition; remediate waste sites and burial grounds; meet regulatory requirements; and support transition of the river corridor to LTS.

The goal of this draft *RCCC LTS Transition Plan* is to clearly articulate the post-cleanup responsibilities, including land management by DOE for the river corridor upon completion of the RCCC, and to support continuous human and environmental protection, as well as the conservation and consideration of the use of biological, natural, and cultural resources.

It is important to note that this draft *RCCC LTS Transition Plan* is not a cleanup decision document and it does not define cleanup objectives or reasonably anticipated future land use. It simply defines the LTS requirements upon completion of the RCCC. The "starting point" for the activities described in this plan is the future completion of the RCCC, currently planned for near the end of the contract. This draft *RCCC LTS Transition Plan* attempts to define many of the LTS responsibilities well before the cleanup is complete and will then be updated and finalized near the completion of the RCCC. The final *RCCC LTS Transition Plan* will be based on the applicable final cleanup decision documents and related documentation and will include (1) a proposed Finding of Suitability to Transfer (FOST) in accordance with *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) Section 120(h), and (2) the final criteria for LTS and how those criteria have been met.

1.1 PURPOSE

The purpose of this plan is three-fold. First, it describes DOE's long-term responsibilities to maintain the protectiveness of the remedies for the cleanup completed under the RCCC in accordance with regulatory requirements. These responsibilities include ensuring that the remedies remain protective of human health and the environment for the long term. Second, this plan includes a brief description of a FOST (Appendix A), which will document that the river corridor is environmentally suitable for transfer by deed under Section 120(h) of CERCLA. A proposed FOST is a requirement of the RCCC deliverable for the final *RCCC LTS Transition Plan*. Although this draft *RCCC LTS Transition Plan* provides information on how the FOST criteria will be met at the completion of the RCCC, the FOST does not imply that DOE will transfer the property to another entity upon cleanup completion. Meeting the FOST criteria at the end of the RCCC will ensure that the cleanup has been completed in accordance with the CERCLA criteria if DOE chooses to transfer the land (or a portion thereof) at some time in the future. Finally, this document will provide DOE with a basis to plan for the management of the river corridor to meet the long-term responsibilities upon completion of the RCCC. This plan

Introduction

supports the management of the property after cleanup is complete and although no cost information is included in this plan, it will facilitate the development of a baseline scope, schedule, and cost for DOE to conduct LTS.

1.2 SCOPE

The scope of this plan includes the LTS requirements for the cleanup of the Hanford Site river corridor, as defined by the RCCC. The river corridor boundary and associated source operable unit (OU) areas included in the scope of the RCCC are depicted in Figure 1-1. The RCCC addresses cleanup primarily within the 100 and 300 Areas. The 618-10 and 618-11 Burial Grounds (although considered to be part of the 300 Area, are identified as the 600 Area in Figure 1-1), a small number of waste sites in the 400 Area, operation of the Environmental Restoration Disposal Facility (ERDF), vacant land between the 100 and 300 Areas, and a 0.4-km (0.25-mi)-wide strip of land along the Columbia River shoreline that is now part of the Hanford Reach National Monument are also included in the RCCC.

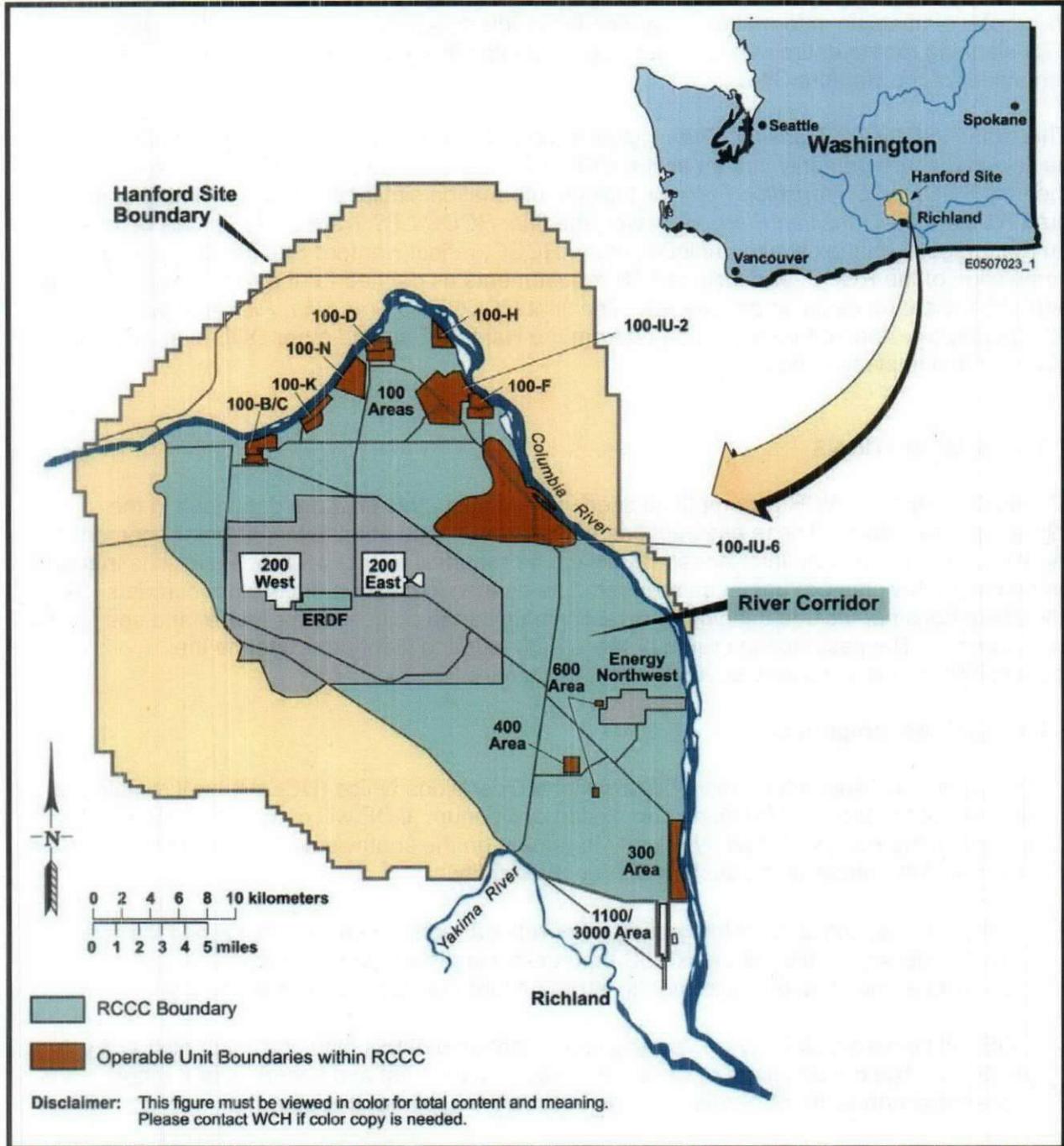
Areas excluded from the scope of the RCCC are the Central Plateau (i.e., 200 Areas), the Fast Flux Test Facility, other non-DOE entities (i.e., US Ecology Landfill, Energy Northwest nuclear power plant, Bonneville Power Administration [BPA] transmission lines and substations, and the Laser Interferometer Gravitational Wave Observatory [LIGO]), and portions of the Hanford Reach National Monument on the east side of the Columbia River. The RCCC scope also excludes the Columbia River, the eastern shoreline, and the islands associated with the Hanford Site (except for D Island). In addition, the scope of the RCCC has been programmatically separated from the groundwater units. The Hanford Site groundwater program is performed by other Hanford Site contractors, and LTS requirements related to the groundwater programs are not included in this draft *RCCC LTS Transition Plan*.

The types of LTS requirements for the RCCC that are described in this plan include the following:

- Transferring cleanup information regarding the RCCC and the associated post-cleanup requirements to future stewards
- Identification of facilities and infrastructure necessary to support remaining operations
- Implementation of physical and administrative controls (e.g., institutional controls for the RCCC)
- Surveillance, maintenance, and monitoring of the RCCC remedies
- Management of biological, cultural, and natural resources.

The definition of LTS (as well as other key terms used in the plan) is provided in the key terms and definitions section of this document.

Figure 1-1. RCCC Boundaries and Associated Operable Units.



Introduction

This plan also describes the interfaces that other onsite activities have with the river corridor and the WCH cleanup activities and their potential effect on LTS for the river corridor. Although the LTS requirements for work conducted by other Hanford Site contractors are not included in the scope of this plan, information regarding those interfaces will be important to support future LTS planning for the entire river corridor (e.g., including the groundwater), as well as the remainder of the Hanford Site.

This draft *RCCC LTS Transition Plan* includes the LTS requirements based on current cleanup decisions that are primarily interim action CERCLA records of decision (RODs). The scope of the final *RCCC LTS Transition Plan* will include information similar to what is included in the draft *RCCC LTS Transition Plan*. However, the final *RCCC LTS Transition Plan* will be based on the remedies that exist at completion of the RCCC, reflect Hanford Site conditions as of the completion of the RCCC, and include LTS requirements as defined for the final remedies in the applicable cleanup decision documents. The final *RCCC LTS Transition Plan* also will incorporate any updated lessons learned from the Hanford Site and other DOE sites regarding planning and implementing LTS.

1.3 ASSUMPTIONS

The major DOE and WCH assumptions used in developing this plan are described in the following subsections. These assumptions address the scope of this plan, the management of the land in the future, and interfaces with adjacent properties. The LTS responsibilities that are presented in this plan are based on requirements defined in cleanup decision documents. This document does not include defining or establishing cleanup objectives, or future land use for the river corridor. The assumptions listed below are intended to help further define the responsibilities and the scope covered in this document.

1.3.1 DOE Assumptions

- For the foreseeable future, the DOE, Richland Operations Office (DOE-RL) will remain the steward of the property following completion of cleanup. DOE will continue to manage the portion of the Hanford Reach National Monument on the southwestern bank of the Columbia River until the property is transferred to another entity.
- DOE will be responsible for integrating other related requirements for managing the river corridor after completion of the RCCC that are not in the scope of the RCCC (e.g., groundwater monitoring requirements, infrastructure maintenance requirements).
- DOE will be responsible for overseeing implementation of this plan, including cost and schedule. The development of the baseline estimate of cost and schedule and other management tools for performing LTS is outside the scope of this plan.
- DOE will be responsible for interfacing with owners of adjacent properties.

1.3.2 WCH Assumptions

- This document is focused only on the LTS requirements that are applicable to the RCCC following the completion of the river corridor cleanup. Any LTS requirements applicable to

Introduction

the RCCC prior to completion of the river corridor cleanup (e.g., institutional controls) will be conducted under the RCCC according to the applicable requirements (e.g., *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* [DOE-RL 2002]) through the Long-Term Surveillance and Maintenance (LTS&M) Program and are outside the scope of this plan.

- Continued operations of the ERDF after completion of the RCCC is outside the scope of LTS. It is assumed that ERDF inventory and operational information (e.g., databases) will be transitioned to the follow-on ERDF operations contractor after the RCCC is completed.

1.4 ORGANIZATION OF THIS PLAN

This plan is organized into the following chapters:

Chapter 1 was the introduction to this draft *RCCC LTS Transition Plan*.

Chapter 2 provides a brief description of the history of LTS across the DOE complex as well as at the Hanford Site, provides background information on the cleanup process, describes the anticipated site conditions at the completion of the RCCC, and provides information on the LTS-related interfaces of other ongoing site activities.

Chapter 3 briefly describes the regulatory and DOE requirements related to LTS at the Hanford Site and this plan, including the contractual requirement for this plan.

Chapter 4 describes how information will be managed to ensure that cleanup information required for LTS is retained and available for transition to the contractor(s) that will be responsible for LTS-related activities for the river corridor in the future.

Chapter 5 summarizes the LTS requirements for the areas cleaned up by WCH under the RCCC that are known as of the writing of this plan, based on current cleanup decisions.

The appendices of this plan include the following information:

Appendix A presents the specific CERCLA requirements related to the FOST, Section 120(h).

Appendix B describes the key documents that provided background information on LTS and guidance on how to plan for LTS in developing and writing this plan.

Appendix C provides technical information regarding the Stewardship Information System (SIS) database, which is being developed by WCH to manage river corridor closure and LTS information.

Appendix D provides examples of specific LTS requirements for the RCCC, as defined in current cleanup decision documents.

2.0 BACKGROUND

This chapter provides general background information on LTS planning at the DOE complex in general, and at the Hanford Site in particular; describes the state of the river corridor upon completion of the RCCC; includes a brief description of the cleanup process and information on how the LTS requirements are defined in cleanup decision documents; and describes how the activities in this plan interface with other site activities. This chapter also lists the assumptions used to develop this plan.

2.1 LONG-TERM STEWARDSHIP PLANNING

LTS was first recognized as a significant legacy responsibility in the early 1990s when the DOE Office of Environmental Management (EM) Baseline Environmental Management Reports indicated that cleanup to pristine conditions was not feasible at many DOE sites and that residual hazards would be left upon completion of the cleanup. Through a series of subsequent complex-wide reports and studies, DOE continued to identify LTS responsibilities, develop estimates of the long-term scope and costs, and define the programmatic policies needed to ensure the long-term protection of human health and the environment at sites where residual hazards would remain.

