

Sitewide Institutional Controls Plan

For Hanford CERCLA Response Actions

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



**United States
Department of Energy**

P.O. Box 550
Richland, Washington 99352

Sitewide Institutional Controls Plan

For Hanford CERCLA Response Actions

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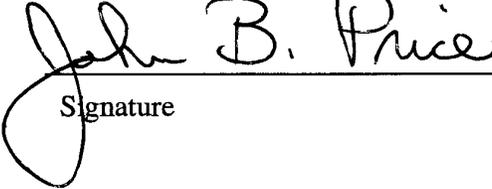


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EXECUTIVE SUMMARY

This *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* identifies the institutional controls for the current Hanford Site *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)*¹ response actions. The Plan describes how the institutional controls are implemented and maintained, and serves as a reference for the selection of institutional controls in the future. 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.

The requirements for institutional controls are recorded in CERCLA decision documents. These decision documents are part of the Administrative Record for the selection of remedial actions for each waste site and present the selected remedial actions that are chosen in accordance with the CERCLA, as amended by the *Superfund Amendments and Reauthorization Act of 1986*², and to the extent practicable, the *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*³. This plan was developed to fulfill the requirement for submittal of a Sitewide plan that describes how the U.S. Department of Energy, Richland Operations Office (RL) will implement and maintain the operable unit-specific institutional controls specified in CERCLA decision documents. The requirement for a Sitewide plan was established in the following documents:

¹ *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, 42 USC 9601 et seq.

² *Superfund Amendments and Reauthorization Act of 1986*, 42 USC 11001, et seq.

³ 40 CFR 300, 1998, "National Oil and Hazardous Substances Pollution Contingency Plan (NCP)," Title 40, *Code of Federal Regulations*, Part 300, as amended.

- *Interim Record of Decision: U.S. DOE Hanford 100 Area (Burial Grounds) Hanford Site, Benton County, Washington* (issued September 26, 2000)⁴
- *U.S. Environmental Protection Agency (EPA) report, USDOE Hanford Site, First Five Year Review Report*⁵.
- *Record of Decision: U.S. DOE Hanford 300 Area FF-2 Operable Unit, Hanford Site, Benton County, Washington* (issued April 5, 2001)⁶.

This plan also addresses the elements of the EPA Guidance⁷ regarding the implementation of institutional controls. This plan will be updated if the CERCLA institutional control requirements or the Tri-Parties' (i.e., Washington State Department of Ecology, U.S. Environmental Protection Agency, and the U.S. Department of Energy) plans change significantly.

The remedial actions that require institutional controls are a result of the legacy of over 50 years of nuclear defense production activities, which resulted in the following:

- The discharge of contaminated liquids into the soil and releases into the groundwater, as well as the Columbia River
- The disposal of solid waste in burial grounds and landfills in many areas of the Site
- The accumulation of two-thirds of the nation's stored weapons-related radioactive waste.

In 1989, the Hanford Site was placed on the National Priorities List (NPL)⁸ under CERCLA (commonly known as Superfund) and divided into four NPL sites: 100 Area, 200 Area,

⁴ EPA, Ecology, and DOE, 2000, *Interim Record of Decision: U.S. DOE Hanford 100 Area (Burial Grounds) Hanford Site, Benton County, Washington*, Washington State Department of Ecology, Olympia, Washington; U.S. Environmental Protection Agency, Washington, D.C.; and U.S. Department of Energy, Washington, D.C.

⁵ EPA, 2001, *USDOE Hanford Site, First Five Year Review Report*, April 2001, U.S. Environmental Protection Agency, Region 10, Hanford Project Office, Richland, Washington.

⁶ EPA, Ecology, and DOE, 2001, *Record of Decision: U.S. DOE Hanford 300 Area FF-2 Operable Unit, Hanford Site, Benton County, Washington*, Washington State Department of Ecology, Olympia, Washington; U.S. Environmental Protection Agency, Washington, D.C.; and U.S. Department of Energy, Washington, D.C.

⁷ EPA, 2000, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, OSWER 9355.0-74FS-P, EPA 540-F-00-005, September, 2000.

⁸ Appendix B of the NCP, 40 CFR 300, 1998, "National Oil and Hazardous Substances Pollution Contingency Plan (NCP)," Title 40, *Code of Federal Regulations*, Part 300, as amended.

300 Area, and 1100 Area. Each NPL site was further divided into operable units. In anticipation of the NPL listing, RL entered into the *Hanford Federal Facility Agreement and Consent Order*⁹ (Tri-Party Agreement) with the EPA and the Washington State Department of Ecology (Ecology). The Tri-Party Agreement established the legal framework and schedule for cleanup.

Since 1989, these three agencies (RL, EPA, and Ecology) have been committed to remediation and waste management to decrease potential risks to the work force, the public, and the environment. Complete restoration of every waste site to levels acceptable for unrestricted human use and unlimited human exposure cannot be accomplished. Consequently, controls will be needed to protect human health and the environment from residual hazards long after cleanup is complete.

As required by EPA and in accordance with this plan, RL will issue an annual report on the effectiveness of the institutional controls on the Hanford Site. The report will include a description of the status and effectiveness of the institutional controls, as well as recommendations for making repairs and improvements.

⁹ Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., as amended, Washington State Department of Ecology, Olympia, Washington; U.S. Environmental Protection Agency, Washington, D.C.; and U.S. Department of Energy, Washington, D.C.

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CONTENTS

1.0 INTRODUCTION 1-1

1.1 PURPOSE AND CONTENT OF PLAN 1-1

1.2 SITE BACKGROUND..... 1-4

1.3 HANFORD’S NATIONAL PRIORITIES LIST DESIGNATION..... 1-5

1.4 DEFINITION, SOURCE, AND TIMING OF INSTITUTIONAL CONTROLS 1-9

2.0 ONGOING IMPLEMENTATION 2-1

2.1 TYPES OF INSTITUTIONAL CONTROLS..... 2-1

2.2 SITEWIDE INSTITUTIONAL CONTROLS 2-1

2.3 NPL-SPECIFIC INSTITUTIONAL CONTROLS 2-14

3.0 FUTURE IMPLEMENTATION 3-1

3.1 INSTITUTIONAL CONTROLS FOLLOWING CLEANUP..... 3-1

3.2 INSTITUTIONAL CONTROLS FOR LAND THAT IS TRANSFERRED 3-1

4.0 MANAGEMENT AND OVERSIGHT 4-1

4.1 KEY PARTIES AND THEIR ROLES 4-1

4.2 ASSESSMENT AND REPORTING..... 4-3

4.3 UPDATES TO THE SITEWIDE INSTITUTIONAL CONTROLS PLAN..... 4-3

4.4 SUMMARY OF FUTURE DOE ACTIONS..... 4-4

5.0 REFERENCES 5-1

APPENDICES

A INSTITUTIONAL CONTROLS REQUIRED BY EXISTING CERCLA
DECISION DOCUMENTS A-i

B EXAMPLE EVALUATION FORM TEMPLATE B-i

C EXAMPLE OUTLINE FOR ANNUAL REPORT C-i

FIGURES

| | |
|--|------|
| Figure 1-1. Site Missions Over Time..... | 1-1 |
| Figure 1-2. Institutional Control Performance Assessments and Updates to this Plan. | 1-2 |
| Figure 1-3. Hanford Site. | 1-4 |
| Figure 1-4. Hanford Site National Priorities List Designations..... | 1-6 |
| Figure 1-5. Brief Description of the National Priorities List Sites. (2 sheets)..... | 1-7 |
| Figure 1-6. Institutional Controls as Defined by EPA Region 10. | 1-9 |
| Figure 2-1. Summary of Warning Notices in the Four National Priorities List Sites..... | 2-3 |
| Figure 2-2. Example of a Warning Notice to Identify a National Priorities List Site. | 2-4 |
| Figure 2-3. Summary of Entry Restrictions for the Four National Priorities List Sites. | 2-5 |
| Figure 2-4. Features of the Procedural Requirements for Access. | 2-6 |
| Figure 2-5. Summary of Land-Use Management of the Four National Priorities List Sites. | 2-7 |
| Figure 2-6. Hanford Site Excavation Permit Form..... | 2-11 |
| Figure 2-7. Summary of Groundwater Use Management in the Four National Priorities List Sites..... | 2-12 |
| Figure 2-8. Summary of Waste Site Information Management for the Four National Priorities List Sites. | 2-13 |
| Figure 3-1. Potential Disposition Paths for Excess DOE Real Property. | 3-2 |
| Figure 3-2. DOE Real Property Transition and Disposition..... | 3-3 |

TABLES

Table 1-1. 100 Area National Priorities List Site Decision Documents..... 1-12

Table 1-2. 200 Area National Priorities List Site Decision Documents..... 1-13

Table 1-3. 300 Area National Priorities List Site Decision Documents..... 1-13

Table 1-4. 1100 Area National Priorities List Site Decision Documents..... 1-13

Table 2-1. Sitewide Institutional Controls..... 2-2

Table 4-1. RL Institutional Control Points of Contact..... 4-2

Table 4-2. Summary of Next RL Actions Regarding Sitewide Institutional Controls..... 4-4