2.1.1 Origins of LTS in the DOE Complex

In 1999, as a result of one of the top management principles identified for the EM program, EM established the Office of LTS. The Office of LTS then formed the LTS Executive Steering Committee and the LTS Working Group to develop a strategic plan for LTS. DOE took a number of steps to institutionalize sound decision making within the DOE with regard to its LTS responsibilities and developed several guidance documents to support a complex-wide LTS approach, one of which was used in developing this plan (DOE 2002). Appendix B includes a more comprehensive list of LTS-related reports, guidance, and other key documents.

Realizing the growing importance of the legacy that LTS represented, DOE established the Office of Legacy Management (LM) in 2003 as a separate office to consolidate programs dedicated to legacy issues, including LTS responsibilities for DOE sites where cleanup is completed and there is no remaining DOE mission, and would allow EM to better focus its efforts on remediation.¹ LM has since developed a significant number of guidance documents regarding the transition from cleanup and the planning for LTS implementation.²

¹Office of Legacy Management's primary goals are to:

- Protect human health and the environment through effective and efficient long-term surveillance and maintenance
- Preserve, protect, and make accessible legacy records and information
- Support an effective and efficient work force structured to accomplish departmental missions and ensure contractor worker pension and medical benefits
- Manage legacy land and assets, emphasizing protective real and personal property reuse and disposition.

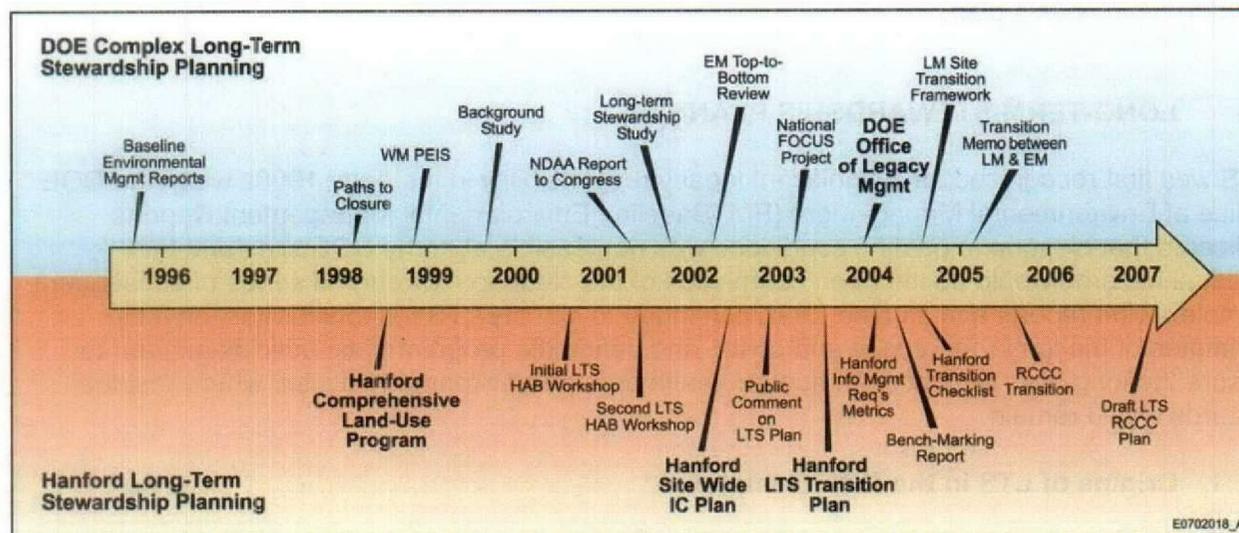
More information regarding LM and its goals can be found in *Strategic Plan, Managing Today's Change, Protecting Tomorrow's Future* (DOE 2004).

² LM programmatic documentation and other materials are available on the LM web site at: <http://www.lm.doe.gov/>

Background

Figure 2-1 provides a historical timeline of high-level LTS planning activities within DOE. The items shown on top of the timeline are some of the most visible and well-known complex-wide actions and reports that were developed at DOE Headquarters. The actions and reports shown below the timeline include the key LTS-related actions and reports at the Hanford Site.

Figure 2-1. Timeline of LTS Planning Activities at DOE and the Hanford Site.



2.1.2 LTS at the Hanford Site

Long-term responsibilities have been a consideration at the Hanford Site throughout the cleanup decision-making processes and remedial actions. However, the term "long-term stewardship" is relatively new at the Hanford Site, and only in recent years have separate plans been developed specifically to address LTS-related topics. Stewardship is currently defined through the land and facility use planning policy, DOE P 430.1, "It is Department of Energy policy to manage all of its land and facilities as valuable national resources. Our stewardship will be based on the principles of ecosystem management and sustainable development. We will integrate mission, economic, ecologic, social, and cultural factors in a comprehensive plan for each site that will guide land and facility use decisions. Each comprehensive plan for each site will consider the site's larger regional context and be developed with stakeholder participation. This policy will result in land and facility uses which support the Department's critical missions, stimulate the economy, and protect the environment."

The "Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (CLUP) Record of Decision (ROD)" (64 *Federal Register* 61615) defines the future land use on the Hanford Site. The *Hanford Comprehensive Land-Use Plan Environmental Impact Statement* (HCP EIS) (DOE 1991a) introduced the requirement for a "Hanford Institutional Control Plan (i.e., LTS plan)" as one of the tools to ensure that land-use actions are consistent with the CLUP ROD. In accordance with CERCLA RODs, DOE-RL developed the *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* (DOE-RL 2002) in 2002. This plan identifies the institutional controls for the current CERCLA response actions, describes how the

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institutional controls are implemented and maintained, and will serve as a reference for the selection of institutional controls in the future.

In 2003, DOE-RL issued the *Hanford Long-Term Stewardship Program and Transition: Preparing for Environmental Management Cleanup Completion* (Hanford LTS Transition Plan) (DOE-RL 2003), which provides a strategic description of the future LTS program at the Hanford Site and is used as an internal DOE management tool to prepare for the transition from cleanup completion to LTS. DOE worked closely with stakeholders, local governments, regulators, and Tribal Nations in developing both the *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* (DOE-RL 2002) and the *Hanford LTS Transition Plan* (DOE-RL 2003).

The *Hanford LTS Transition Plan* provides the strategic vision and mission for LTS at the Hanford Site (see box to the right). The *Hanford LTS Transition Plan* (DOE-RL 2003) also provides strategic guidance for continuous protection of human health and the environment, as well as the conservation and consideration of the biological, natural, and cultural resource uses, through the application of the following six functions:

1. Managing post-cleanup completion residual risks
2. Managing site resources
3. Managing stewardship information
4. Using science and technology
5. Providing post-cleanup completion infrastructure
6. Integrating LTS responsibilities.

Each of these functions is described in detail in the *Hanford LTS Transition Plan* (DOE-RL 2003), and the guidance has been incorporated in the development of this draft *RCCC LTS Transition Plan*. Functions 1, 2, and 5 are addressed in detail in Section 5.0 of this plan, Function 3 is addressed in detail in Section 4.0, and Function 6 is addressed in some detail in Section 2.4. In regards to Function 4, LTS activities can benefit from the latest scientific knowledge and the use of advanced technologies in monitoring, surveillance, information management, and other technologies. As cleanup progresses and the LTS requirements are further defined, the science and technology needs for LTS (Function 4) will be identified and incorporated into the final *RCCC LTS Transition Plan* and the associated planning process to support the performance of LTS activities in a safe, compliant, and cost-effective manner. This area will be reviewed and discussed as appropriate when the RCCC nears completion and the final *RCCC LTS Transition Plan* is developed.

In addition, the requirements contained in DOE O 430.1B, *Real Property Asset Management*, regarding the development and content of LTS plans have been incorporated into this plan. Although the requirements are focused on transferring the property to a future steward once

Strategic Vision and Mission of LTS at the Hanford Site

Vision

The vitality of human, biological, natural, and cultural resources is sustained over multiple generations.

Mission

To provide for continuous human and environmental protection, and the conservation and consideration of use of the biological, natural, and cultural resources, following the completion of the cleanup mission.

Source: *Hanford Long-Term Stewardship Program and Transition: Preparing for Environmental Management Cleanup Completion* (DOE-RL 2003).

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cleanup is complete, it is anticipated that EM will retain LTS responsibilities for the land remediated under the RCCC until the entire Hanford Site cleanup has been completed. The cost and schedule requirements will be included in DOE's baseline. Even though the transfer to LM is not in the immediate future, LM goals, guidance, and principles were considered for incorporation into this plan, as appropriate.

In August 2005, cleanup responsibilities for source waste sites and facilities within the Hanford Site river corridor were transitioned to WCH under the framework of the RCCC. The RCCC includes specific deliverables to support LTS planning and post-cleanup responsibilities for the river corridor, including the development of the draft *RCCC LTS Transition Plan* and the subsequent final plan.

2.2 CLEANUP PROCESS

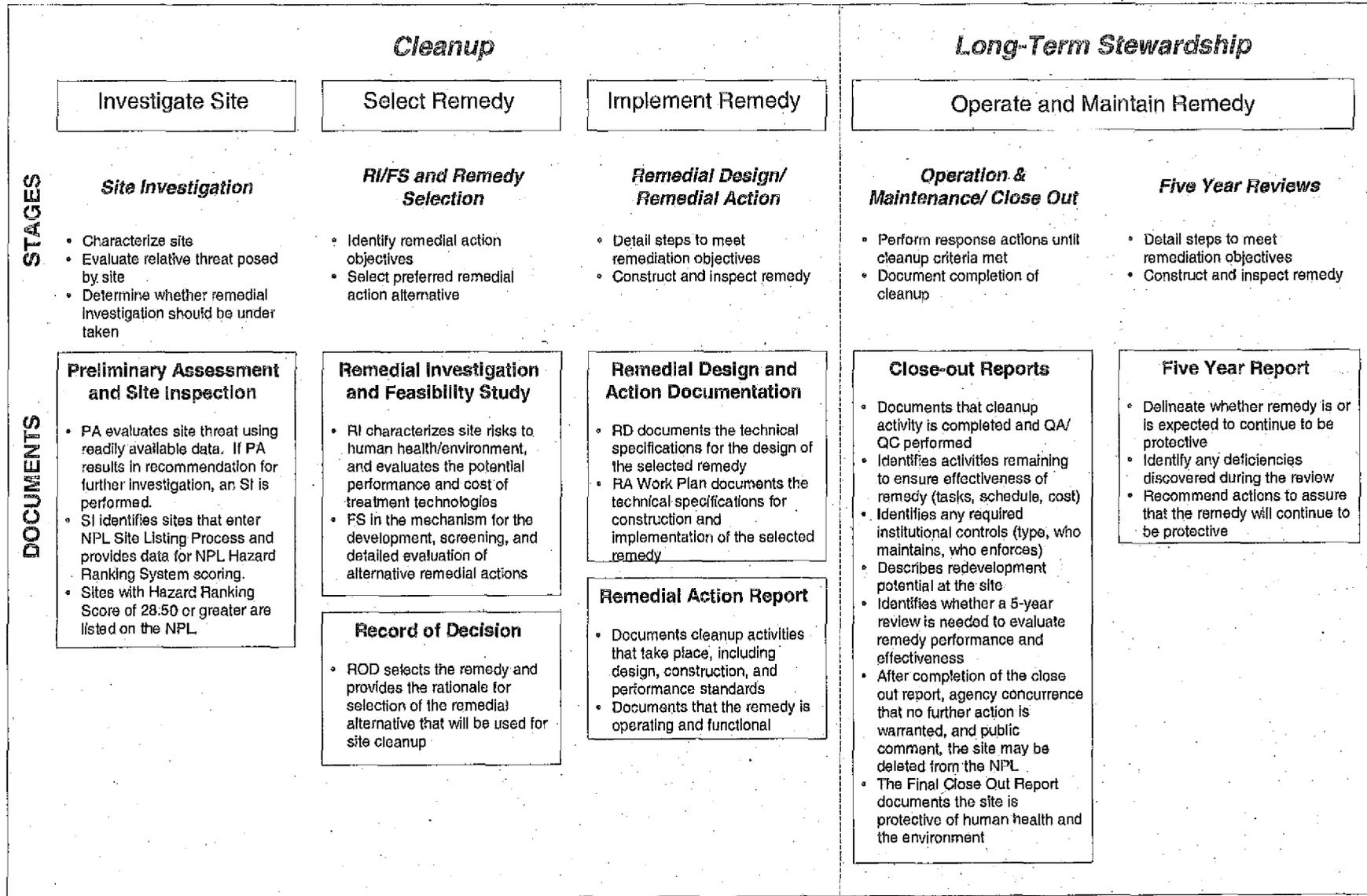
This section provides a brief description of the various elements of cleanup of the river corridor and their relationship to LTS. Although this plan does not define any requirements for cleanup, it is important to understand the cleanup process and how it establishes the LTS requirements.

2.2.1 Restoration Activities

Hanford Site environmental restoration activities are conducted in compliance with multiple federal statutes, regulations, and guidelines, including CERCLA, RCRA, and the *National Environmental Policy Act of 1969* (NEPA). In 1992, the Tri-Parties, which include the Washington State Department of Ecology (Ecology), the U.S. Environmental Protection Agency (EPA), and DOE, agreed to a "bias for action" approach to the CERCLA process for the Hanford Site National Priorities List sites. This approach, documented in the *Hanford Past-Practice Strategy* (DOE-RL 1991), streamlined the remedial investigation/feasibility study process to begin remediation of contaminated waste sites earlier than typically performed under the traditional CERCLA process in place at that time. The NEPA CLUP ROD (64 *Federal Register* 61615) provides the framework within which future use of Hanford Site lands and resources will occur while DOE manages the land.

Cleanup actions within the river corridor began in 1994 under the ERC, and in August 2005, the ERC transitioned to WCH, under the RCCC, for completion of cleanup actions in the river corridor. To date, numerous remedial investigations/feasibility studies, proposed plans, and a number of corresponding interim action RODs and a final action ROD have been completed for source OUs within the area designated as the river corridor. The typical stages in the CERCLA cleanup process and the accompanying documentation are shown in Figure 2-2. The cleanup at individual source unit waste sites, per the remedial action objectives in the RODs, is designed to be protective of human health and the environment based on the reasonably anticipated land use. Remedial actions are conducted in accordance with the applicable interim action RODs and, in the case of the 300-FF-1 OU, a final ROD.

Figure 2-2. Typical Stages in the CERCLA Cleanup Process and the Accompanying Documentation.



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It is important to note that a critical step in proceeding toward final CERCLA closeout is the River Corridor Baseline Risk Assessment. A comprehensive baseline risk assessment is currently being performed by WCH to characterize risk to human health and environment in the river corridor. This effort consists of an assessment of the 100 and 300 Areas to evaluate the risks to terrestrial, riparian, and near-shore receptors throughout the reactor/operational areas of the river corridor. This effort also includes an assessment of the shoreline inter-areas to evaluate potential risk from Hanford Site contaminants in areas of emergent 200 Area groundwater plumes (under current conditions), slough and backwater areas, and in habitats found predominantly in areas between reactor/operational areas. The results of the assessments, including the data collection, analysis, and risk evaluation, will be presented in a final risk assessment report, which will help determine whether additional remedial actions are needed to protect human health and the environment.

Radiological surface soil surveys will also be conducted within the reactor areas to support final cleanup and transition to LTS. These radiological surface surveys are being performed to provide information supporting that there is no unidentified radiological cross-contamination at remediated sites or adjacent areas due to animal intrusion or cross-contamination from construction activities associated with the waste site or adjacent remedial activities. The surveys will be conducted using the *Multi-Agency Radiation Survey and Site Investigation Manual* (NRC et al. 2000) as guidance. A pilot surface survey, designed to evaluate and refine the process for a variety of post-remediation conditions, is planned for the summer of 2007.

Other CERCLA decision documents may be developed for particular waste sites or source OUs. These include action memorandums (which document approval of non-time-critical removal actions, as recommended by engineering evaluation/cost analyses), amendments to RODs, and explanations of significant difference (which provide notice of significant changes to existing RODs).

The RODs typically dictate that waste sites will be removed, treated (as necessary), and disposed to an appropriate disposal facility. Cleanup objectives for waste sites within the river corridor are typically based on an unrestricted-use exposure scenario, with the exception of a portion of the 300 Area where cleanup objectives are based on an industrial exposure scenario. However, some remedial actions may result in cleanup to levels that do not allow unrestricted use. In such cases where there are residual hazards, a series of mutually reinforcing controls that work in conjunction with the remedy to protect human health and the environment and ensure the long-term effectiveness of the remedy are typically put in place. As described in the *Hanford LTS Transition Plan* (DOE-RL 2003), this layering strategy may include one or more of the following components:

- Engineered barriers, which are controls designed to isolate or contain wastes or hazardous materials (e.g., caps, entombment of facilities, contaminant immobilization).
- Physical controls that provide an additional level of protection when used in conjunction with an engineered barrier to discourage people, plants, and animals from reaching the residual contamination. Physical controls may include, but are not limited to, signs, warning markers, and fences.
- Administrative controls, which are the administrative set of policies, procedures, and laws that help ensure that activities or uses do not disturb physical controls, engineered barriers,

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or the residual contamination. Physical and administrative controls are commonly referred to collectively as "institutional controls."

- Environmental monitoring, which includes the monitoring of air, surface water, groundwater, soil, and ecological receptors to verify that cleanup remedies remain effective and protective.

Any or all of these types of controls may be required for a particular waste site or source OU during and/or after the remedial action (i.e., post-cleanup). If any of these types of controls are required, the requirements for such controls may be described in the associated ROD or closeout documentation (see Section 2.2.2).

Requirements regarding the above controls also may be described in an operations and maintenance (O&M) plan. An O&M plan may be developed for waste sites with an operational and functional remedy, where the remedy has achieved the remedial action objectives and remediation goals in the ROD. An O&M plan defines the administrative, financial, and technical details and requirements for inspecting, operating, and maintaining the remedial action throughout the life of the remedy. The plan also provides detailed information on maintaining, as appropriate, institutional controls. Requirements regarding the above controls, as well as other surveillance and maintenance activities, also may be described in a surveillance and maintenance plan.

In addition to cleanup conducted under CERCLA, there are several RCRA treatment, storage, or disposal (TSD) units that are being addressed as part of the RCCC. Closure of these units is typically accomplished by coordinating RCRA closure with CERCLA remedial actions so that remediation of all hazardous substances (including CERCLA hazardous substances such as radionuclides) is addressed. Additionally, by applying CERCLA authority jointly with that of RCRA, closure waste and remediation waste can be disposed of at the ERDF, a CERCLA-regulated facility. This RCRA/CERCLA integration approach has generally been implemented by incorporating closure requirement for RCRA TSD units into the Hanford Facility RCRA Permit, as well as including cleanup actions for the TSD units in a CERCLA decision document.

In addition to the RCRA TSD units, RCCC activities include several units designated under the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1989) as "RCRA past-practice" units. As with the RCRA TSD units, RCRA past-practice units within the river corridor have typically been addressed using an integrated approach wherein cleanup actions are included both in the Hanford Facility RCRA Permit and in a CERCLA decision document.

2.2.2 Remediation Documentation

Closeout reports document that the cleanup work for a particular waste site was performed per the applicable cleanup decision documents. Detailed closeout documentation is developed when waste sites are reclassified as completed and closed under the Tri-Party Agreement. As part of the approval package submitted to the lead regulatory agency under the Tri-Party Agreement, along with a waste site reclassification form, DOE submits a cleanup verification package (CVP) or remaining site verification package (RSVP) for an individual waste site or

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group of waste sites.³ CVPs and RSVPs provide technical information regarding the cleanup, document post-cleanup soil concentrations based on statistical analysis of verification sample results, and may include LTS requirements for institutional controls. These controls, as well as the verification sample data collected in support of the CVP/RSVPs, are entered into the SIS database to support LTS (more information regarding the SIS database is provided in Section 4.1).

The primary closeout documentation anticipated for source OU cleanup under the RCCC is a series of 15 remedial action reports (RARs). The RARs document that all construction completion activities are complete and, for source OU actions, that the cleanup goals specified in the RODs have been achieved. Generally, CVPs or RSVPs for a particular source OU are used collectively in support of the development of the RAR for that particular source OU. One RAR has already been developed for work completed under the ERC (DOE-RL 2005). The remaining RARs will be developed for the other source OUs as cleanup is completed. The RAR may contain summary information regarding LTS requirements, such as O&M activities, as well as institutional controls. The remaining RARs also will include DOE's request to the lead regulatory agencies for a "certificate of completion," per Tri-Party Agreement Section 7.3.10, "Remedial Action Phase." This could be accomplished through regulatory approval of the RAR.

The final closeout report describes how the cleanup was accomplished and provides the overall technical justification for site completion. The final closeout report documents compliance with statutory requirements and provides a consolidated record of all removal and remedial activities for the entire site, or portion of a site. The applicable RAR(s) can be used as the supporting documentation for development of the final closeout report.

For RCRA TSD units, there are typically two types of closures: (1) closure by removal or decontamination (referred to as "clean closure") and (2) closure with the waste left in place. It is anticipated that the RCRA TSD units in the RCCC will be clean closed. However, if wastes are left in place, post-closure permits and plans are required to monitor these units. These plans will identify all activities to be conducted and their frequency during the post-closure care period. The plans for post-closure care generally must continue for at least 30 years after the date of closure, thus becoming a component under the draft *RCCC LTS Transition Plan*. Closure of RCRA units also requires the submittal of a survey plat and other information to the authority with jurisdiction over local land use that indicates where hazards remain.

2.2.3 Orphan Site Evaluations

In parallel with remedial actions and risk assessment activities, additional evaluations, called orphan site evaluations, will be performed to identify new potential CERCLA waste sites in the river corridor that have not been previously documented. The orphan site evaluations are a systematic approach to review land parcels outside of known waste site areas. These evaluations are conducted for each reactor/operational area and the remainder of the river corridor (inter-areas) to ensure that all source waste sites have been identified. Consistent with uncontaminated property investigations under Section 120(h)(4) of CERCLA, the evaluations include comprehensive reviews of historical information (e.g., documents, drawings, and photographs), field site visits, and geophysical surveys (as needed). When new waste sites are

³ The submittal and approval process for the reclassification of waste sites is defined in the *Tri-Party Agreement Handbook Management Procedures*, Guideline Number TPA-MP-14, "Maintenance of the Waste Information Data System (WIDS)" (DOE-RL 1998).

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identified through the orphan site evaluation process, they are incorporated into the cleanup process by "plugging" them into one of the river corridor source OU RODs, based on their locations with respect to active cleanup operations and in accordance with provisions established in the applicable ROD. Orphan sites that are determined to not meet the criteria for a waste site but may have other features of potential interest to future stewards, including non-CERCLA items such as physical hazards, pre-Hanford historical features, and Hanford remnants, are categorized as "stewardship elements" and documented as such in the SIS database for future stewards.

2.3 SITE CONDITIONS

At the completion of the RCCC, DOE will maintain its legacy management responsibilities required by the final remedy decisions, and it is anticipated that the land will remain in federal control in perpetuity. Access restrictions will remain in place to ensure continued protection of human health and the environment along with the protection of the cultural and natural resources. All remaining waste sites will be remediated or capped as determined by the existing interim action ROD or a future final remedy ROD. Should the final remedy be caps for any areas where the removal to cleanup levels supporting unrestricted use was not achieved, there will be ongoing maintenance and groundwater monitoring for those caps as required by the ROD. The anticipated site conditions by RCCC functional area (across the 100, 300, and inter-areas) are presented in Figure 2-3 and are described in more detail in the following subsections by geographic area. These site conditions also include a "miscellaneous restoration" functional area, which addresses removal and disposal of specific non-CERCLA items as a requirement of the RCCC. The anticipated site condition for groundwater is not included because it is outside the scope of the RCCC.

2.3.1 100 Areas

The reactor areas will be remediated and all ancillary buildings demolished with only the reactor cores and their safe storage enclosure remaining. The reactors are placed in an interim safe storage mode and monitored until final disposition is undertaken in accordance with the 1992 NEPA ROD (DOE 1999a), which is consistent with the land use of conservation and preservation identified in the CLUP. There will be continued surveillance and maintenance of the reactor cores for the foreseeable future.

2.3.2 300 Area and Surrounding Areas

The 300 Area will be remediated and all above-ground structures demolished along with the utility distribution systems and other remaining infrastructure. The only remaining infrastructure will be that which is required to meet post-cleanup requirements. Cleanup of the land within the 300 Area complex and at the 618-11 Burial Ground will be based on an industrial-use exposure scenario, while the surrounding areas will be based on an unrestricted-use exposure scenario. These exposure scenarios are consistent with the land use of industrial restricted as identified in the CLUP. In addition, a Mitigation Action Plan (MAP) was prepared for the 300 Area in 2002 (DOE-RL 2002a) as specified in the 300-FF-1 ROD (EPA 1996) to fulfill the requirement for a "natural resource mitigation plan," which serves as an additional guidance document for the cleanup of the 300 Area. The MAP presents a framework for limiting disturbances to natural and cultural resources during remedial action projects, and identifies opportunities for site restoration and revegetation, as appropriate.

Figure 2-3. Anticipated Site Conditions at Time of Transition to LTS by RCCC Functional Area.

Excess Facilities

- All excess above-ground structures are deactivated, decontaminated, decommissioned, and demolished.
- Known or discovered waste sites beneath the demolished facility footprints are addressed in accordance with the design criteria for the applicable source operable unit.
- Specified utility systems that are located in the river corridor are closed (the specific utility systems to be closed are defined in the RCCC).

Former Defense-Related Plutonium Production Reactors

- Reactors are placed in interim safe storage.
- Any underground structures that meet the cleanup criteria will be left in place.

Note: Final cleanup endpoints for the reactors (i.e., after interim safe storage) are beyond the completion date established for the RCCC and are not included in the scope of this plan.

Waste Sites and Burial Grounds

- The remediation of the waste sites and the burial grounds is completed in accordance with all actions and requirements contained in the regulatory and supporting documentation. This involves the removal and disposal of wastes to meet cleanup criteria, as well as site backfilling, grading, and revegetation.

Miscellaneous Restoration

- All above-ground utility structures and components no longer in use are removed, all surplus fencing and debris is removed, the landscape and positive drainage are restored, and native vegetation is reestablished.

2.3.3 Other Areas

Additional WCH activities under the RCCC also affect the end state of the river corridor and/or the remainder of the Hanford Site; however, they are activities for which the final cleanup responsibility is not within the scope of the RCCC and thus, the corresponding LTS activities are not within the scope of this plan. These activities include the management and operation of the ERDF. WCH currently manages and operates the ERDF; however, at the completion of the RCCC, WCH will transition the management and operations of the ERDF to another contractor and will provide the required operating information. Because the final closure of the ERDF is not within the scope of the RCCC, the final LTS requirements for the ERDF are not within the scope of this plan.