TERMS

| | |
|---------------------|--|
| ALE | Arid Lands Ecology (Reserve) |
| ARAR | applicable or relevant and appropriate requirements |
| A/V Plan | Aesthetic and Visual Resources Management Plan |
| CERCLA | <i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i> |
| CFR | <i>Code of Federal Regulations</i> |
| CLUP | Comprehensive Land Use Plan (DOE 1999) |
| DOE | U.S. Department of Energy |
| Ecology | Washington State Department of Ecology |
| EPA | U.S. Environmental Protection Agency |
| ERDF | Environmental Restoration Disposal Facility |
| ESD | Explanation of Significant Differences |
| HAB | Hanford Advisory Board |
| IAMIT | Interagency Management Integration Team |
| LTS | Long-Term Stewardship |
| MOU | Memorandum of Understanding |
| MTCA | Model Toxics Control Act (RCW 70.105D) |
| NCP | <i>National Oil and Hazardous Substances Pollution Contingency Plan (National Contingency Plan) (40 CFR 300)</i> |
| NEPA | <i>National Environmental Policy Act of 1969</i> |
| NPL | National Priorities List (40 CFR 300, Appendix B) |
| O&M | operations and maintenance |
| OU | Operable Unit |
| RD/RA | Remedial Design/Remedial Action |
| RL | U.S. Department of Energy, Richland Operations Office |
| RI/FS | remedial investigation/feasibility study |
| ROD | Record of Decision |
| RIMS | RL Integrated Management System |
| SPAB | Site Planning Advisory Board |
| Tri-Party Agreement | <i>Hanford Federal Facility Agreement and Consent Order</i> |
| USFWS | U.S. Fish and Wildlife Service |
| WAC | <i>Washington Administrative Code</i> |
| WIDS | Waste Information Data System |

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DEFINITIONS

Action Memorandum (Action Memo). A primary decision document for a removal action (the equivalent of a Record of Decision for a remedial action). The purpose of an Action Memo is to document the need for a removal response, select the proposed action, and explain the rationale for the removal.

CERCLA Explanation of Significant Differences. A document that amends a *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* Record of Decision to make a significant change to the remedial action selected in a previously signed Record of Decision. Provides an explanation of how the selected remedial action for a Superfund site differs from the Record of Decision.

CERCLA Decision Document. Refers to *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* Action Memorandums; Records of Decision (both interim and final); Record of Decision Amendments; and Explanation of Significant Difference documents.

CERCLA Record of Decision. A document that states the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*-selected remedial action. One or more interim Records of Decision presenting the selected interim remedial actions may be issued before the development of a final Record of Decision, which would specify the final remedy selection decision.

CERCLA Record of Decision Amendment. A document that amends a *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* Record of Decision to make a fundamental change to the remedial action selected in a previously signed Record of Decision. Provides an explanation of how the selected remedial action for a Superfund site differs from the Record of Decision.

Deed. A written instrument whereby title to real estate is transferred.

Disposal (of real property). Permanent or temporary transfer of U.S. Department of Energy control and custody of real property to a third party who has the right to control, use, or relinquish control and custody of the property.

Easement. The right to use land belonging to another for a specific purpose with the owner retaining fee or title. An easement restricts, but does not abridge the rights of the fee owner to the use and enjoyment of the easement holder's rights.

Final Close Out Report. The Final Close Out Report documents compliance with the CERCLA decision documents and Remedial Design/Remedial Action work plans for a Superfund site and provides a consolidated record of all removal and remedial actions for the entire site. The Final Close Out Report describes how the cleanup was accomplished and provides the overall technical justification for site deletion from the National Priorities List.

Hanford Advisory Board. As set forth in its charter, the primary mission of the Hanford Advisory Board is to provide informed recommendations and advice to the U.S. Department of

Energy, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology on major policy issues related to the cleanup of the Hanford Site. The Board is intended to be an integral component for some Hanford Site public involvement activities for the Native American Tribes and general public, but not to be the sole conduit for those activities. Through its open public meetings, advice on agency public involvement activities, and the responsibilities of Board members to communicate with their constituencies, the Board assists the broader public in becoming more informed and meaningfully involved in Hanford Site cleanup decisions.

Hanford Federal Facility Agreement and Consent Order. Commonly referred to as the Tri-Party Agreement, this is an agreement between the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Washington State Department of Ecology to ensure investigations and response actions are taken to protect public health, welfare, and environment under the *Comprehensive Environmental Response Compensation and Liability Act of 1980* and for achieving compliance with the *Resource Conservation and Recovery Act of 1976* treatment, storage, and disposal unit regulations and corrective action provisions.

Institutional Controls. Intended as a broad term, 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.

Interagency Management Integration Team. A committee of Executive Managers from each agency (U.S. Department of Energy, Richland Operations Office, U.S. Environmental Protection Agency, Region X, and the Washington State Department of Ecology with the functions of negotiating new milestones, adjusting the scope and schedule of existing interim milestones and resolution of Tri-Party Agreement issues. The Interagency Management Integration Team also serves as the interface with the Hanford Advisory Board. (Source: *Federal Facility Agreement and Consent Order*, 89-10 Appendix A).

Isolated Unit. An operable unit that is not associated with a particular facility or geographic area.

National Priorities List. A list (40 *Code of Federal Regulations* [CFR] 300, Appendix B) maintained by the U.S. Environmental Protection Agency of hazardous waste sites that are a national priority for longer term remedial action and response because of known releases or threatened releases of hazardous substances into the environment and that are subject to the requirements of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980*. Four sites at the Hanford Site were placed on the National Priorities List (40 CFR 300, Appendix B) in 1989. One site, the 1100 Area, was removed from the National Priorities List in 1996, and portions of the 100 Area were deleted from the National Priorities List in 1998.

Notice of Deletion. Signed by the U.S. Environmental Protection Agency and published in the *Federal Register*, it deletes an entire site from the National Priorities List. The *National Oil and Hazardous Substances Pollution Contingency Plan* (40 CFR 300.425(e)) states that a site may be deleted from, or recategorized on, the National Priorities List when no response and/or no further response is appropriate. As described in Section 300.425(e)(3) of the *National Oil and*

Hazardous Substances Pollution Contingency Plan, sites deleted from the *National Oil and Hazardous Substances Pollution Contingency Plan* remain eligible for remedial actions in the unlikely event that conditions at the site warrant such action.

Notice of Partial Deletion. Signed by the U.S. Environmental Protection Agency and published in the *Federal Register*, it deletes a portion of a site from the National Priorities List. The Partial Deletions Rule allows the U.S. Environmental Protection Agency to delete portions of National Priorities List sites, provided that deletion criteria are met, as required by the *National Contingency Plan*.

Operable Unit. Each National Priorities List (40 CFR 300, Appendix B) site is divided into one or more operable units. An operable unit is a grouping of individual waste sites within a National Priorities List site, primarily based on geographic area or common waste sources. Soil and groundwater contamination generally are in separate operable units. Operable units may be designated as “isolated units” when not associated with a particular facility or geographic area.

Remedial Design/Remedial Action Work Plan. The Remedial Design/Remedial Action work plan describes the plan for implementing the selected remedy presented in the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* decision documents. All Remedial Action/Remedial Design activities must conform to the remedy set forth in the Record of Decision and other decision documents.

Site Management Board. A U.S. Department of Energy, Richland Operations Office management board chaired by the Richland Operations Office Manager, it is chartered for the purpose of reviewing and making recommendations on Hanford Site policies, strategies, issues, and decisions that span more than one mission element area. The Site Management Board also supports the transition from individual programmatic emphasis to an integrated Site concept, thereby sustaining the U.S. Department of Energy, Richland Operations Office culture of safety, security, competence, and technical excellence and institutionalizing the principles of the Integrated Environment, Safety, and Health Management System.

Site Planning Advisory Board. The Site Planning Advisory Board is an advisory board on land-use matters on the Hanford Site. The Board consists of representatives from cooperating agencies with land-use authority, and affected Tribal governments. The Board reviews use requests that are not “allowable uses” and makes recommendations to the U.S. Department of Energy.

Tri-Parties. The Tri-Parties are the parties to the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement), the U.S. Environmental Protection Agency, the Washington State Department of Ecology, and the U.S. Department of Energy.

Tri-Party Agreement. See *Hanford Federal Facility Agreement and Consent Order*.

Waste Information Data System. The electronic database of waste site information. The Waste Information Data System identifies waste management units on the Hanford Site, describes the current status of each unit, and includes other descriptive information (e.g., location, waste types). The system is maintained by the U.S. Department of Energy, Richland Operations Office in accordance with the Waste Information Data System change control

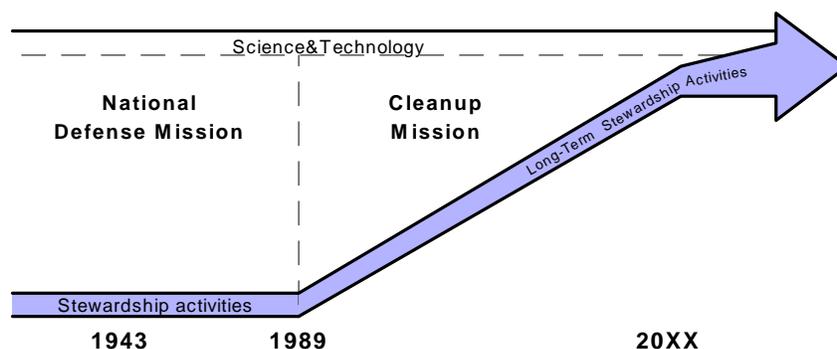
system, which documents and traces additions, deletions, and/or other changes dealing with the status of waste management units.