2.4 INTERFACES

As described earlier in this chapter, the LTS requirements described in this plan are based on the cleanup decision documents for the cleanup conducted under the RCCC. However, they also may be affected by other WCH functions, as well as ongoing DOE and other activities at the Hanford Site that are outside the scope of the RCCC. It is important to understand the nature of the key interfaces between these activities and the LTS requirements and the potential

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impact their operating requirements present to the LTS elements of the RCCC. During the ongoing execution of the RCCC, changes in the interfaces are anticipated as cleanup is completed and contracts change on the Hanford Site. The final *RCCC LTS Transition Plan* will be updated to include the interfaces based on state of the Hanford Site activities at the time the RCCC is completed. The key interfaces can be grouped into the three categories described in the following subsections and as shown in Table 2-1.

Table 2-1. Summary of LTS Interfaces.

Function	Description	Implementing Organization
Internal Interfaces		
LTS&M	Post-cleanup monitoring	WCH
Hanford Interfaces		
Groundwater	Groundwater monitoring and remediation	Fluor Hanford
Emergency Response	Site-wide emergency response responsibilities	Fluor Hanford
Security	Physical site security	Fluor Hanford
Cultural Resources	Cultural resource management	PNNL
Biological Resources	Biological resource management	PNNL
Natural Resources	Natural resource management	PNNL
External Interfaces		
USFWS	Hanford Reach management	USFWS
Energy Northwest	Columbia Generating Station operations	Energy Northwest
BPA	Electric power transmission lines and substation operations	BPA
LIGO	LIGO Operations	CalTech and MIT

BPA = Bonneville Power Administration
 CalTech = California Institute of Technology
 LIGO = Laser Interferometer Gravitational-Wave Observatory
 LTS&M = Long-Term Surveillance and Maintenance
 LTS = Long-Term Stewardship
 MIT = Massachusetts Institute of Technology
 PNNL = Pacific Northwest National Laboratory
 USFWS = U.S. Fish and Wildlife Service
 WCH = Washington Closure Hanford

2.4.1 Internal Interfaces with Other Activities Conducted by WCH

Other activities conducted by WCH that may not currently be within the scope of this plan, but are related to the LTS requirements, include the LTS&M program. For the duration of the RCCC, the LTS&M program has responsibility for managing sites where cleanup has been

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completed (i.e., responsibility for conducting LTS activities prior to the completion of the RCCC). This includes responsibility for implementing any post-cleanup monitoring that may be required in accordance with an RAR, O&M plan, or other similar document. Activities conducted by the LTS&M program that are to continue beyond the conclusion of the RCCC will be folded into the scope of the final *RCCC LTS Transition Plan*, as appropriate.

2.4.2 Interfaces with Other Ongoing Hanford Activities

Site-wide support functions such as emergency response, security, and cultural and biological resource management, which are outside the scope of this plan, are conducted through multiple DOE offices (DOE-RL, DOE Office of River Protection, DOE Office of Science) and other contractors and will affect the long-term management of the river corridor. Table 2-1 provides a list of these functions, along with the current organization performing the function. The nature of these interfaces will change as the cleanup is completed and as the contracts used to manage and conduct work at the Hanford Site change. The final *RCCC LTS Transition Plan* will include information regarding the ongoing operations at the Hanford Site and the contractors that will be in place at the time the RCCC is completed.

2.4.3 Interfaces with Organizations External to DOE that also Operate at the Hanford Site

These external interfaces include the U.S. Fish and Wildlife Service (USFWS), Energy Northwest, BPA and LIGO.

The USFWS is responsible for a significant portion of the Hanford Reach National Monument (National Monument). The National Monument encompasses approximately 789 km² (195,000 ac), of which approximately 672 km² (166,000 ac) are currently managed by the USFWS as the Saddle Mountain National Wildlife Refuge. The Washington State Department of Fish and Wildlife administers 3 km² (800 acres) of the National Monument through an agreement with DOE. DOE administers the remaining acreage and currently retains primary ownership or control of all acreage.

Energy Northwest operates the Columbia Generating Station, a commercial nuclear power plant located just north of the 300 Area, and is a joint operating agency of the State of Washington. There also are two partially completed reactors on the Hanford Site; construction for both began in the late 1970s for the former Washington Public Power Supply System. WNP-4 was about 22% complete when it was terminated in 1983. Construction on WNP-1, at 63%, was stopped in 1982.

The BPA is responsible for the operation of the electric power substations and transmission lines that cross the Hanford Site and for all operations, maintenance, and new construction for their systems that are located on the Hanford Site. BPA carries out these operations under a permit from DOE, which will be in effect until terminated.

LIGO is an on-site facility designed to observe gravitational waves of cosmic origin. The LIGO houses laser interferometers, consisting of mirrors suspended at each of the corners of a gigantic L-shaped vacuum system, measuring 4 km (2.5 mi) on a side. LIGO is operated by the California Institute of Technology and the Massachusetts Institute of Technology for the National Science Foundation.

These external interfaces physically lie within or directly border portions of the land covered under the RCCC. As such, access agreements, easements, institutional controls, and land-use restrictions are a vital component of the post-cleanup requirements. While the final *RCCC LTS Transition Plan* is being completed, the interfaces will be reviewed and this section of the plan will be updated to ensure the pertinent information regarding their relationships to the LTS requirements are included.

3.0 REGULATORY AND DOE REQUIREMENTS

The key regulatory and DOE requirements related to LTS and this plan are listed in Table 3-1. Included in Table 3-1 is the regulatory framework for the cleanup of the Hanford Site, since the cleanup decisions will affect the LTS requirements. This plan does not create any new LTS requirements.

Table 3-1. Key Regulatory and DOE Requirements. (3 Pages)

Source/Description	LTS Requirements
Regulatory	
<p>CERCLA — Remedial action objectives and other cleanup requirements are contained in CERCLA regulatory decision documents, including RODs, ROD amendments, ESDs, engineering evaluation/cost analyses, and action memorandums.</p>	<ul style="list-style-type: none"> • Institutional and engineering controls, as specified in the cleanup decision documents. Controls may also be summarized in remedial action reports. • O&M requirements, as specified in O&M plans. • Establishment and maintenance of the Administrative Record, which is the body of documents and information that is considered or relied upon in order to arrive at a decision for a CERCLA response action.
<p>FOST under CERCLA Section 120(h) — CERCLA Section 120(h) includes requirements for property transferred by federal agencies for real property where any hazardous substance was stored for 1 year or more, known to have been released, or disposed of.</p>	<ul style="list-style-type: none"> • The criteria for a FOST are the requirements of CERCLA Section 120(h). These requirements include a notice that must be entered into the contract regarding the hazardous substance, information that must be included in each deed entered into for the transfer of such property, requirements for identifying uncontaminated property, and the notification of states regarding certain leases.
<p>Hanford Federal Facility Agreement and Consent Order (89-10) (Tri-Party Agreement) — In 1989, the U.S. Department of Energy, Richland Operations Office entered into the Tri-Party Agreement with EPA and Ecology, which established the legal framework and schedule for cleanup. It serves as the foundation for defining and ranking CERCLA and RCRA cleanup commitments, establishing responsibilities for cleanup actions, providing a basis for budget development, and identifying enforceable milestones.</p>	<ul style="list-style-type: none"> • Establishment and maintenance of an administrative record for each operable unit and TSD group that contains all of the documents containing information considered in arriving at a record of decision or permit (Chapter 9, Documentation and Records of the Tri-Party Agreement). • Establishment and maintenance of WIDS, which identifies known and reported waste sites, including the type and location of the site, when the site was operated, general dimensions and description, and general descriptions of waste placed at the site to include estimated quantities of radionuclides and chemicals contained in some units. WIDS also includes information regarding completed waste sites, including required institutional controls. • Defines the schedule for when cleanup must be completed, which generally serves as the schedule for the "starting point" for LTS activities.

Regulatory and DOE Requirements

Table 3-1. Key Regulatory and DOE Requirements. (3 Pages)

Source/Description	LTS Requirements
Regulatory	
<p>National Environmental Policy Act of 1969 (NEPA) – The <i>Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement</i> (DOE 1999a) and associated NEPA land-use ROD issued (64 <i>Federal Register</i> 61615) provides the framework for future use of the Hanford Site. Provides the land-use designations for the Hanford Site that are to be considered in any planning document.</p>	<ul style="list-style-type: none"> • Provides the land-use designations for the river corridor: preservation, conservation (mining), industrial, and recreation (high and low intensity). • Introduced the need for a “Hanford Institutional Control Plan (i.e., long-term stewardship plan)” as one of many tools to ensure that land-use actions are consistent with the CLUP ROD. • Introduced the need for resource management plans (e.g., Hanford Cultural Resources Management Plan, Hanford Biological Resources Management Plan) to ensure that land-use actions are consistent with the CLUP.
<p>Presidential Proclamation 7319 of June 9, 2000, Establishment of the Hanford Reach National Monument (National Monument) – This proclamation sets aside approximately 790 km² (305 mi²) of the Hanford Site as the National Monument. The proclamation specifies that the monument shall be managed by the U.S. Fish and Wildlife Service under existing agreements with DOE, except that DOE shall manage the lands within the monument that are not subject to management agreements with the Service.</p>	<ul style="list-style-type: none"> • Interfaces with the river corridor. In cooperation with local governments, the state of Washington, and other federal agencies, the U.S. Fish and Wildlife Service is currently in the planning process for this new national monument.
<p>RCRA – RCRA post-closure permits and plans.</p>	<ul style="list-style-type: none"> • Institutional controls. • Monitoring. • Information management (e.g., submittal of a survey plat to the authority with jurisdiction over local land use that indicates where hazards remain).
<p>Washington State Laws – <i>Washington Administrative Code</i> identified as applicable or relevant and appropriate requirements in cleanup decision making to establish cleanup levels.</p>	<ul style="list-style-type: none"> • LTS requirements are contained in the associated CERCLA, RCRA, and NEPA documents (see other rows in this table).
DOE	
<p>DOE O 430.1B, Real Property Asset Management – This order identifies requirements and establishes reporting mechanisms and responsibilities for real property asset management. This order recognizes that the life of an asset is from planning through acquisition, maintenance, operation, remediation, disposition, long-term stewardship, and disposal.</p>	<ul style="list-style-type: none"> • Provides a definition of LTS for the purposes of real property management. This definition is similar to the definition for LTS that is used in this plan. • Specifies that decisions made during the utilization of assets need to consider their disposition and LTS implications. • Confirms that LTS plans may be management tools to manage real property. • Highlights the need to address post-closure/post-disposition/LTS records turnover and records retention in disposition plans.

Regulatory and DOE Requirements

Table 3-1. Key Regulatory and DOE Requirements. (3 Pages)

Source/Description	LTS Requirements
<p>River Corridor Closure Contract –The RCCC is a contract between DOE and WCH for the cleanup of the Hanford Site river corridor that includes safety, cost performance, and schedule performance requirements. Completion of the remedial actions are approved by the lead regulatory agency through waste site reclassification forms, which are supported by the associated CVP or RSVP.</p>	<ul style="list-style-type: none"> • The RCCC requirements define the purpose and scope for this plan: <ul style="list-style-type: none"> – “The Contractor shall submit for DOE approval a <i>Long-Term Stewardship Plan – Draft</i> (Deliverable C.2.11.1) that provides the proposed approach and criteria to be met for long-term stewardship.” – “The Contractor shall submit for DOE approval a <i>Long-Term Stewardship Plan – Final</i> (Deliverable C.2.11.3) that contains: 1) a proposed Finding of Suitability to Transfer in accordance with CERCLA Section 120(h); and 2) the final criteria required for long-term stewardship and how these criteria have been met. DOE approval of the <i>Long-Term Stewardship Plan – Final</i> is a condition precedent to Completion of Contract Requirements.” • Institutional controls in the CVPs and RSVPs.

CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*

CLUP = *Comprehensive Land-Use Plan*

CVP = *cleanup verification package*

DOE = *U.S. Department of Energy*

Ecology = *Washington State Department of Ecology*

EPA = *U.S. Environmental Protection Agency*

ESD = *explanation of significant difference*

FOST = *Finding of Suitability to Transfer*

LTS = *long-term stewardship*

O&M = *operation and maintenance*

RCCC = *River Corridor Closure Contract*

RCRA = *Resource Conservation and Recovery Act of 1976*

ROD = *record of decision*

RSVP = *remaining sites verification package*

TSD = *treatment, storage, or disposal*

WCH = *Washington Closure Hanford*

WIDS = *Waste Information Data System*

4.0 INFORMATION MANAGEMENT

To ensure the continued protection of human health and the environment and compliance with applicable LTS requirements following the completion of the RCCC, DOE must have ready access to specific and accurate information about the cleanup of the river corridor. The type of information that will be required for LTS is defined by CERCLA, RCRA, NEPA, and the Tri-Party Agreement and includes the following:

- Information regarding the post-cleanup conditions, including any residual risks and their associated controls
- Information regarding the cleanup conducted and verification that cleanup objectives have been met
- Information regarding the type, location, and quantities of hazardous substances along with the time of their storage, use, release, etc., on each site.

DOE has developed a series of directives, orders, and guidelines that provide guidance for managing the information under its responsibility. These documents provide the management guidance for things such as how the records are handled, retention periods, and classification. These typically are based on applicable statutes, regulations, executive orders, federal requirements (e.g., National Archives and Records Administration [NARA] regulations). The following are some of the DOE documents specific to information and records management:

- DOE O 200.1, *Information Management Program*
- DOE O 241.1A, *Scientific and Technical Information Management*
- DOE O 243.1, *Records Management Program*
- *DOE Records Schedule for Environmental Records* (DOE 1999b)
- DOE O 430.1B, *Real Property Asset Management*.