1.0 INTRODUCTION

This plan describes the implementation and maintenance of institutional controls for the Hanford Site in accordance with the *Comprehensive Environmental Response, Compensation and Liability Act of 1980* (CERCLA) decision documents. The decision documents present the selected remedial actions chosen in accordance with the CERCLA, as amended by the *Superfund Amendments and Reauthorization Act of 1986* and the *National Oil and Hazardous Substances Pollution Contingency Plan* (NCP) (40 CFR 300). The CERCLA decision documents are developed as part of the cleanup mission at the Hanford Site, which began in 1989 following the end of the national defense mission. The selected remedies chosen under CERCLA may include institutional controls. Institutional controls generally include nonengineered restrictions on activities and access restrictions 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. Institutional controls typically are used to augment the engineered components of a selected remedy to minimize the potential for human exposure to contamination and they are primarily administrative in nature. Common types of institutional controls include procedural restrictions for access, fencing, warning notices, permits, easements, deed notifications, leases and contracts, and land-use controls.

As the U.S. Department of Energy (DOE) completes the cleanup mission, the focus of portions of the Site will become long-term stewardship (see Figure 1-1). The Long-Term Stewardship Program addresses the management of the risks (human health, ecological, and cultural) associated with any residual contamination, including the management of institutional and other controls that may be required following the completion of cleanup. Long-term stewardship also includes the protection of the Site's cultural, biological, and natural resources; and the balanced reuse of the Site's assets.

Figure 1-1. Site Missions Over Time.



1.1 PURPOSE AND CONTENT OF PLAN

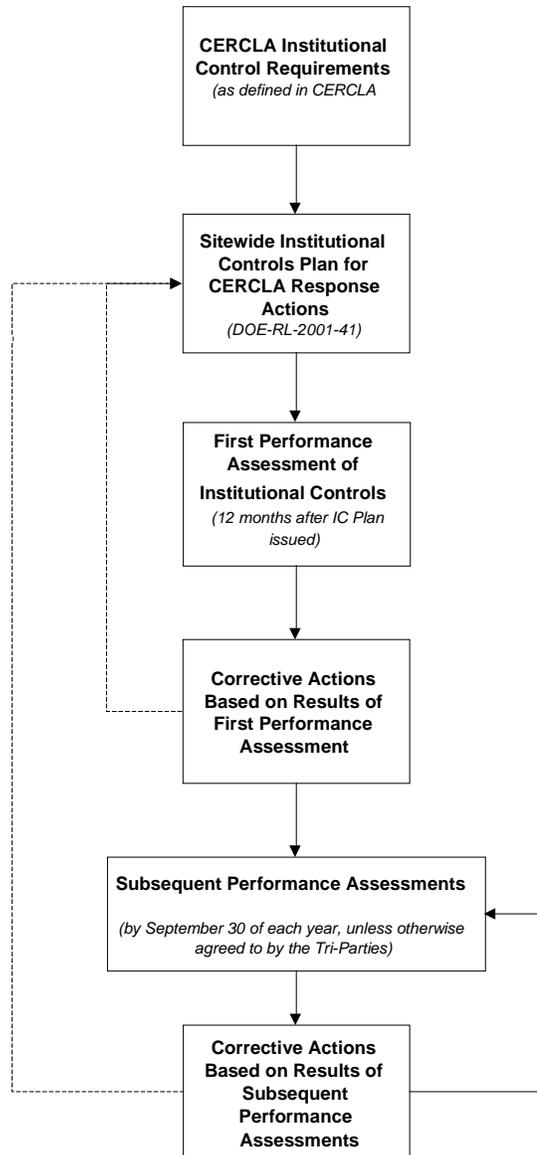
This plan identifies the institutional controls for current CERCLA response actions, describes how they are implemented and maintained, and serves as a reference for the selection of

institutional controls in the future (the current institutional control requirements are listed in Appendix A). Although not a program or budget document, this plan provides project managers with information on which to develop funding requests.

Within 12 months of approval of this plan, DOE will conduct an assessment of the performance of the institutional controls (see Figure 1-2). The assessment will include a summary report that concentrates on recommendations regarding repairs and improvements to the implementation of the institutional controls. Based on the findings of the performance assessment, DOE will take the necessary corrective actions to improve the performance of the institutional controls. The corrective actions may include developing an update to this plan to reflect changes in the implementation and maintenance of institutional controls based on the findings of the assessment or to provide further details regarding how the institutional controls are implemented and maintained. Performance assessments will continue to be conducted, annually at first, to ensure institutional controls continue to remain protective of human health and the environment.

This plan fulfills several requirements for submittal of a Sitewide institutional controls plan, including one in the U.S. Environmental Protection Agency (EPA) report, *US DOE Hanford Site First Five Year Review Report* (EPA 2001). Similar requirements are found in *Interim Record of Decision: U.S. DOE Hanford 100 Area (Burial Grounds) Hanford Site, Benton County, Washington* (EPA et al. 2000) (issued September 26, 2000) and *Record of Decision: U.S. DOE Hanford 300 Area FF-2 Operable Unit, Hanford Site, Benton County, Washington* (EPA et al. 2001) (issued April 5, 2001).

Figure 1-2. Institutional Control Performance Assessments and Updates to this Plan.



This plan also addresses the elements of the EPA Region 10 guidance (*Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities* [EPA 1999]) regarding the implementation of institutional controls at Federal facilities.

The information in this plan is presented in the following order.

- **Chapter 1, Introduction.** This chapter presents background information on the Site, a description of the designation of the Hanford Site on the National Priorities List (NPL) (*40 Code of Federal Regulations* [CFR] 300, Appendix B), and a discussion on the definition, source, and timing of institutional controls.
- **Chapter 2, Ongoing Implementation.** This chapter describes the types of institutional controls and how each type is implemented Site wide. Additional information is provided for institutional controls requirements that are specific to the NPL sites.
- **Chapter 3, Future Implementation.** This chapter describes how institutional controls will be implemented after cleanup is completed and the land is managed by DOE or is transferred to another entity.
- **Chapter 4, Management and Oversight.** This chapter describes the management and oversight of institutional controls, including the roles and responsibilities of key parties, how the effectiveness of institutional controls will be assessed and reported, and when this plan will be updated. This chapter concludes with a summary of DOE future actions regarding institutional controls.
- **Chapter 5, References.** This chapter lists the reference information for the documents and regulations cited in this plan.

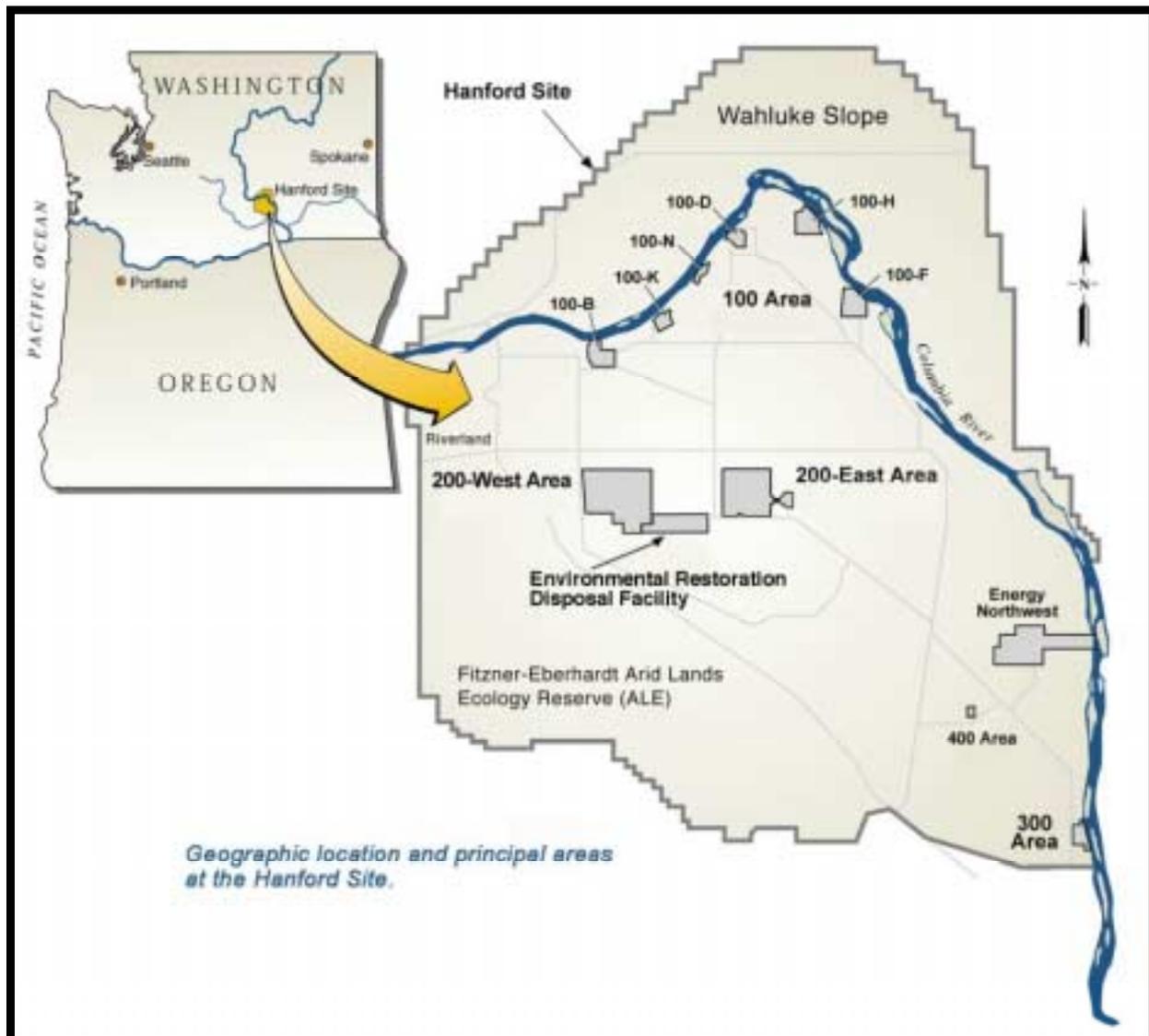
The appendices to this plan are as follows.