In addition to the management of the records, DOE requires the annual update of its Facility Information Management System (FIMS). FIMS is the DOE's corporate database for real property as required by DOE O 430.1B. The system provides DOE with an accurate inventory and management tool that assists with planning and managing all real property assets. FIMS is updated annually and relevant updates are incorporated as part of the process.

The Waste Information Data System (WIDS) is a site-specific database required under the Tri-Party Agreement that is maintained by DOE. WIDS serves as DOE's tracking mechanism that identifies all waste site land areas that are under restriction or control in accordance with the institutional control requirements of the CERCLA decision documents and as described in applicable work plans. WIDS identifies waste management units on the Hanford Site, the waste type, location, and their current status. Other data fields populated in WIDS include size, extent, appearance, testing or sampling efforts, regulatory information, bibliographic references, images, change history, and data validation. The long-term preservation of waste site information is addressed by the Tri-Party Agreement Handbook Procedure TP-MP-14, "Maintenance of the Waste Information Data Systems (WIDS)" (DOE-RL 1998).

Information that may be required for LTS can also be found in the Administrative Record. The Administrative Record is the body of documents and information that is considered or relied on to arrive at a decision for remedial action or hazardous waste management at a particular source OU, and is publicly available on the Internet at: <http://www2.hanford.gov/arpir/>. The documents in the Administrative Record include, but are not limited to, proposed plans for interim remedial action, remedial design reports, and RODs. *Tri-Party Agreement Databases, Access Mechanism and Procedures* (DOE-RL 2004) details the procedures for accessing the DOE-RL Tri-Party Agreement databases.

As part of the early planning efforts associated with LTS in the river corridor, information management was identified as a key element to support smooth and seamless transition to LTS. In recognition of this need, WCH is developing a separate database called the Stewardship Information System (SIS) to manage river corridor closure and LTS information and ensure that all the requirements for information management are met. The SIS database is a relational database that will serve as the centerpiece for the management and transfer of LTS information for the cleanup conducted under the RCCC. The SIS database is the system that will allow WCH to meet its information management requirements. Records management also will play an important role in supporting the transition to LTS. Additional information on the SIS database and records management is provided in the following subsections.

4.1 STEWARDSHIP INFORMATION SYSTEM

The SIS database is being created by WCH for the specific purpose of supporting transition from cleanup to LTS in the river corridor.

4.1.1 Content

The SIS database comprises three primary components that contain information associated with cleanup of the river corridor with respect to facilities, waste sites, and orphan site evaluations.

4.1.1.1 Facilities. The facilities component of the SIS database contains summary information related to the operation, location, process history, cleanup (demolition), and as-left site conditions for each facility within the river corridor. Selected photographs and/or drawings that depict the operational or cleanup aspects of a given facility are also included in this component of the SIS database. In addition, an extensive list of references to relevant documents is provided for each facility. The database generally excludes information associated with temporary facilities (e.g., construction offices, change trailers).

4.1.1.2 Waste Sites. The waste sites component of the database contains summary information related to the type (e.g., crib, effluent pond, pipeline, landfill/burial ground, dump site, spill or release), history, location, cleanup, as-left conditions, and institutional controls for each waste site within the river corridor. A waste site reclassification form is included in the database to document the completion of cleanup actions for each waste site. Analytical results that were used to support cleanup verification and that represent the post-cleanup soil concentrations of contaminants of concern are also included for each waste site, as are selected photographs. In addition, an extensive list of references to relevant documents that describe the history, cleanup process, and closeout is provided for each waste site.

4.1.1.3 Orphan Sites. The orphan sites component of the SIS database contains a summary of the results of orphan site evaluations. Information associated with potential orphan sites that are identified through historical review or field walkdown activities is contained in the database including a description, location, disposition, and selected photographs or drawings. For those potential orphan sites that are investigated and dispositioned as a new waste site, a more detailed summary is contained in the waste sites component of the SIS database. The orphan sites component of the database also includes information associated with "stewardship elements," which are features observed during the field walkdown activities that do not require cleanup but are likely to remain following completion of the RCCC (e.g., monitoring wells, hydrants, pre-Manhattan project historical remnants, concrete slabs, or foundations).

4.1.2 Data Accessibility and Availability

Widespread accessibility and availability of information stored in the SIS is one of the database objectives. Three user groups with distinct access capabilities have been defined to help maintain configuration control and data integrity, as follows:

- WCH database administrators have overall responsibility for the SIS database and have full access to the code and authority to modify it as needed and in accordance with the procedures referenced in Section C.2 of Appendix C.
- The data entry user group has the ability to enter information into the SIS database using data entry screens developed by the database administrators.
- General users represent the largest user group and have read only access to all of the information stored in the SIS database.

Access to the SIS database is currently provided through an installation to a desktop personal computer and individual user login using a customized Microsoft® Access-based interface. The potential to migrate toward web-based access to the SIS database would involve migrating the interface to an appropriate programming platform, such as Java™; this is currently being evaluated. Figure 4-1 provides an example of some of the data fields found in the SIS database.

General users will have the ability to view information in the SIS database through detailed screens, use of standard query tools, or through a defined data summary report. Although general users will have read only access, information from the database can be easily cut and pasted for use in documents and reports as needed. In the future, the database will be directly linked with associated spatial data stored in geographical information system databases, enabling access to information on historical operations, cleanup activities, post-cleanup residual conditions, and institutional controls based on geographic location within the river corridor.

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™ Java is a trademark of Sun Microsystems, Inc.

Figure 4-1. Example of Data Collection Summary Detail Screen from the Stewardship Information System.

Data Collection

Site Code: 100-B-1 Filter Records Show All Records Find Site Print Site Report

Designated Area: 100B

Type: Surface Impoundment Status: Inactive Classification: Accepted Lead Agency: EPA

Names: 100-B-1, Surface Chemical and Solid Waste Dumping Area, Laydown Yard Reclass Status: Interim Closed 01 Unit Category: CERCLA Past Practice (CPP)

Operable Unit: 100-BC-2 Start Date: 1951 End Date:

Physical Site Description:
The 100-B-1 waste site was divided into two areas, one north and one south of the 100-B/C export water pipeline. During site visits performed in 1993 and 1994, one area of the site (identified as the laydown yard) contained miscellaneous debris items such as wood, power poles, light fixtures, wire, broken glass, broken transite, and Plexiglas® (registered trademark of Arkema Corporation, Puteaux, France) filter columns, and several plexiglass lysimeter columns (photo). Another area, the chemical dump area located 100 m (300 ft) northeast of the laydown yard, contained areas of distressed vegetation and oil contaminated soil. Both of these areas were combined into the 100-B-1 waste site.

Process Description:

Location Description:
The site is located east of the 105-C Building. The center of the site is north of the export water line. The central coordinates for the site were E 565702.81, N 144200.039.

Related Structures / Facilities: Double-click field to see entire contents in popup window.
The site was related to the construction and operation of the 105-C Reactor. The construction of the 105-C Reactor was started in 1951 and completed in 1952. The 105-C reactor was shutdown in 1969.

Site Comment:
The site was visited in 1993. It was photographed and field screening tests of discolored soil were positive for petroleum products. Another site visit was done in September 1994. The area was photographed and mapped. Only areas north of the export water line were described and mapped. In 1998, Bechtel Hanford, Inc. conducted site walkdowns of 256 sites for which the company had been assigned surveillance

1. WCH-SD-EN-TI-220, 5/18/1994, 100-B Area Technical Baseline Report.
2. 100-B-1, 3/24/1994, WIDS Site Addition:100-B-1 (#94-089).

Waste
Releases
Dimensions
Regulatory Info
Photos
Cleanup Activities
SubSites
Open Reclass Form for Data Entry

The SIS database is designed to allow future access to the data, even after the system is no longer actively used. The database models for the analytical and spatial information in the SIS database were selected so that any application tool, designed for the purpose, may be used to access them (i.e., nonproprietary). To ensure that the SIS database performs as designed and that the integrity of the data is maintained, WCH has developed procedures consistent with *IEEE Standard for Software Test Documentation* (IEEE 1998) and NQA-1 software quality assurance (ASME 2000). More information regarding the database models and the procedures is provided in Appendix C.

4.2 RECORDS MANAGEMENT

The requirements that establish responsibilities to ensure that information is identified, processed, disseminated, and preserved in a safe and accessible manner are based on applicable statutes, regulations, executive orders, federal requirements (e.g., NARA regulations), the Tri-Party Agreement, as well as DOE policies, orders, and guidelines.

For example, the required retention period may range from a few months to years or permanent retention depending on the record type and applicable requirements; this is based on the NARA regulations. The records retention schedule is used for the disposition of DOE records created to comply with, or needed to support, compliance with federal environmental laws and implementing regulations.

For the SIS database, the environmental laws and regulations that apply to DOE are key in determining the period over which this information must be retained. For example, closure plans for hazardous waste units under RCRA must include information on the steps required for closure and post-closure care requirements, both of which are typically required for 30 years. Certain information must also be recorded onto the deed indefinitely in accordance with *Washington Administrative Code 173-303-610*. DOE is also required by the Tri-Party Agreement to preserve for a minimum of 10 years after termination of the Tri-Party Agreement, all of the records in its or its contractors' possession related to sampling, analysis, investigations, and monitoring conducted in accordance with the Tri-Party Agreement. After this 10-year period, DOE will notify EPA and Ecology at least 45 days before destruction or disposal of any such records.

The final *RCCC LTS Transition Plan* will identify the data types, retention requirements, and retention periods for various records stored in the SIS database. Examples of electronic data include environmental sampling and monitoring data, electronic images, design drawings, or other related records. Table 4-1 identifies current data categories in the SIS database and the rationale for inclusion into the database. This information will be used to update the WIDS to formally document the completion of cleanup in accordance with the Tri-Party Agreement. The information contained in the SIS database could also be used by the post-RCCC landlord to generate required reports (including the CERCLA 5-year review) for efficient management of the data collection process and for public use.

**Table 4-1. Types of Information Captured by the Stewardship Information System.
(2 Pages)**

Information Type	Rationale for Inclusion
Waste site/building information	Information related to the operation, location, process history, cleanup (demolition), and as-left site conditions for each facility within the RCCC.
Photographs	Depict the operational or cleanup aspects of a given facility or waste site.
References	A list of references to relevant documents for each facility or waste site.
CVP/RSVP data	Summarizes cleanup activities, post-cleanup soil concentration, and institutional controls for each waste site within the river corridor.
Orphan site evaluations	Summarizes results of evaluations including a description, location, disposition, and selected photographs or drawings.

**Table 4-1. Types of Information Captured by the Stewardship Information System.
(2 Pages)**

Information Type	Rationale for Inclusion
GIS Layers	Used to generate maps that portray environmental and cleanup site data with respect to the topographic and environmental settings. Also used to identify stewardship elements and remaining infrastructure.

- CVP = cleanup verification package
- GIS = Geographical Information System
- RCCC = River Corridor Closure Contract
- RSVP = remaining sites verification package

It is anticipated the information in the SIS database will be turned over to the contractor that will be responsible for maintaining the areas cleaned up under the RCCC. The exact transition actions, including the identification of the systems and types of information that will be transitioned, will be further defined in the final *RCCC LTS Transition Plan*.

5.0 LONG-TERM STEWARDSHIP REQUIREMENTS

This chapter describes the post-cleanup LTS requirements related to the following activities:

- Implementation of physical and administrative (i.e., institutional) controls for the RCCC
- Surveillance, maintenance, and monitoring of the RCCC remedies
- Management of biological, cultural, and natural resources.
- Remaining infrastructure requirements.

A brief description of the types of LTS requirements is included in this section; Appendix D provides the specific post-closure LTS requirements by waste site for cleanup conducted under the RCCC, including institutional control and monitoring requirements. It is important to note that the requirements presented in this section and in Appendix D are based on existing cleanup decision documents; no new requirements are defined in this plan. The requirements presented in the final *RCCC LTS Transition Plan* will be based on the completed cleanup and will reflect the requirements of the final cleanup.

5.1 INSTITUTIONAL CONTROLS

Institutional controls are used in conjunction with the remedy during and after cleanup, when cleanup is performed to a level that does not allow unrestricted use. Typically they are designed as a series of mutually reinforcing controls, which work in conjunction with the remedy to protect human health and the environment and to ensure the long-term effectiveness of the remedy. In some cases where the residual hazard is minimal, institutional controls are the only level of protection required once the remediation is complete. Institutional controls that are in place during the remedial action, as required by cleanup decision documents (and not required once the remediation is complete), are not included in the scope of this plan.

Although LTS requirements regarding groundwater are outside the scope of this plan, it is important to note that groundwater use on the Hanford Site generally is restricted, in accordance with the institutional control requirements of the applicable CERCLA decision documents, except for the purposes of monitoring and treatment, as approved by EPA or Ecology or as authorized in EPA-approved documents.

5.1.1 100 Area

In accordance with the existing interim action RODs, institutional controls will be required for waste sites where residual contaminants preclude unrestricted use. This applies to a limited number of sites where residual contamination begins at a depth at least 4.6 m (15 ft) below the surrounding surface elevation. As long as institutional controls are required, DOE will take the necessary precautions to add access restriction language to any land transfer, sale, or lease of property that the U.S. Government considers appropriate. The specific institutional controls are presented in Appendix D.

5.1.2 300 Area

For the 300 Area, institutional controls are based on the exposure scenarios included in the interim action ROD, or as modified by the ESD. Appendix D contains the specific institutional

Long-Term Stewardship Requirements

controls for the 300 Area, including land-use controls, such as measures to prevent changes in land use and the use of groundwater. Although the institutional controls are based on interim action RODs, it is anticipated that the post-cleanup institutional control requirements will not change. However, it is anticipated that land-use controls will not be required in uncontaminated areas or if remediation results in soil concentrations that would permit unrestricted use and unlimited exposure.

5.2 SURVEILLANCE, MAINTENANCE, AND MONITORING

LTS requirements regarding surveillance, maintenance, and monitoring address the following activities.

- Monitoring the performance of the remedies, including engineered barriers and institutional controls, in accordance with the requirements stipulated in the cleanup decision documents to verify that the remedies remain effective and that contaminant migration is prevented. Monitoring may include the monitoring of ecological receptors (e.g., wildlife, vegetation) as prescribed by the remedies in the cleanup decision documents or if required by federal and state requirements. Monitoring also may include the soils, as prescribed by the remedies in the cleanup decision documents or if required by federal and state requirements and regulations for releases and the potential transport of radioactive material and hazardous contaminants. Groundwater monitoring is outside the scope of this plan.
- Maintaining the remedy systems in working condition and conducting regular inspections to keep controls in working order, prevent potential problems, and ensure the protectiveness of the remedies. These activities may include tasks defined in an O&M plan for a site, such as maintaining signs, fences, and restrictions on excavations or land use.
- Conducting a CERCLA 5-year review, which is required to assess the protectiveness of remedial actions where hazardous substances, pollutants, or contaminants are left onsite above levels that allow for unlimited use and unrestricted exposure. In addition to CERCLA, the Tri-Party Agreement allows 5-year reviews to address regulated RCRA units and past-practice units that are regulated under RCRA and/or CERCLA. The reviews do not reconsider remedial cleanup decisions; it is an evaluation of the implementation and performance of the current cleanup strategy to determine if the remedy is or will be protective.

The review may conclude that the remedy is protective and that no further action is necessary. Alternatively, it may conclude that further evaluation is needed, may recommend certain actions to improve the efficiency of a remedy, or may recommend changes in the remedy. This review process can also provide a forum for introducing new information and/or how changes in assumptions will be managed in the future. If cleanup decisions are required to be revisited, the applicable regulatory process is to be followed.

The CERCLA 5-year review must be conducted for both the 100 Area and the 300 Area.

- Responding to unexpected, or off-normal, conditions and emergency situations. Off-normal events occur when a protective system unexpectedly performs outside of the expected range of acceptable performance. Examples of off-normal events include the deterioration

Long-Term Stewardship Requirements

of a physical control beyond predicted levels, an error that results in a "near-miss," and the discovery of previously unidentified sources of contamination. DOE's response measures to off-normal events may include modifying processes, such as making adjustments to the type and frequency of monitoring and maintenance activities; modifying existing controls; establishing new controls; and/or initiating new cleanup actions. If applicable, DOE will follow the appropriate approved regulatory process for its response measures. Corrective actions initiated as a result of routine maintenance and inspections will be addressed by maintenance activities.

DOE will notify the appropriate regulatory agencies if regulatory thresholds are exceeded. Releases of hazardous substances in excess of quantities reportable under CERCLA will be immediately reported to EPA. Spills or discharges of hazardous substances or dangerous wastes to the environment will be reported to EPA and/or the state in accordance with applicable state or federal law.

5.2.1 100 Area

In accordance with the existing interim action RODs, long-term monitoring will be required for source sites where residual contaminants preclude unrestricted use. This applies to a limited number of sites where residual contamination begins at a depth at least 4.6 m (15 ft) below the surrounding surface elevation.

Surveillance and maintenance for the interim safe storage reactors will also be required per the applicable the surveillance and maintenance plans, when developed. Remote monitoring systems (wind/solar-powered) and cellular telephones may be used for monitoring temperature and moisture sensors. Provisions will be made for surveillance lighting power from portable generators, as necessary, to allow full removal of site utilities. Workers will enter the structure once every 5 years to conduct inspections and make any needed repairs.

C Reactor has been sealed since 1998 and is monitored for abnormalities by a remote monitoring system. The first inspection entry at the reactor occurred in November 2002.

5.2.2 300 Area

Because institutional controls are required for the 300-FF-1 and 300-FF-2 OUs, the following surveillances may be conducted to ensure they remain in place:

- Surveillances to verify that unanticipated changes in land use do not occur
- Surveillances to verify the continuation of use and access restrictions before any transfer or lease of the property.

5.3 BIOLOGICAL, CULTURAL, AND NATURAL RESOURCES

The river corridor of the Hanford Site includes significant resources including habitat for numerous endangered, protected, and listed species; significant historical and cultural sites; and natural resources. The management of these resources is subject to federal and state laws, executive orders, Tribal treaty rights, DOE orders, and Hanford Site procedures.

Long-Term Stewardship Requirements

Multiple resource management plans have been developed at the Hanford Site to protect and provide the policies, goals, and objectives for the management of the site's biological, natural, and cultural resources. These plans address the ongoing surveillance, protection, and controlled use of the resources. These resources will be managed in accordance with the existing Hanford Site plans (e.g., applicable resource management plans) to ensure that future stewards are aware of the requirements with the associated areas. Current management plans include the following:

- Hanford Cultural Resources Management Plan
- Hanford Biological Resources Management Plan
- Hanford Bald Eagle Management Plan
- Fire Management Plan
- Noxious Weed Management Plan
- Mineral Resources Management Plan.

Following the completion of cleanup, the status of the biological, cultural, natural, and historical resource obligations will be identified in order to transfer this information to the follow-on landlord. The final *RCCC LTS Transition Plan* will list these resources and cite the applicable management plans associated with the resources. For cultural and historical management, this may include inventories of all artifacts located at offsite facilities, inventories of artifacts that may exist within buildings or structures that remain following completion of the RCCC, and documentation of any ongoing projects. For biological and natural resource management, this may include the identification of sensitive plant areas or locations of natural resource areas such as borrow pits.

5.4 REMANING INFRASTRUCTURE

DOE will retain responsibility for landlord functions of the river corridor as long as DOE is the managing entity of the Hanford Site. These landlord responsibilities cover the all of the remaining infrastructure and include such things as access roads, facilities, and services. This will include the infrastructure that is located in the River Corridor that is required to support the remaining operations and includes a list of the types of remaining infrastructure that will likely remain after the completion of the RCCC (see box at right). The infrastructure such as fences, monitoring wells, etc., that may be integral parts of the final remedy are addressed in the appropriate sections.

It is premature to anticipate the specific types of infrastructure that will be required at this time; the final plan will include the specific infrastructure and facility requirements that will need to be transitioned to the post-cleanup contractor. Although DOE remains ultimately responsible for the lands under its management, these functions will likely be managed by a DOE contractor or delegated to another federal agency.

Examples of Remaining Infrastructure.

- Analytical laboratories
- Electrical services (distribution)
- Emergency preparedness
- Fire protection
- Parking lots
- Raw and potable water
- Roads
- Safeguards/security
- Solid waste disposal
- Telecommunications
- Warehouses/maintenance buildings

6.0 REFERENCES

- 40 CFR 265, "Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," *Code of Federal Regulations*, as amended.
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APPENDIX A
FINDING OF SUITABILITY TO TRANSFER REQUIREMENTS

APPENDIX A FINDING OF SUITABILITY TO TRANSFER REQUIREMENTS

The *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) (42 U.S.C. Section 9620(h)) requirements regarding the environmental suitability of federal government property for transfer by deed of property cleaned up under CERCLA are stated in Section 120(h). To document compliance with these requirements, federal facilities may choose to develop a Finding of Suitability for Transfer (FOST). The FOST describes how the federal facility has met the requirements of CERCLA 120(h). While it is not anticipated that any of the land remediated under the River Corridor Closure Contract will be transferred in the immediate future, the development of a FOST will document that the cleanup was complete and the CERCLA criteria met. Listed below are the pertinent requirements from CERCLA Section 120(h).

It is anticipated that the information necessary to complete the FOST will be generated and delivered at cleanup completion. It will meet all the requirements contained in CERCLA requirements with the exception of the public notification (since the land will not be transferred) and, similarly, the state and federal approvals for transfer.

Appendix A – Finding of Suitability to Transfer Requirements

Comprehensive Environmental Response Compensation, and Liability Act Section 120, Federal Facilities

Sec. 120 (h) PROPERTY TRANSFERRED BY FEDERAL AGENCIES. --

(1) NOTICE. -- After the last day of the 6-month period beginning on the effective date of regulations under paragraph (2) of this subsection, whenever any department, agency, or instrumentality of the United States enters into any contract for the sale or other transfer of real property which is owned by the United States and on which any hazardous substance was stored for one year or more, known to have been released, or disposed of, the head of such department, agency, or instrumentality shall include in such contract notice of the type and quantity of such hazardous substance and notice of the time at which such storage, release, or disposal took place, to the extent such information is available on the basis of a complete search of agency files.

(2) FORM OF NOTICE; REGULATIONS. -- Notice under this subsection shall be provided in such form and manner as may be provided in regulations promulgated by the Administrator. As promptly as practicable after the enactment of this subsection but not later than 18 months after the date of such enactment, and after consultation with the Administrator of the General Services Administration, the Administrator shall promulgate regulations regarding the notice required to be provided under this subsection.

(3) CONTENTS OF CERTAIN DEEDS. --

(A) IN GENERAL. -- After the last day of the 6-month period beginning on the effective date of regulations under paragraph (2) of this subsection, in the case of any real property owned by the United States on which any hazardous substance was stored for one year or more, known to have been released, or disposed of, each deed entered into for the transfer of such property by the United States to any other person or entity shall contain --

- (i) to the extent such information is available on the basis of a complete search of agency files --
 - (I) a notice of the type and quantity of such hazardous substances,
 - (II) notice of the time at which such storage, release, or disposal took place, and
 - (III) a description of the remedial action taken, if any;
- (ii) a covenant warranting that
 - (I) all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of such transfer, and
 - (II) any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States. The requirements of subparagraph (B) shall not apply in any case in which the person or entity to whom the property is transferred is a potentially responsible party with respect to such real property; and
- (iii) a clause granting the United States access to the property in any case in which remedial action or corrective action is found to be necessary after the date of such transfer.

Appendix A – Finding of Suitability to Transfer Requirements

Comprehensive Environmental Response Compensation, and Liability Act Section 120, Federal Facilities

Sec. 120 (h) PROPERTY TRANSFERRED BY FEDERAL AGENCIES: (continued) --

(B) COVENANT REQUIREMENTS. -- For purposes of Subparagraphs (A)(ii)(I) and (C)(iii), all remedial action described in such subparagraph has been taken if the construction and installation of an approved remedial design has been completed, and the remedy has been demonstrated to the Administrator to be operating properly and successfully. The carrying out of long-term pumping and treating, or operation and maintenance, after the remedy has been demonstrated to the Administrator to be operating properly and successfully does not preclude the transfer of property. The requirements of subparagraph (A)(ii) shall not apply in any case in which the person or entity to whom the real property is transferred is a potentially responsible party with respect to such property. The requirements of subparagraph (A)(ii) shall not apply in any case in which the transfer of the property occurs or has occurred by means of a lease, without regard to whether the lessee has agreed to purchase the property or whether the duration of the lease is longer than 55 years. In the case of a lease entered into after September 30, 1995 with respect to real property located at an installation approved for closure or realignment under a base closure law, the agency leasing the property, in consultation with the Administrator, shall determine before leasing the property that the property is suitable for lease, that the uses contemplated for the lease are consistent with protection of human health and the environment, and that there are adequate assurances that the United States will take all remedial action referred to in subparagraph (A)(ii) that has not been taken on the date of the lease.

Comprehensive Environmental Response Compensation, and Liability Act Section 120, Federal Facilities

(4) IDENTIFICATION OF UNCONTAMINATED PROPERTY. --

(A) In the case of real property to which this paragraph applies (as set forth in subparagraph (E)), the head of the department, agency, or instrumentality of the United States with jurisdiction over the property shall identify the real property on which no hazardous substances and no petroleum products or their derivatives were known to have been released, or disposed of. Such identification shall be based on an investigation of the real property to determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property. The identification shall consist, at a minimum, of a review of each of the following sources of information concerning the current and previous uses of the real property:

- (i) A detailed search of Federal Government records pertaining to the property.
- (ii) Recorded chain of title documents regarding the real property.
- (iii) Aerial photographs that may reflect prior uses of the real property and that are reasonably obtainable through State or local government agencies.
- (iv) A visual inspection of the real property and any buildings, structures, equipment, pipe, pipeline, or other improvements on the real property, and a visual inspection of properties immediately adjacent to the real property.
- (v) A physical inspection of property adjacent to the real property, to the extent permitted by owners or operators of such property.
- (vi) Reasonably obtainable Federal, State, and local government records of each adjacent facility where there has been a release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, and which is likely to cause or contribute to a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property.

Appendix A – Finding of Suitability to Transfer Requirements

(vii) Interviews with current or former employees involved in operations on the real property. Such identification shall also be based on sampling, if appropriate under the circumstances. The results of the identification shall be provided immediately to the Administrator and State and local government officials and made available to the public.