- **Appendix A, Institutional Controls Required by Existing CERCLA Decision Documents.** This appendix provides a Sitewide list of the CERCLA decision documents that have institutional control requirements, along with the specific requirements and the corresponding section of the plan that explains how the requirements will be met.
- **Appendix B, Example Evaluation Form Template.** This appendix presents an example checklist to be used as a basis for conducting the assessment of the effectiveness of the institutional controls.
- **Appendix C, Example Outline for Annual Report.** This appendix presents an example of the outline that can be used to develop the annual report that summarizes the results of the assessment and describes the efforts or measures that have been or will be taken to correct any deficiencies.

1.2 SITE BACKGROUND

The Hanford Site in southeastern Washington State is 1,517 km² (586 mi²) of semiarid shrub and grasslands located just north of the confluence of the Snake and Yakima Rivers with the Columbia River (Figure 1-3). There are significant natural, biological, and cultural resources on site, including habitat for numerous endangered, protected and listed species, as well as significant historical and cultural sites. The Site is bisected by the last free-flowing stretch of the Columbia River, known as the Hanford Reach, and has restricted public access.

Figure 1-3. Hanford Site.



The Hanford Site was acquired by the Federal government in 1943 and, until 1989, was dedicated primarily to the production of plutonium for national defense and the management of the resulting waste. With the shutdown of the production facilities in the 1970s and 1980s, DOE ended the production of nuclear materials for weapons at the Site.

In 1989, four areas were placed on the CERCLA NPL as contaminated sites requiring cleanup action.

Approximately 6 percent of the land area has been disturbed and has been used actively for industrial purposes. Approximately 259 km² (100 mi²) of groundwater have been affected (e.g., drinking water standards are exceeded), because of past waste management practices. A significant portion of the remainder of the Site continues to serve as a buffer for safety and emergency response purposes, and to protect human health and the environment from remaining hazards.

Production activities left an estimated legacy of over 400 million curies of radioactive waste and materials, 300,000 tons of chemical waste and hundreds of contaminated facilities. The soil and ground water beneath the Hanford Site are estimated to contain over 1,000,000 curies of radioactivity and 100,000 to 300,000 tons of chemicals.

The facilities located on the Hanford Site include previously operating reactors used primarily for plutonium production (shut down), plutonium processing facilities (shut down), waste management facilities, laboratories, research, and other support facilities.

Current activities being conducted by DOE are focused on waste management, environmental restoration, facility stabilization, and research and technology development.

DOE manages operations on the Site through contractors. Each contractor is responsible for the safe, environmentally sound maintenance and management of its facilities and operations, management of its waste, and monitoring of its operations and effluents for environmental compliance.

1.3 HANFORD'S NATIONAL PRIORITIES LIST DESIGNATION

The placement of the Hanford Site on the NPL included the designation of four separate NPL sites: the 100, 200, 300, and 1100 Area NPL sites (Figure 1-4). Each NPL site is further divided into operable units. An operable unit is a grouping of individual sites based primarily on geographic area or common waste sources; soil and groundwater contamination are usually in separate operable units. An operable unit may be designated as an isolated unit if it is not associated with a particular facility or geographic area.

Figure 1-5 provides a brief description of each NPL site. The specific location for each waste site can be found by viewing maps in the Hanford Environmental Data Viewer, a geographic information system for the Hanford Environmental Restoration Project. The Hanford Environmental Data Viewer, along with other environmental information systems, can be accessed on the Environmental Information Systems web site at http://www.bhi-erc.com/projects/p_m/eis.htm.

Figure 1-4. Hanford Site National Priorities List Designations.

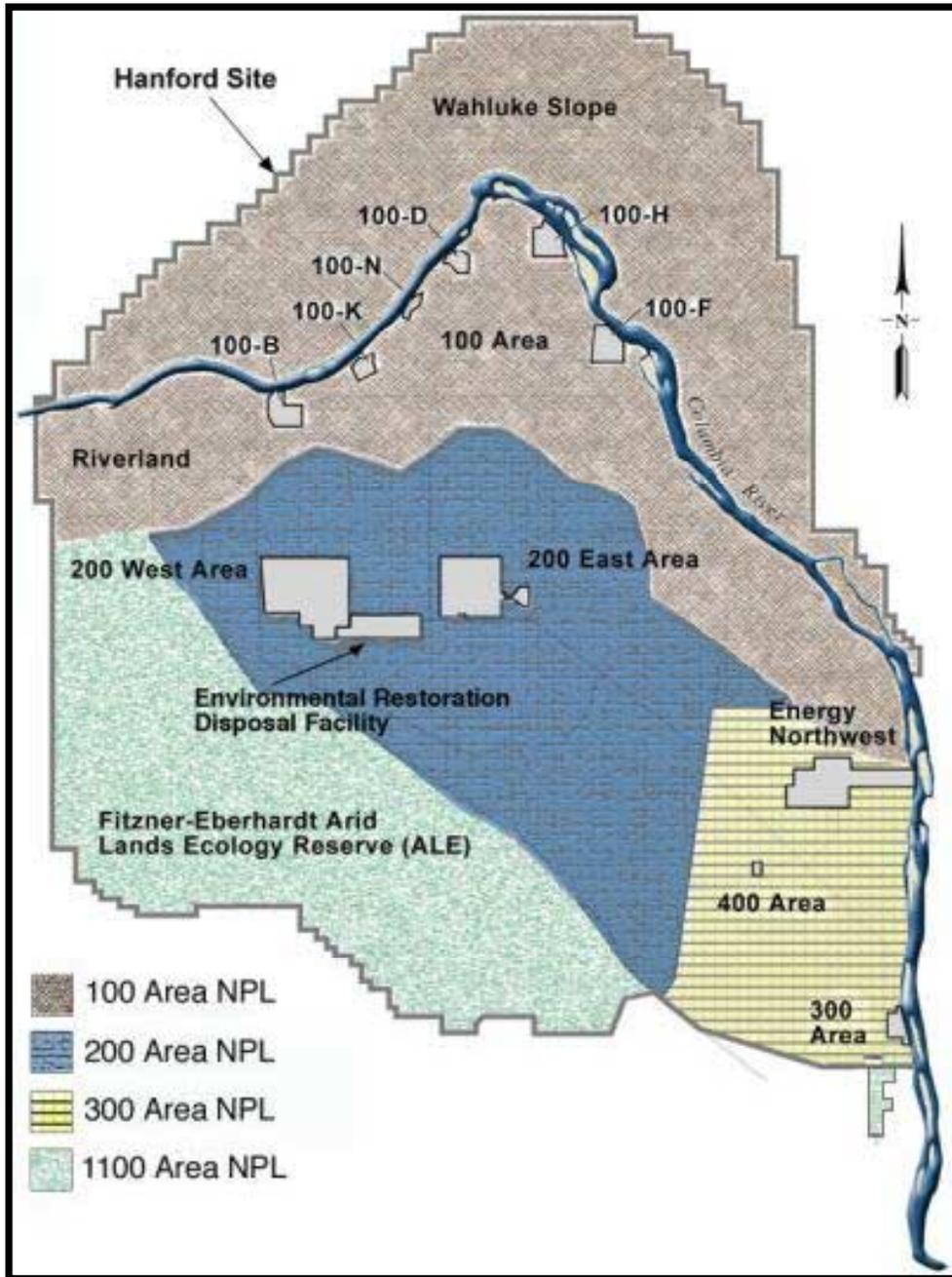


Figure 1-5. Brief Description of the National Priorities List Sites. (2 sheets)

100 Area National Priorities List Site

The 100 Area NPL site is located in the northern portion of the Hanford Site. The portion north and east of the river is the Wahluke (or North) Slope, which contained contaminants remaining from anti-aircraft missile bases. The portion south and west of the river is the site of six reactor areas on which are located nine former nuclear defense production reactors. Other contamination and cleanup needs in the 100 Area NPL site includes contaminated groundwater and contaminated structures, such as buildings, buried pipelines, buried and exposed disposal cribs, and trenches. Spent nuclear fuel from the reactors in the 100 Area is currently in storage in two water-filled basins in the 100 K Area. The spent fuel is currently in the process of being relocated to a new dry storage facility in the 200 Area on the central plateau of the Site.

Source contamination in the 100 Area is grouped geographically into 17 operable units (OU). These OUs contain about 400 waste sites, each of which can be categorized as one of four different types: contaminated soil, structures, debris, or burial grounds. Since the 100 Area NPL site was listed in the NPL, 17 CERCLA decision documents have been approved and one Notice of Partial Deletion has been published, which deleted a portion of the 100 Area NPL Site (100-IU-1 OU, the Riverland Rail Yard, and 100-IU-3 OU, which includes several waste sites on the Wahluke Slope) from the NPL. The remedial actions defined in the decision documents have been initiated and completed on about half of the waste sites. The remaining work needed to complete the 100 Area NPL site remediation (principally the 100 Area burial grounds) will be performed over several years. *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement Milestone) M-16-00F established the date for completion of 100 Area remedial actions. The current Tri-Party Agreement schedule (Milestone M-16-00) to complete remedial actions for all non-tank-farm OUs is September 2024.