(B) The identification required under subparagraph (A) is not complete until concurrence in the results of the identification is obtained, in the case of real property that is part of a facility on the National Priorities List, from the Administrator, or, in the case of real property that is not part of a facility on the National Priorities List, from the appropriate State official. In the case of a concurrence which is required from a State official, the concurrence is deemed to be obtained if, within 90 days after receiving a request for the concurrence, the State official has not acted (by either concurring or declining to concur) on the request for concurrence.

APPENDIX B
LONG-TERM STEWARDSHIP REFERENCES

APPENDIX B LONG-TERM STEWARDSHIP REFERENCES

This appendix describes the key documents that provide background information on long-term stewardship (LTS) and guidance on how to ensure that the continuation of the protection of human health and the environment after cleanup is completed. Although some of these documents are not directly applicable to LTS planning at the Hanford Site (e.g., the Hanford Site is not considered a closure site since the cleanup mission is continuing for the foreseeable future), they were considered, as appropriate, in developing and writing this plan.

U.S. Department of Energy (DOE) Orders

DOE O 430.1B, Real Property Asset Management. This order identifies requirements and establishes reporting mechanisms and responsibilities for real property asset management. This order recognizes that the life of an asset is from planning through acquisition, maintenance, operation, remediation, disposition, LTS, and disposal. This order states that for each nonclosure site, results of real property asset site planning and performance must be documented in a 10-year site plan that is kept current and covers a 10-year planning horizon. For closure sites, disposition plans must be developed. This order indicates that land-use planning and management at cleanup or closure sites may be established through the development of disposition plans and LTS plans. The Contractor Requirements Document (Attachment 2 of this order) provides further information on planning for disposition and LTS, including the development of a disposition plan that identifies, assesses, and evaluates alternatives and integrates environmental, safety, and health requirements into disposition activities. The disposition plan is to include the following a method for identifying, evaluating, and selecting disposition alternatives and LTS requirements, as well as a post-closure/post-disposition/LTS records turnover or retention plan.

Guidance

Definition of EM Completion and DOE Site Closure, Fact Sheet, FOCUS Project, Corporate Projects Initiative, Office of Environmental Management, U.S. Department of Energy, January 2003. This fact sheet provides clarification on the specific activities that must be accomplished before an environmental cleanup project is complete and the specific activities that need to be accomplished before the Office of Environment's (EM's) responsibility for a site, or portions of a site, is complete.

EM Completion: Transitioning LTRA Responsibilities, Fact Sheet, FOCUS Project, Corporate Projects Initiative, Office of Environmental Management, U.S. Department of Energy, June 2003. This fact sheet provides planning guidance to the Program Secretarial Offices that will receive a site once the EM program has completed its mission at the site. This fact sheet outlines the planning and documentation needed to facilitate the transition process and continue the management of any required long-term response actions.

Long-term Stewardship Planning Guidance for Closure Sites, Office of Environmental Management, U.S. Department of Energy, 2002. The primary objective of this guidance is to support site efforts to develop LTS plans that address post-closure requirements and activities.

Appendix B – Long-Term Stewardship References

Seven Long-Term Stewardship Management Principles (Draft), Office of Environmental Management, U.S. Department of Energy, October 2001. An Executive Steering Committee was formed to evaluate and develop policy and to prepare a strategic plan for DOE's LTS efforts. These draft principles were developed as a result of a discussion at one of the committee's meetings in 2001 and were to be used in the development of the strategic plan.

Site Transition Process Upon Cleanup Completion, Fact Sheet, Office of Legacy Management, U.S. Department of Energy, April 2004. This fact sheet describes the steps of the transition process from EM to the Office of Legacy Management (LM) for sites where the EM cleanup mission is complete and there is no continuing mission.

Studies

1995 and 1996 Baseline Environmental Management Reports, Office of Environmental Management, U.S. Department of Energy, 1995 and 1996, respectively. These reports provide a total life-cycle cost estimate and anticipated schedule of the projects and activities necessary to carry out the EM program's missions for environmental remediation, waste management, science and technology development, the transition of operational facilities to safe shutdown status, and the safeguarding and securing of special nuclear materials. These reports were prepared as an analytical tool to help guide departmental decisions and to provide an accounting of DOE's progress, spending, and plans.

A Review of the Environmental Management Program, Top-to-Bottom Review Team, Office of Environmental Management, U.S. Department of Energy, February 2002. This report summarizes the results of a programmatic review of the EM program and its management systems and identifies ways in which EM can quickly and markedly improve program performance. The report identifies weaknesses found from the review and includes an aggressive course of action to reduce risk to public health, workers, and the environment on an accelerated basis. One of the recommendations in the report is for EM to establish a long-term stewardship strategy and to develop policy and guidance that will result in consistent, predictable, risk-based implementation.

Accelerating Cleanup: Paths to Closure, Office of Environmental Management, U.S. Department of Energy, June 1998 (DOE/EM-0362). This report provides, for the first time, a site-by-site, project-by-project projection of the technical scope, cost, and schedule required to complete all 353 projects at DOE's 53 remaining cleanup sites in the United States. These projections are essential for better management—they provide critical information on technical activities, budgets, worker health and safety, and risk to inform regulators, state and local officials, stakeholders, Tribal Nations, and others. EM's goal, as stated in this report, is to clean up more than 90% of its sites by 2006. It is important to note that the "closure" of a site does not end DOE's responsibility. In most cases, DOE will continue long-term surveillance and monitoring activities to ensure that human health and the environment are protected.

Closing the Circle on the Splitting of the Atom: The Environmental Legacy of Nuclear Weapons Production in the United States and What the Department of Energy is Doing About It, Office of Environmental Management, U.S. Department of Energy, 1996 (DOE/EM-0266). This book describes existing environmental, safety, and health problems throughout the nuclear weapons complex, including long-term issues, and what DOE is doing to address them. The aim of this

Appendix B – Long-Term Stewardship References

book is to foster deeper public understanding to help hasten progress as DOE moves ahead on resolving these problems.

Final Waste Management Programmatic Environmental Impact Statement (WM PEIS), Office of Environmental Management, U.S. Department of Energy, May 1997 (DOE/EIS-0200). Prepared under the *National Environmental Policy Act of 1969 (NEPA)*, 42 U.S.C. 4321, et seq., this nationwide study examines the environmental impacts of managing more than 2 million cubic meters of radioactive wastes from past, present, and future DOE activities. The WM PEIS allows the public and DOE decision makers to make comparisons of the impacts of various potential configurations for the management of DOE waste. The goal is a nationwide strategy to treat, store, and dispose of the wastes in a safe, responsible, and efficient manner that minimizes the impacts to workers and the public and complies with applicable laws and regulations.

Long-Term Stewardship Case Study Report, Office of Long-Term Stewardship, Office of Environmental Management, U.S. Department of Energy, Final Draft, June 2001. This report summarizes the results of a study conducted regarding seven previous DOE management decisions (five site specific and two programmatic). These decisions were analyzed to evaluate the degree to which LTS was considered in the past decision-making process. The analyses of these decisions were conducted to identify how, and to what extent, LTS considerations factored into the identification and evaluation of alternatives. The objective of the study is to highlight lessons learned from these decisions in order to make recommendations, inform future decisions, and improve the integration of LTS into the decision-making process.

Long-Term Stewardship Study, Office of Environmental Management, U.S. Department of Energy, Final Study, October 2001. DOE prepared this study to comply with the terms of a settlement agreement between DOE, the Natural Resources Defense Council, and 38 other plaintiffs (Natural Resources Defense Council, et al. v. Richardson, et al., Civ. No. 97-936 [SS] [D.D.C. Dec. 12, 1998]). The study discusses current LTS issues and challenges identified by the public during a public scoping and comment process. The study served as a reference for the top-to-bottom review of EM (see the description of *A Review of the Environmental Management Program*) because LTS issues are integral to EM's cleanup decisions and land-use planning.

National Defense Authorization Act (NDAA) Long-Term Stewardship Report, Office of Environmental Management, U.S. Department of Energy, January 2001. This report to Congress details DOE's existing and anticipated LTS obligations at sites where environmental restoration activities are complete or will be complete by 2006. This report identifies the scope and timing of existing and anticipated LTS activities, the estimated LTS costs, as well as information on planning for LTS.

Hanford Site LTS Planning Documents

Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP EIS), U.S. Department of Energy, Richland Operations Office, September 1999. The DOE prepared the HCP EIS to evaluate the potential environmental impacts associated with implementing a comprehensive land-use plan for the Hanford Site for at least the next 50 years. The six alternative land-use maps analyzed in the HCP EIS include the no-action alternative, DOE's preferred alternative, and four other alternatives that were developed by cooperating agencies

Appendix B – Long-Term Stewardship References

and consulting Tribal governments. The DOE's preferred alternative anticipates multiple uses of the Hanford Site, including consolidating waste management operations in the Central Plateau, allowing industrial development in the eastern and southern portions of the Hanford Site, increasing recreational access to the Columbia River, and expanding the Saddle Mountain National Wildlife Refuge to include all of the Wahluke Slope and Fitzner-Eberhardt Arid Lands Ecology Reserve (managed by the U.S. Fish and Wildlife Service).

Hanford Long-Term Stewardship Program and Transition: Preparing for Environmental Management Cleanup Completion, U.S. Department of Energy, Richland Operations Office, DOE/RL-2003-39, Rev. 0, 2003. This document describes the future LTS program at the Hanford Site and is used as an internal DOE management tool to prepare for the transition from cleanup completion to LTS. The mission, vision, goals, and functions for LTS at the Hanford Site are defined in this document. This document also identifies the initial transition preparation activities needed in order to create a successful future program. DOE worked closely with stakeholders, local governments, regulators, and Tribal Nations to develop this document.

Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions, U.S. Department of Energy, Richland Operations Office, DOE/RL-2001-41, Rev. 0, 2002. This plan identifies the institutional controls for the current CERCLA response actions, describes how the institutional controls are implemented and maintained, and serves as a reference for the selection of institutional controls in the future. DOE worked closely with stakeholders, local governments, regulators, and Tribal Nations to develop this document.

River Corridor Closure Contract

River Corridor Closure Contract (RCCC). The RCCC is a contract between DOE and WCH for the cleanup of the Hanford Site river corridor that includes safety, cost performance, and schedule performance requirements. The purpose of the RCCC is to close the river corridor, which is defined by DOE-RL as the completion of all activities required to deactivate, decontaminate, decommission, and demolish excess facilities; place former production reactors in an interim safe storage condition; remediate waste sites and burial grounds; meet regulatory requirements; and transition the river corridor to long-term stewardship.

River Corridor End State Strategy, Washington Closure Hanford, WCH-8, Rev. 0, December 2005. The purpose of this document is to support development of a defensible technical approach to guide WCH remediation designs for future cleanup actions in the Hanford Site river corridor. The document acknowledges the outcomes of previous efforts to establish a Hanford Site end state vision and presents a forward-looking end state strategy that applies to future remediation designs supporting cleanup actions for source operable units in the 100 and 300 Areas (which includes sites identified in the RCCC as belonging to the 400 and 600 Areas). The identified strategy is to continue design of cleanup actions in accordance with the remedies required by the current interim action records of decision. The scope of this strategy excludes design activities for source unit remedial actions completed prior to September 2005 and for groundwater remedial actions.

Cleanup to Stewardship Checklists

Cleanup-to-Stewardship Transition Checklist and Acceptance Criteria, U.S. Department of Energy, Richland Operations Office, 2004. DOE-RL developed a process to clearly identify the

Appendix B – Long-Term Stewardship References

requirements that must be met in order to transition land outside of EM's active cleanup mission responsibilities when a site is considered cleaned up and ready for transfer. The transition checklist is used to confirm that all actions required prior to transfer have been taken and to validate that the site is ready for transfer. The acceptance criteria for the transition checklist is a more detailed version of the transition checklist that defines what the requirement is, why it is important, and defines when each checklist item is considered complete.

Site Transition Framework for Long-Term Surveillance and Maintenance, Office of Legacy Management, U.S. Department of Energy, 2005. This document provides a framework for all DOE facilities and sites where DOE may have anticipated long-term surveillance and maintenance (LTS&M) responsibilities. It is a tool to help facilitate a smooth transition from remediation to LTS&M, providing a systematic process for affected parties to use in analyzing the baseline to understand and manage the actions from EM's mission completion through a site's transition into LTS&M.

APPENDIX C
STEWARDSHIP INFORMATION SYSTEM DATABASE

APPENDIX C STEWARDSHIP INFORMATION SYSTEM DATABASE

This appendix provides information regarding the system platform and stability of the Stewardship Information System (SIS) database, which is being developed by Washington Closure Hanford (WCH) to manage river corridor closure and long-term stewardship (LTS) information. This appendix also provides information regarding the procedures for development, and documentation. More information regarding the purpose and content of the SIS database is provided in Chapter 4 of this draft *RCCC LTS Transition Plan*.

C.1 System Platform and Stability

The SIS database currently resides on two separate platforms. The SIS database comprises an Oracle® 8i or higher database (back-end) accessed via a customized Microsoft Access 2003-based user interface (front-end). The Geographical Information System (GIS) contains the spatial information and is composed of an ArcInfo® database. Future plans include full integration of the analytical and special information from the two database platforms.

The SIS database and the GIS database are maintained on a SUN® server. The GIS database is backed up each night as part of an automated process. The SIS database backup is created daily by using the Oracle import/export utility. The export (backup) is created by the Oracle database administrator who is responsible for supporting the higher level maintenance functions, such as installing patches and refreshing the development database. There also are plans to put a backup server in place.

Oracle and GIS are used as the database models for analytical and spatial information because they are the long-term, proven standards for the respective database requirements. They are inherently generic in their design so that any application tool, designed for that purpose, may be used to access them (nonproprietary). This will allow future access to the data in the SIS database, even after the system is no longer actively used.

C.2 System Procedures

The methods for development, testing, and configuration control of the SIS database are established in the WCH procedures summarized in Table C-1. Where applicable, the methods reflected in the WCH procedures are consistent with *IEEE Standard for Software Test Documentation* (IEEE 1998) and NQA-1 software quality assurance (ASME 2000). Implementation of the procedures ensures that the SIS database performs as designed and that data integrity is maintained.

® Oracle is a registered trademark of Oracle Corporation.

® ArcInfo is a registered trademark of Environmental Systems Research Institute, Inc.

® Sun is a registered trademark of Sun Microsystems, Inc.

Table C-1. Procedural Framework Summary.

Procedure	Title	Function
ESFC-100, ESFC-100-2.2	Application/Database Development and Maintenance	Establish the requirements for development and maintenance of databases and applications.
ESFC-100, ESFC-100-2.3	Application/Database Testing	Establish the requirements for development and implementation of test plans designed to ensure that databases and applications perform as intended.
ESFC-100, ESFC-100-2.4	Software Change Management and Configuration Control	Establish the method used to control configuration of databases and applications to protect the data integrity and ensure traceability of changes.

C.3 References

ASME, 2000, *Quality Assurance Requirements for Nuclear Facility Applications*, NQA-1-2000, American Society of Mechanical Engineers, New York, New York.

ESFC-100, *End State and Final Closure Manual*, Washington Closure Hanford, Richland, Washington

IEEE, 1998, *IEEE Standard for Software Test Documentation*, IEEE Std 829-1998, Software Engineering Technical Committee of the IEEE Computer Society, Los Alamitos, California.

APPENDIX D
POST-CLOSURE LONG-TERM STEWARDSHIP REQUIREMENTS

APPENDIX D POST-CLOSURE LONG-TERM STEWARDSHIP REQUIREMENTS

This appendix provides examples of how the specific post-closure long-term stewardship (LTS) requirements for source unit cleanup actions conducted in the river corridor will be presented in the final *RCCC LTS Transition Plan*, including institutional controls and monitoring requirements. Examples of the tables that identify the requirements are presented in Tables D-1 and D-2. It is important to note that the requirements presented in this appendix are based on cleanup decision documents; no new requirements are defined in this plan. The requirements listed in this appendix for the final *RCCC LTS Transition Plan* will be based on the completed cleanup and will reflect the requirements of the final cleanup.

Table D-1. Post-closure LTS requirements for waste sites where cleanup was completed under the River Corridor Closure Contract (RCCC). Currently, there is only one operable unit where cleanup has been completed (300-FF-1). By 2012, most, if not all, of the cleanup under the RCCC will be completed and their corresponding post-closure requirements will be defined; therefore, the final *RCCC LTS Transition Plan* will include the post-closure requirements for a number of additional waste sites.

Table D-2. Post-closure LTS requirements for waste sites cleaned up prior to initiation of the RCCC. Although the LTS requirements for these waste sites are outside the scope of this plan, they are included here for informational purposes.

**Table D-1. Post-Closure LTS Requirements for Waste Sites in the River Corridor.
 (Example for Final RCCC LTS Transition Plan) (4 Pages)**

Cleanup Area/ Waste Sites	Description	Land-Use Assumptions	Institutional Control Requirements	Monitoring Requirements	Cleanup Decision Documents
100 Area					
71 Sites	Remove, treat, and dispose remedy: remove contaminated soil, structures, and debris from 100 Area source waste sites; remediate; treat the waste; dispose of contaminated materials at ERDF; and backfill excavated areas and revegetate.	Unrestricted surface and groundwater use	Required for sites where waste is left in place, including sites where the concentration of contaminants below 4.6 m (15 ft) results in restrictions against deep excavation or drilling.	Long-term monitoring for sites where waste is left in place, including sites where the concentration of contaminants below 4.6 m (15 ft).	1995 ROD as amended in 1997 (EPA 1995, 1997a)
300 Area					
300-FF-1 OU	Remedial actions specifically declared in the 300-FF-1 Record of Decision (EPA 1996a) were completed in 2004. The remedial action report documenting completion of actions was issued in June 2005 (DOE-RL 2005). Cleanup completed in 2004. Included major 300 Area liquid/process disposal sites, the 618-4 Burial Ground, and three small landfills. Remedy was to remove contaminated soil and debris, treat as necessary, and dispose of waste in ERDF. Also recontoured and backfilled waste sites, followed by revegetation.	Industrial land uses (sites with other land use are described in next row), which assumes that a worker spends approximately 2,000 hr/yr on site for 30 years (1,500 hours indoors, remaining outdoors). Exposure to contaminants through direct exposure, inhalation, and soil ingestion pathways	Measures to ensure that unanticipated changes in land use do not occur that could result in unacceptable exposures to residual soil contamination measures acceptable to EPA that are necessary to ensure the continuation of use and access restrictions will be taken before any transfer or lease of the property. A copy of the notification will be given to any prospective purchaser/transferee before any transfer or lease. The DOE will provide EPA with written verification that these restrictions have been put in place.	CERCLA 5-year review	2005 300-FF-1 OU RAR (DOE-RL 2005) 1999 300-FF-1 ROD ESD (EPA 2000) 1996 300-FF-1 ROD (EPA 1996a) Action Memorandum for Expedited Response Action at the 300 Area Process Trenches – July 1991 (EPA 1991a)
300-FF-1 OU: 618-4 and 618-5 Burial Ground and Landfill 1A	Shown individually to meet the cleanup objectives for unrestricted land use. Verification data sets documented in the applicable CVPs and waste site reclassification forms.	Unrestricted use, which assumes rural-residential setting with individual spending 80% of lifetime on site. Assumes drinking and irrigation water obtained from groundwater. Exposure pathways from radionuclides in soil through soil ingestion, ingestion of crops, meat, fish, drinking water, and milk, and external gamma exposure.	TBD	TBD	Details of this land-use scenario and associated remedial action goals are documented in the 2004 300-FF-2 ESD (EPA 2004) Action Memorandum for Expedited Response Action to Remove Hexone Drums from the 618-9 Burial Ground – 1991 (EPA 1991b)

**Table D-1. Post-Closure LTS Requirements for Waste Sites in the River Corridor.
(Example for Final RCCC LTS Transition Plan) (4 Pages)**

Cleanup Area/ Waste Sites	Description	Land-Use Assumptions	Institutional Control Requirements	Monitoring Requirements	Cleanup Decision Documents
300-FF-2 OU	<p>The selected remedy in this interim action ROD includes the following components:</p> <ul style="list-style-type: none"> • Removal of contaminated soil, structures, and associated debris; • Treatment, as necessary, to meet waste acceptance criteria at an acceptable disposal facility; • Disposal of contaminated materials at the Hanford Site Environmental Restoration Disposal Facility (ERDF), Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico, or other disposal facilities approved in advance by EPA; • Recontouring and backfilling of excavated areas followed by infiltration control measures (e.g., revegetation); • Institutional controls to ensure that unanticipated changes in land use do not occur that could result in unacceptable exposures to residual contamination; • Ongoing groundwater and ecological monitoring to ensure effectiveness of the remedial actions and to support the final Record of Decision and five-year remedy reviews; and • Regulatory framework for a "plug-in" or "analogous sites" approach for accelerating future remediation decisions. 	<p>The reasonably anticipated future land use for the 300 Area and surrounding vicinity is industrial and the 300-FF-2 cleanup will result in protection of human health and the environment based on the exposure assumptions contained in the 300 Area industrial-use scenario.</p>	<p>DOE shall ensure that former waste site locations are restricted to industrial use only, consistent with the exposure assumptions used in establishing risk based cleanup levels for radionuclides and the use of MTCA Method C industrial cleanup levels for chemicals. DOE will maintain a surveillance program to document that risk or ARAR-based cleanup levels (and the exposure durations upon which they are based) are not exceeded. This will not be required if remediation work results in soil concentrations that would permit unrestricted use and unlimited exposure.</p> <p>DOE shall prevent the use of groundwater as a drinking water source as long as contaminant concentrations are above drinking water levels.</p> <p>DOE shall limit access to and use of the water from seeps and springs along the Columbia River shoreline as long as concentrations in the discharge water exceed drinking water standards.</p> <p>DOE shall maintain groundwater and Columbia River protection standards including:</p> <p>a) Infiltration controls (e.g., revegetation, asphalt, concrete) must be maintained as part of this remedy or remedial action goals/soil cleanup levels must be reevaluated and modified using different evapotranspiration coefficients (i.e., gravel does not prevent infiltration through residual contamination) pursuant to procedures established in the EPA-approved remedial design/remedial action work plan.</p> <p>b) No irrigation will be permitted for agriculture or landscaping on former waste site locations.</p> <p>DOE shall control the removal of soil or debris from former waste site locations in the 300 Area NPL site. Soil or debris from former waste site locations can only be removed for</p>	CERCLA 5-year review	300-FF-2 OU Interim Action ROD, 2001 (EPA 2001)

**Table D-1. Post-Closure LTS Requirements for Waste Sites in the River Corridor.
 (Example for Final RCCC LTS Transition Plan) (4 Pages)**

Cleanup Area/ Waste Sites	Description	Land-Use Assumptions	Institutional Control Requirements	Monitoring Requirements	Cleanup Decision Documents
			<p>other uses if concentrations meet cleanup levels that are based on an unrestricted-use exposure scenario. Additional soil or debris can be removed from former waste site locations if they are being sent to a disposal facility approved in advance by EPA.</p> <p>c) These infiltration control measures and irrigation restrictions shall be maintained unless (or until) it can be demonstrated that there will be no negative impact on groundwater or river water quality from residual contamination at former waste site locations.</p> <p>DOE shall limit the removal of soil or debris from former waste site locations where contaminated soils and/or debris remain at depth (i.e., below 15 ft) above direct contact/direct exposure cleanup levels. Any material left at depth above these standards can only be removed from the former waste site location if it is being sent to a disposal facility approved in advance by EPA.</p> <p>DOE shall establish and maintain a records system or database that tracks locations and estimated quantities of residual contamination left in place at waste sites that would preclude unlimited use or unrestricted exposure.</p>		

**Table D-1. Post-Closure LTS Requirements for Waste Sites in the River Corridor.
(Example for Final RCCC LTS Transition Plan) (4 Pages)**

Cleanup Area/ Waste Sites	Description	Land-Use Assumptions	Institutional Control Requirements	Monitoring Requirements	Cleanup Decision Documents
			DOE shall report the location of residual contamination in deed notices and other informational devices (e.g., a copy of any material documenting the location and quantity of residual contamination will be given to any prospective purchaser/transferee before any transfer or lease). Measures that are necessary to ensure the continuation of land use restrictions or other institutional controls (e.g., proprietary controls such as property easements or covenants), will be taken before any transfer or lease of the property.		

NOTE: In the final *RCCC LTS Transition Plan*, this table will contain information regarding LTS requirements for waste sites in the river corridor. Additional data regarding specific LTS requirements, once cleanup is completed, will be required to complete these tables.

- ARAR = applicable or relevant and appropriate requirement
- CERCLA = *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
- CVP = cleanup verification package
- DOE = U.S. Department of Energy
- EPA = U.S. Environmental Protection Agency
- ERDF = Environmental Restoration Disposal Facility
- LTS = long-term stewardship
- MTCA = *Model Toxics Control Act*
- NPL = National Priorities List
- OU = operable unit
- ROD = record of decision
- TBD = to be determined

Table D-2. Post-Closure LTS Requirements for Waste Sites Cleaned Up Prior to Initiation of the RCCC.

Cleanup Area/ Waste Sites	Description	Land-Use Assumptions	Institutional Control Requirements	Monitoring Requirements	Cleanup Decision Documents
100 Area					
100-C Reactor	Resulted in an interim safe storage enclosure over the reactor block to ensure containment of the hazardous substances. Decontamination and demolition of structures and the disposal of the resulting waste.	TBD	TBD	Monitor interim safe storage	1997 Action Memo for 100-C Reactor Waste Disposal, Ancillary Facilities, and 108-F Laboratory. (EPA 1997b)
105-C Reactor	Interim safe storage completed in 1998. Interim safe storage or "cocooning" involves demolishing the reactor building down to the 1.2-m (4-ft)-thick concrete shield walls surrounding the reactor core. All openings in the remaining structure are sealed and a new roof is constructed.	TBD	TBD	Continuous monitoring, as well as surveillance and maintenance activities of external areas every year and of internal areas every 5 years	TBD
100-IU-1, 100-IU-3, 100-IU-4, and 100-IU-5 Operable Units	Determination of no further remedial action was made in 1995 based on results from previous expedited response actions and reflected in subsequent decision documents (EPA 1996b)	TBD	TBD	TBD	--

REFERENCES

- DOE-RL, 2005, *300-FF-1 Operable Unit Remedial Action Report*, DOE/RL-2004-74, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- EPA, 1991a, *Action Memorandum for Expedited Response Action at the 300 Area Process Trenches*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.
- EPA, 1991b, *Action Memorandum for Expedited Response Action to Remove Hexone Drums from the 618-9 Burial Ground*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.
- EPA, 1995, *Record of Decision for the 100-BC-1, 100-DR-1 and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.
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