200 Area National Priorities List Site

The 200 Area NPL site consists of the 200 East and 200 West Areas, along with a smaller 200 North Area, located in the central plateau portion of the Hanford Site. The 200 East and West Areas were used for chemical processing and waste management. These activities resulted in large amounts of contaminated soil and groundwater. Low-level radioactive and hazardous chemical wastes were discharged into the soil column. High-level radioactive waste from the processing facilities was disposed of in tanks. Leaks from piping and tanks caused further contamination of the soil. Operations in the 200 North Area were related mainly to irradiated nuclear fuel storage. Ongoing waste management activities at the 200 Area include active treatment, storage, and/or disposal facilities, including the Environmental Restoration Disposal Facility (ERDF) and high-level nuclear waste tank farm operations.

The 200 Area NPL site is divided into 23 soil OUs. These units contain approximately 700 soil waste sites and associated structures, as well as numerous facilities requiring decontamination and decommissioning. The OUs are organized by discharge type and waste site type. Examples of discharge types include solid waste, cooling water, process water, and uranium-rich waste. Examples of waste site types include pond, crib, ditch, tank, and burial ground. In addition to the 23 soil OUs, the 200 Area NPL site has four groundwater OUs. The 200 West Area contains the 200-ZP-1 OU and the 200-UP-1 OU. The 200 East Area contains the 200-BP-5 Operable Unit and the 200-PO-1 OU. There are seven CERCLA decision documents, including the Record of Decision (ROD) for ERDF and the 200-ZP-1 and 200-UP-1 OUs.

Figure 1-5. Brief Description of the National Priorities List Sites. (2 sheets)

300 Area National Priorities List Site

The 300 Area NPL site encompasses a large portion of the area just north of the city of Richland. Although a significant portion of the 300 Area NPL site is not contaminated, the boundaries of the 300 Area NPL site are defined so as to encompass various scattered waste sites associated with historical 300 Area operations, including portions of the 600 Area. Use of the 300 Area began in 1943, and facilities were primarily associated with reactor fuel fabrication and research and development activities for the Hanford Site. Over the years, fuel fabrication and laboratory facilities located in the 300 Area released contaminants to the surface, soil column, and groundwater. Waste from 300 Area operations also was disposed of in designated landfills/burial grounds and discharged to unlined surface ponds/trenches.

The 300 Area NPL site consists of three operable units. The 300-FF-1 and 300-FF-2 OUs address soil contamination areas and burial grounds associated with operations in the 300 Area. The 300-FF-5 OU addresses groundwater contamination beneath the burial grounds and soil waste sites. Cleanup and monitoring activities have been initiated on remedial actions authorized through four RODs and ROD Explanations of Significant Differences (ESD), and cleanup has been completed on removal actions authorized through three CERCLA Action Memos. The remaining work needed to complete the 300 Area NPL site remediation (principally 300-FF-2) will be done over the next two decades. Tri-Party Agreement Milestones M-16-03A and M-16-00B established the date for completion of all interim 300 Area remedial actions.

1100 Area National Priorities List Site

The 1100 Area NPL site begins north of Richland, Washington, at Horn Rapids Road, and extends to the south and north and west of Stevens Drive. The 1100 Area NPL site was divided into four operable units. The area occupied by three of the operable units (1100-EM-1, 1100-EM-2, and 1100-EM-3) contained the central warehousing, vehicle maintenance, and transportation distribution center for the entire Hanford Site. The facilities that compose the fourth operable unit (1100-IU-1 OU) are a former anti-aircraft missile base and control center, and are now used for the Fitzner-Eberhardt Arid Lands Ecology (ALE) Reserve headquarters. Remediation at the four operable units was completed and the 1100 Area was deleted from the NPL in 1996 in a Notice of Deletion.

The ownership of a portion of the property in the 1100 Area NPL site has been transferred to the Port of Benton (the former 1100 Area and 3000 Area). The ALE Reserve, which is included in the Hanford Reach National Monument, is managed by the U.S. Fish and Wildlife Service, under a Memorandum of Understanding with DOE.

In anticipation of the NPL listing, the U.S. Department of Energy, Richland Operations Office (RL) entered into the Tri-Party Agreement with the EPA and the Washington State Department of Ecology (Ecology). The Tri-Party Agreement established the legal framework and schedule for the cleanup at the Hanford Site. For the cleanup of each operable unit, the Tri-Party Agreement designates either EPA or Ecology as the lead regulatory agency.

1.4 DEFINITION, SOURCE, AND TIMING OF INSTITUTIONAL CONTROLS

As the DOE continues its mission at the Hanford Site, institutional controls have become an integral component of the cleanup approach. Institutional controls work in conjunction with the more active cleanup measures to protect human health and the environment during the cleanup process, as well as following the completion of cleanup for areas containing residual hazards.

1.4.1 Definition Of Institutional Controls

Institutional controls are used in conjunction with the physical remedy to protect human health and the environment. They 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 (Figure 1-6).

Figure 1-6. Institutional Controls as Defined by EPA Region 10.

“[Institutional controls] ...generally include all non-engineered restrictions on activities, access, or exposure to land, groundwater, surface water, waste and waste disposal areas and other areas or media. Some common examples of tools to implement ICs include restrictions on use or access, zoning, governmental permitting, public advisories, or installation master plans. ICs may be temporary or permanent restrictions or requirements.”

Source: U.S. Environmental Protection Agency, Office of Environmental Cleanup Region 10, *Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities*, Memorandum, May 1999.

For purposes of this plan, the various types of institutional controls and their associated tools have been grouped into five main categories: warning notices, entry restrictions, land-use management, groundwater use management, and waste site information management. Further details regarding these controls are provided in Chapter 2.

1.4.2 Institutional Control Requirements Are Developed During the CERCLA Cleanup Process

This section describes the CERCLA cleanup process, the various types of CERCLA decision documents, and the development of institutional control requirements. CERCLA, as amended by the *Superfund Amendments and Reauthorization Act of 1986*, requires the cleanup of hazardous waste and corrective action for hazardous and toxic materials released into the environment. The procedures for evaluating and selecting remedies conducted under CERCLA are stipulated in the NCP. The NCP (40 CFR § 300.430(a)(iii)D) allows institutional controls to be used to supplement engineering controls “during the conduct of the RI/FS [remedial

investigation/feasibility study] and implementation of the remedial action and, where necessary, as a component of the completed remedy” (40 CFR 300). The NCP also specifies certain criteria under which institutional controls can be used as the sole remedy. Ecology’s Model Toxics Control Act (MTCA) (RCW 70.105D, “Hazardous Waste Cleanup - Model Toxics Control Act”) regulations include a description of institutional controls (*Washington Administrative Code* [WAC] 173-340, “Model Toxics Control Act – Cleanup,” 173-340-440, “Institutional Controls”) that can be applied to remedial actions being conducted at sites under certain conditions, as defined in WAC 173-340-510 and 173-340-515. MTCA regulations (WAC 173-340-702(10), “Cleanup Standards, General Policies”) also include a section identifying the regulations that Ecology considers when evaluating cleanup actions performed under CERCLA.

The CERCLA cleanup actions, including the requirements for institutional controls, are defined and documented in CERCLA decision documents. The CERCLA decision documents are part of the Administrative Record for the selection of remedial actions for each waste site and are described in the following paragraphs.

The task of selecting the best, most appropriate cleanup method begins with the RI/FS process. The RI/FS is a process of waste site and remedy evaluation that facilitates the selection of remedies that will most effectively eliminate, reduce, or control risks to human health and the environment. Conducting the RI/FS generally involves project scoping, data collection, risk assessment, treatability studies, and analysis of alternatives. The purpose of the analysis is to objectively assess the alternatives with respect to nine CERCLA criteria listed in 40 CFR §300.430(e)(9)(iii). The RI/FS process also includes the identification and evaluation of potential applicable or relevant and appropriate requirements (ARAR), such as the MTCA, to select substantive remedy requirements.

**Institutional Control Requirements
Can Be Specified in the Following
CERCLA Decision Documents**

- Record of Decision (ROD)
- ROD Amendment
- Explanation of Significant Differences (ESD)
- Action Memorandum

Following the RI/FS, the remedial action for a waste site is selected in a two-step process, requiring the development of a proposed plan and a decision document, which generally is an ROD. Ecology and the community are given the opportunity to participate in the remedy selection activities. The ROD contains significant facts, analysis of facts, and site-specific policy determinations considered in the remedy selection process. The ROD also explains how the nine CERCLA evaluation criteria were used to select the remedy. The ROD may include institutional control requirements, developed in accordance with the NCP, to protect human health and the environment during and after cleanup operations. At the Hanford Site, one or more interim RODs may be issued to present selected interim remedial actions before the development of a final ROD.¹⁰

¹⁰ The *Hanford Site Past Practice Strategy* allows for interim remedial actions to be initiated at sites where a qualitative risk assessment or an ARAR triggers such a response and which may not require an RI/FS prior to performing cleanup actions. The conduct of the interim remedial action will in itself produce data to refine the conceptual model, quantify risk, and reduce uncertainty such that the final remedial decision might be made without requiring additional investigative measures. However, if at the end of the interim remedial action process, there

The plan for implementing the selected remedy is described in the Remedial Design/Remedial Action (RD/RA) work plan (work plan). All RD/RA activities must conform to the remedy set forth in the ROD and other decision documents. If the remedial action differs significantly from the ROD, an ESD must be published or the ROD must be amended.

At any time in the CERCLA cleanup process, including during the development of an ROD, a “removal action” could occur if there is a substantial threat at a particular waste site. Removal actions, authorized by CERCLA §§104(a)(2) and 104(c)(1), are short-term responses to prevent, minimize, or mitigate damage to the public or the environment at sites where hazardous substances, pollutants, or contaminants have been released or where there is a substantial threat of a release. Removal actions also are used to respond to emergencies and accidental releases during transport or at operating facilities. The primary decision document for a removal action is an Action Memorandum (Action Memo) that documents the need for a removal response, identifies the action to be taken, and explains the rationale for the removal.

At waste sites where the remedial action does not result in fully unrestricted use of the site, operation and maintenance (O&M) measures may continue at the site to ensure effective implementation of the remedial action. O&M measures include the operation and maintenance of engineered remedies, such as landfill caps, gas collection systems, and groundwater containment. O&M measures also may include requirements for maintaining institutional controls. O&M measures are initiated after the remedy is constructed and is determined to be operating properly and successfully.

When all cleanup goals have been achieved for a waste site, it can be deleted from the NPL in accordance with the procedures outlined in 40 CFR §300.425(e), “Establishing Remedial Priorities.” A Final Close Out Report details the justification for the deletion of the site and the closeout procedure. When an entire NPL site is deleted, the EPA publishes a Notice of Intent to Delete in the *Federal Register* to request public comments regarding the deletion of the site. Following the public comment period, the EPA issues a responsiveness summary for comments received. The EPA then publishes the final Notice to Delete in the *Federal Register*. When only a portion of an NPL site is deleted, the EPA publishes a Notice of Intent of Partial Deletion in the *Federal Register* that describes the portion of the site that is to be deleted. Following a comment period, the EPA issues a responsiveness summary for comments received. The EPA then publishes the final Notice of Partial Deletion in the *Federal Register*.

EPA has already deleted two areas of the Hanford Site from the NPL, the 1100 Area (which includes the Fitzner-Eberhardt Arid Lands Ecology Reserve) and part of the 100 Area NPL site (several waste sites on the Wahluke/North Slope and the Riverland Rail Yard).

A site may be deleted from the NPL and still have residual contamination. Any institutional controls required following the deletion would be specified in the final ROD and documented in the waste site’s Final Close Out Report. Furthermore, deletion from the NPL does not preclude eligibility for subsequent response actions, if future site conditions or circumstances warrant.

remains sufficient uncertainty regarding the final remedy, the process would then proceed to final remedy selection for the operable unit. *Hanford Site Past Practice Strategy*, DOE/RL-9104, March 1992.

The CERCLA decision documents that have been issued for the 100, 200, 300, and 1100 Area NPL sites are listed in Tables 1-1, 1-2, 1-3, and 1-4, respectively. Each table includes the type of decision documents issued for that particular NPL site in chronological order (from most recent to the earliest), the dates the documents were signed, and the operable unit/remedial action addressed by each document. The RODs listed in the tables present the selected interim remedial actions unless otherwise noted.

Table 1-1. 100 Area National Priorities List Site Decision Documents.^a

| Type of Decision Document | Signature Date | Operable Unit/Remedial Action |
|----------------------------------|-----------------------|---|
| ROD | 09/26/00 | 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, 100-KR-2, 100 Area Burial Grounds |
| ROD ESD | 06/15/00 | 100-IU-6 |
| ROD | 01/25/00 | 100-NR-1 |
| ROD Amendment | 10/24/99 | 100-HR-3 |
| ROD | 09/29/99 | 100-NR-1, 100-NR-2 |
| ROD | 09/17/99 | 100-KR-2, Spent Fuel |
| ROD | 07/15/99 | 100 Area Remaining Sites, 200-CW-3 |
| Action Memo | 7/10/98 | 100-DR and 100-F Reactor Interim Safe Storage |
| Action Memo | 8/97 | 100-IU-3, North Slope 2-4-D Burial Site |
| ROD Amendment | 04/04/97 | 100-BC-1, 100-DR-1 100-HR-1 |
| Action Memo | 1/28/97 | 100-C Reactor Waste Disposal, Ancillary Facilities, and 108-F Lab |
| ROD | 04/01/96 | 100-HR-3, 100-KR-4 |
| ROD No Action | 02/02/96 | 100-IU-1, 100-IU-3, 100-IU-4, 100-IU-5 |
| ROD | 09/28/95 | 100 BC-1, 100-DR-1 100-HR-1 |
| Action Memo | 9/26/94 | 100-NR-2, N Springs |
| Action Memo | 1994 | 100-IU-3, North Slope |
| Action Memo | 6/93 | 100-IU-1, Riverland |
| Action Memo | 1993 | 100-IU-4, Sodium Dichromate Drums |

^a The 100-IU-1 OU, the Riverland Rail Yard, and 100-IU-3 OU, which includes several waste sites in the Wahluke/North Slope, were deleted from the NPL in a Notice of Partial Deletion of the Hanford 100 Area (U.S. DOE) Superfund Site from the National Priorities List, Volume 63, No. 130, ppgs 36861-36862, on July 8, 1998.

ESD Explanation of Significant Differences
 ROD Record of Decision

Table 1-2. 200 Area National Priorities List Site Decision Documents.

| Type of Decision Document | Signature Date | Operable Unit |
|---------------------------|----------------|--|
| ROD | 07/15/99 | 100 Area Remaining Sites, 200-CW-3 |
| ROD Amendment | 03/25/99 | Environmental Restoration Disposal Facility (ERDF) |
| ROD Amendment | 09/25/97 | ERDF |
| ROD | 02/11/97 | 200-UP-1 |
| ROD ESD | 08/01/96 | ERDF |
| ROD ESD | 05/24/95 | 200-ZP-1 |
| ROD | 01/20/95 | ERDF |

ESD Explanation of Significant Differences

ROD Record of Decision

Table 1-3. 300 Area National Priorities List Site Decision Documents.

| Type of Decision Document | Signature Date | Operable Unit/Remedial Action |
|---------------------------|----------------|-------------------------------|
| ROD | 04/05/01 | 300-FF-2 |
| ROD ESD | 06/15/00 | 300-FF-5 |
| Action Memo | Feb. 2000 | 331-A Demolition |
| ROD ESD | 01/29/00 | 300-FF-1 |
| ROD | 07/17/96 | 300-FF-1, 300-FF-5 |
| Action Memo | 1991 | 618-9 Burial Ground |
| Action Memo | July 1991 | 316-5 Process Trenches |

ESD Explanation of Significant Differences

ROD Record of Decision

Table 1-4. 1100 Area National Priorities List Site Decision Documents.^a

| Type of Decision Document | Signature Date | Operable Unit |
|---------------------------|----------------|------------------------|
| Final ROD | 09/24/93 | IU 1, EM-1, EM-2, EM-3 |

^a A Superfund Site Closeout Report was issued for IU 1, EM-1, EM-2, and EM-3 on July 25, 1996. The entire 1100 Area NPL site was deleted from the NPL in a Notice of Deletion (61 Fed. Reg. 51019 (Sept. 30, 1996)).

NPL National Priorities List

ROD Record of Decision

1.4.3 Sitewide Institutional Control Requirements

Sitewide institutional control requirements were specified in the 100 Area Burial Ground ROD, which included not just operable-unit specific requirements, but also the following Sitewide requirements.¹¹

- “DOE shall submit a Sitewide institutional controls plan that includes the applicable institutional controls for the 100 Area Operable Units. This Sitewide plan will be submitted to EPA and Ecology for approval as a primary document under the Tri-Party Agreement by July 2001.¹² This plan shall be updated by DOE periodically at the request of EPA or Ecology. At a minimum, the plan shall contain the following:”
 - “Include a comprehensive facility-wide list of all areas or locations covered by any and all decision documents at the Hanford Site that have or should have institutional controls for protection of human health or the environment. The information on the list will include, at a minimum, the location of the area, the objectives of the restriction or control, the time frame that the restrictions apply, the tools and procedures DOE will use to implement the restrictions or controls and to evaluate the effectiveness of these restrictions or controls.”
 - “Cover, and legally bind where appropriate, all entities and persons, including, but not limited to, employees, contractors, lessees, agents, licensees, and visitors. In areas where DOE is aware of routine trespassing, trespassers must also be covered.”
 - “Cover all activities, and reasonably anticipated future activities, including, but not limited to, any future soil disturbances, routine and non-routine utility work, well placement and drilling, recreational activities, national monument-related uses, groundwater withdrawals, paving, construction, renovation work on structures, tribal use, or other activities.”
 - “Include a tracking mechanism that identifies all land areas under restriction or control.”
 - “Include a process to promptly notify both EPA and Ecology before any making anticipated change in land-use designation, restriction,

¹¹ While the enforceable requirements for Sitewide institutional controls are found in the 100 Area Burial Ground Interim Action ROD (9/26/00), they also are consistent with the EPA Region 10 Policy on Institutional Controls (*Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities*, EPA 1999).

¹² The initial draft of the plan was submitted to EPA and Ecology on July 26, 2001, formally satisfying this milestone.

land users or activity for any institutional controls required by a decision document.”

- “DOE will notify EPA and Ecology immediately upon discovery of any activity that is inconsistent with the operable unit-specific institutional controls objectives for the Site, or of any change in the land use or land-use designation of a site. DOE will work together with EPA and Ecology to determine a plan of action to rectify the situation, except in the case where DOE believes the activity creates an emergency situation, DOE can respond to the emergency immediately upon notification to EPA and Ecology and need not wait for EPA or Ecology input to determine a plan of action. DOE will also identify deficiencies with the institutional controls process, evaluate how to correct the process to avoid future problems, and implement these changes after consulting with EPA and Ecology.”
- “DOE will identify a point of contact for implementing, maintaining, and monitoring institutional controls for the 100 Area, as well as the Hanford Site.”
- “DOE will comply with Tri-Party Agreement requirements to request and obtain funding to institute and maintain institutional controls as a compliance requirement under the Tri-Party Agreement.”
- “DOE will notify EPA and Ecology at least 6 months before any transfer, sale, or lease of any property subject to institutional controls required by a CERCLA decision document so that EPA and Ecology can be involved in discussions to ensure that appropriate provisions are included in the conveyance documents to maintain effective institutional controls. If it is not possible for DOE to notify EPA and Ecology at least 6 months before any transfer, sale, or lease, then DOE will notify EPA and Ecology as soon as possible, but no later than 60 days before the transfer, sale, or lease of any property subject to institutional controls.”
- “DOE will not delete or terminate any institutional controls unless EPA and Ecology have concurred in the deletion or termination.”
- “DOE will evaluate the implementation and effectiveness of institutional controls for the Hanford Site and the 100 Area operable units on an annual basis. The annual institutional controls monitoring report shall be written by DOE and submitted to EPA and Ecology as a primary document under the Tri-Party Agreement. The report shall be consistent with the requirements established in the Sitewide Institutional Controls Plan. Justification will be provided for any information that is not included as required by the Sitewide plan. The annual monitoring report will be due on September 30 of each year and will summarize the results of the evaluation for the preceding calendar year. In addition, after the

comprehensive Sitewide approach is well established and DOE has demonstrated its effectiveness, the frequency of future monitoring reports may be modified subject to approval by EPA and Ecology. The institutional controls monitoring report, at a minimum, must contain:"

- "A description of how DOE is meeting the Sitewide institutional controls requirements;"
- "A description of how DOE is meeting the operable unit-specific objectives, including results of visual field inspections of all areas subject to operable unit-specific restrictions;"
- "An evaluation of whether or not all operable unit-specific and Sitewide institutional controls requirements are being met;"
- "A description of any deficiencies and what efforts or measures have been or will be taken to correct problems."
- "EPA and Ecology review of the institutional controls monitoring report will follow existing procedures for agency review of primary documents."

This Sitewide Institutional Controls Plan addresses the above requirements and demonstrates how RL will implement and maintain the operable unit-specific institutional control requirements specified in CERCLA decision documents. Additional details regarding Sitewide institutional controls may be added to the plan if the results of the performance assessments (described in Section 4.3) indicate that more information is necessary. This plan will be updated, as necessary, to address new institutional control requirements and significant changes in the institutional control requirements. Further details regarding the implementation of institutional controls on an operable unit-specific basis can be found in the corresponding RD/RA work plans.

1.4.4 Timing Of Institutional Controls Application

Before remediation of a particular waste site begins, the Site security and safety systems, through the application of DOE orders and other mechanisms, provide the basis for the controls that are in place. The Site security and safety systems include the processes and procedures that govern the safe performance of work and provide for the protection of the workers, the public, and the environment from the physical and radiological hazards. The Site security and safety systems require that known hazards are identified and that the necessary reviews are performed and approvals are obtained before the work is initiated.

In addition, institutional control requirements may be specified in CERCLA decision documents. The level of controls put into place before remediation depends on the risks posed by the known hazard. These controls may include preventing access to the waste site to protect against disturbing the site until remediation can begin. In addition, some CERCLA RODs also have required that DOE post warning notices and control human access to contaminated waste sites until remediation is completed. The institutional controls remain in effect, as required by each decision document.

As the remediation process begins, and throughout the process, additional institutional controls may be required for the continued protection of the workers, the public, and the environment because of additional risks posed by the process. The institutional controls that are required during remediation are specified in the associated CERCLA decision documents. In addition, the access and training required by the Site security and safety systems typically limits access to personnel who are properly trained and understand the necessary protective measures required.

The institutional controls required after remediation is complete may be specified in final CERCLA decision documents for the respective operable units based on a number of factors, including an evaluation of residual contamination, the location of that material (e.g., at surface or at depth), reasonably anticipated future human land uses, and environmental impacts. In general, if the end state of the selected remedy cannot support unrestricted human use and unlimited human exposure, institutional controls will be required to maintain human health and protection. Additional land-use controls may be required to prevent further environmental impacts as well (e.g., irrigation restrictions to prevent additional degradation of groundwater and Columbia River water quality). In some cases, CERCLA interim RODs have specified the institutional controls required after the remediation is complete (e.g., the 300-FF-2 interim ROD, [EPA et al. 2001]). In these cases, a final ROD or ROD amendment might change the specified controls. Chapter 2 presents more detailed information regarding the implementation of institutional controls.

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2.0 ONGOING IMPLEMENTATION

This chapter describes the types of institutional controls used and how each type of control is implemented on the Hanford Site. Additional information is provided for institutional controls requirements that are specific to the four NPL sites (see Appendix A for a complete listing of the institutional controls required by CERCLA decision documents).

2.1 TYPES OF INSTITUTIONAL CONTROLS

The major types of institutional controls that are addressed by this plan are listed in Table 2-1 (on the following page), along with their associated tools or mechanisms. The objectives for each type of institutional control, and information regarding who the controls protect, also are presented in Table 2-1 (on the following page). The institutional controls are grouped into five main types of controls for the purposes of this plan: warning notices, entry restrictions, land-use management, groundwater-use management, and waste-site-information management. It is recognized that the functions of the individual controls may span several of these control types. For example, excavation permits could easily be categorized under both land- and groundwater-use management.

As described in Chapter 1, the institutional controls are specified in each decision document. The corresponding RD/RA work plans present further details regarding the implementation of institutional controls on an operable unit-specific basis. For each specific area of the Site where hazardous substances remain that have not been remediated under CERCLA to unrestricted use levels, some type of control might remain if required by the final ROD.

2.2 SITEWIDE INSTITUTIONAL CONTROLS

The plan to implement institutional controls on the Hanford Site for current CERCLA-based remedial actions is provided in the following sections for each of the five categories of controls.

2.2.1 Warning Notices

Warning notices are signs that provide visual identification and warning of hazardous or sensitive areas. DOE generally uses two types of warning signs that, while not specifically designed as CERCLA notification signs, can serve the same purpose. The two types of signs are: no trespassing signs and notification signs for hazardous (including radiological control) and sensitive areas. A third type of sign may be used to identify Superfund sites (i.e., NPL site), if necessary. A summary of the warning notices currently posted in the four NPL sites is shown in Figure 2-1 (see page 2-3).

Table 2-1. Sitewide Institutional Controls.

| Control | Mechanism | Objective | Who it Protects ^a |
|-----------------------------------|-------------------------------------|---|---|
| Warning Notices | Signs | <ul style="list-style-type: none"> Provide visual identification and warning of hazardous or sensitive areas. | <ul style="list-style-type: none"> DOE employees DOE contractors Hanford Site visitors Inadvertent intruders |
| Entry Restrictions | Procedural Requirements for Access | <ul style="list-style-type: none"> Control human access to hazardous or sensitive areas. Ensure adequate training for those who enter hazardous or sensitive areas. Avoid disturbance and exposure to hazardous waste. Provide a basis for the enforcement of access restrictions. | <ul style="list-style-type: none"> DOE employees DOE contractors Hanford Site visitors Inadvertent intruders |
| | Fencing | <ul style="list-style-type: none"> Prevent unauthorized human access to hazardous or sensitive areas. Provide protective barriers to standard industrial hazards. Provide visual warnings. | <ul style="list-style-type: none"> DOE employees DOE contractors Hanford Site visitors Inadvertent intruders |
| Land-Use Management | Land-Use and Real Property Controls | <ul style="list-style-type: none"> Ensure that use of the land is compatible with any hazards that exist. Ensure that any changes in use of the land are adequately assessed before being allowed. Ensure that the record of the property documents restrictions that will apply beyond change in ownership or management of the property. | <ul style="list-style-type: none"> DOE employees DOE contractors Hanford Site visitors Non-DOE entities using DOE land Environmental receptors |
| | Excavation Permits | <ul style="list-style-type: none"> Avoid unplanned disturbance or infiltration. Inform and protect workers regarding potential exposure to hazardous waste. Avoid the creation of potential pathways for the migration of hazardous waste. | <ul style="list-style-type: none"> DOE employees DOE contractors Non-DOE entities using DOE land |
| Groundwater Use Management | Groundwater Controls | <ul style="list-style-type: none"> Ensure proper use of groundwater. | <ul style="list-style-type: none"> DOE employees DOE contractors Hanford Site visitors Non-DOE entities using DOE land |
| Waste Site Information Management | Administrative | <ul style="list-style-type: none"> Maintain and provide access to information on the location and nature of contamination. | <ul style="list-style-type: none"> DOE employees DOE contractors Hanford Site visitors |

^aThe institutional controls help to protect DOE employees, DOE contractors, and one or more of the following:

- Non-DOE entities using DOE land -individuals who are associated with an organization, other than DOE or its contractors, that is located on the Hanford Site or is conducting activities on the Hanford Site
- Hanford Site visitors -individuals who access the Site for a Site-related purpose (e.g., public tour)
- Inadvertent intruders -individuals who inadvertently access the Site (e.g., inadvertent access to the Hanford Site along the Columbia River shoreline for recreational purposes)

Environmental Receptors—fish, wildlife, and plant populations that inhabit the Site, as well as their habitats.

Warning notices for radiological control areas are defined in a rigorous radiological control program that limits access to the radiological controlled areas. This program includes barriers (e.g., fences) and signs that provide visual warning for radiological controlled areas.

The Site's perimeter, public road corridors, fences, and signs are designed and maintained in accordance with Site security and safety procedures. In addition, DOE identifies and implements the structures, systems, and components necessary to reduce the risks posed by facilities and their operations by performing a hazard and accident analysis. General Site criteria for signs and markers related to Site security and safety include the following references.

Signs and markers for radiological controls comply with the 10 CFR 835, "Occupational Radiation Protection" Final Rule. The Hanford Radiological Control Forum has developed specific signage standards. DOE signage also complies with the requirements for physical protection measures in *Protection and Control of Safeguards and Security Interests*, (DOE Order 5632.1C). The DOE ensures appropriate levels of protection against unauthorized access according to DOE O 470.1, *Safeguards and Security Program*. Furthermore, DOE has adopted industry standards on the design of signs, such as those of the American National Standards Institute and American Association of State Highway and Transportation Officials. The planned *Aesthetic and Visual Resources Management Plan* (A/V Plan), when finalized, might provide guidance as to signage, including the dimensions, colors, and placement of signs. The A/V Plan includes the Graphic Design Standard 8 for signage specified in the *Design Guide* (DOE 1977).

A third type of sign may be used to identify Superfund sites (i.e., NPL sites), if necessary. See Figure 2-2 for an example of this type of this sign.

Figure 2-1. Summary of Warning Notices in the Four National Priorities List Sites.

| |
|---|
| <p>100, 200, & 300 Area NPL Sites</p> <ul style="list-style-type: none"> • Signs prohibiting trespassing posted around the perimeter of the Site and at Site entrances. • Warning signs are posted limiting off-road access in the 300 Area. • Signs providing notification regarding the presence of radiological and other hazards. • All areas have the signage requirements as defined in Section 2.2.1 <p>1100 Area NPL Site (Deleted from the NPL in 1996)</p> <ul style="list-style-type: none"> • All areas managed by DOE have the signage requirements as defined in Section 2.2.1. • The 1100 Area landfill has requirements for Asbestos hazardous waste notification signs (see the 1100 Area Site Closeout Report). |
|---|

Figure 2-2. Example of a Warning Notice to Identify a National Priorities List Site.



2.2.2 Entry Restrictions

DOE will prevent entry into waste sites in accordance with the institutional control requirements of the CERCLA decision documents and as described in applicable work plans. Entry restrictions are institutional controls that prevent, or limit, the access of humans to particular geographic areas. There are two main types of access controls.

- **Procedural Requirements for Access.** Security badges must be worn by employees, contractors, and others who require access to restricted areas. Qualified personnel

possessing security badges can escort personnel who do not possess security badges (visitors still require visitor badges) to access the restricted areas. Visitors remaining on some roadways in the 600 Area can drive up to the Site access barricades (i.e., Yakima, Wye, and Rattlesnake) without a security badge. Signs at the Hanford Site entrances identify the requirements for access.

- **Fencing.** Fences are used to provide visual identification and serve as physical barriers to limit access to hazardous or sensitive areas.

The entry restrictions for the four NPL sites are summarized in Figure 2-3.

Procedural Requirements for Access

The objectives of the procedural requirements for access are to

- Control human access to hazardous or sensitive areas.
- Ensure adequate training for those who enter hazardous or sensitive areas.
- Avoid disturbance and exposure to hazardous materials.
- Provide a basis for the enforcement of access restrictions.

Trespassing on the Site is prohibited and subject to criminal prosecution under state and Federal laws. The badging program controls access to restricted areas. These controls comply with DOE O 470.1, *Safeguards and Security*

Program. These controls are defined and implemented through the Security and Emergency Services Management System Description in the RL Integrated Management System and the specific contractor procedures. The procedural requirements for access contain the features shown in Figure 2-4.

Visitors, Site contractors, and DOE personnel are required to have a badge to access the restricted areas. Before receiving a badge, all must receive the level of training required to access controlled areas or perform work. This includes training on recognizing signs and hazard postings and following appropriate procedures. The DOE maintains a central badging office and guards are stationed at the Yakima, Wye, and Rattlesnake barricades to prevent unauthorized access.

Figure 2-3. Summary of Entry Restrictions for the Four National Priorities List Sites.

| |
|--|
| <p>100 & 200 Area NPL Sites</p> <ul style="list-style-type: none"> • A Hanford Site Security Badge is required for entry. • Access is monitored by Hanford Patrol at public access points (Rattlesnake, Yakima and Wye barricades). • Fences are around much of the Site. • The 200 East and 200 West Areas are fenced. • High hazard areas are secured by additional fences. • Waste sites are marked with appropriate signage and barriers. <p>300 Area NPL Site</p> <ul style="list-style-type: none"> • The 300 industrial area perimeter is fenced. • A Hanford Site Security Badge is required for entry into 300 industrial area. • Warning signs are posted limiting off-road access. <p>1100 Area NPL Site (deleted from NPL in 1996)</p> <ul style="list-style-type: none"> • No Hanford Site Security Badge is required for access; however, access to the ALE, which is managed by the USFWS, is restricted. • Horn Rapids Landfill (closed) is fenced, with warning signs. |
|--|

Figure 2-4. Features of the Procedural Requirements for Access.

| | |
|---|--|
| <p style="text-align: center;">Badge Use</p> <ul style="list-style-type: none"> • Wearing, displaying, and presenting of badges on request. • Issuing badges for employees, visitors, and foreign nationals. • Levels of security and badging required based on specialized need, such as the presence of special nuclear material or firing ranges. | <p style="text-align: center;">Orientation and Training</p> <ul style="list-style-type: none"> • Visitors and workers are provided appropriate training on policies and procedures, including safety, security, and escorting requirements, as well as emergency preparedness information. • Escort training provides qualifications for personnel who will act as escorts. |
| <p style="text-align: center;">Verification and Tracking</p> <ul style="list-style-type: none"> • Verification by personnel of proper badges at entry points where necessary to verify the identity and to control unauthorized entry. • Visitors require a host at the Site and the host must know the location of the visitor at all times and the work being performed. | <p style="text-align: center;">Violations</p> <ul style="list-style-type: none"> • Security incidents are reported. • Trespass incidents are reported to regulators and local authorities in accordance with DOE policy, contracts and as required by regulatory decision documents (CERCLA¹ RODs). |
| <p>¹ <i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>, 42 USC 9601, et seq. CERCLA <i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i> DOE U.S. Department of Energy ROD Record of Decision</p> | |

Fencing

The objective of fencing is to prevent unauthorized human and, in some cases, large animal access to hazardous or sensitive areas, provide protective barriers to standard industrial hazards, and provide visual warnings. If a fence is considered to be a component of the institutional controls for a particular waste site (rather than a component of the engineered remedy), the decision document associated with the waste site will indicate this distinction.

Different types of fences are used depending on the level of security required. The security fences serve as an effective access control by limiting access to those authorized personnel who have the proper training to enter these areas safely. Fencing requirements for institutional controls may be defined in the selected remedy. The need for fencing and the type of fence is determined by the residual risk of the final remedy.

Signs and fences required by CERCLA decision documents and described in applicable work plans will be maintained through regular surveillance activities in accordance with contractor procedures. Deficiencies (e.g., signs missing, fences down) are reported and corrective action is taken through the approved work control procedures.

2.2.3 Land-Use Management

DOE will restrict the use of land on waste sites and prohibit unapproved excavation in accordance with the institutional control requirements of the CERCLA decision documents and as described in applicable work plans. Institutional controls that address land use have been grouped into two main elements.

- **Land-Use and Real Property Controls.** Land-use and real property controls are used to ensure that the use of land is in accordance with Site plans and CERCLA decision documents.
- **Excavation Permits.** Excavation permits are required for excavations on the Site to prevent unplanned disturbance or infiltration as prohibited by CERCLA decision documents.

Figure 2-5 summarizes current land-use management of the four NPL sites.

Land-Use and Real Property Controls

The objectives of the institutional controls related to land use and real property management are the following:

- Ensure that use of the land is compatible with any hazards that exist and limit access to hazardous materials.
- Ensure that any changes in use of the land are adequately assessed before being allowed and thereby avoid unplanned or prohibited use.
- Ensure that controls associated with real estate are attached to the property record and otherwise ensure that the restrictions remain in place beyond RL ownership or management of the property.

The land-use management process and the real property management process are integrated and managed together. They comply with DOE Policy 430.1, *Land and Facility Use Planning* (DOE 1996), and DOE O 430.1, *Life-Cycle Asset Management* (DOE 1998b).

Figure 2-5. Summary of Land-Use Management of the Four National Priorities List Sites.

| |
|---|
| <p>100 Area, 200 Area, and 300 Area NPL Sites</p> <ul style="list-style-type: none"> • Land use is managed according to the comprehensive land use plan as described in the <i>Final Hanford Comprehensive Land-Use Plan Environmental Impact Statements</i> (Final HCP EIS) and in compliance with DOE orders and cleanup end states as established in CERCLA decision documents. • Land use for the National Monument is managed by the U.S. Fish and Wildlife Service (USFWS), with the exception of areas where DOE is conducting cleanup, in accordance with the memorandum of understanding (MOU) between DOE and the USFWS (RL 2001, <i>Memorandum of Understanding between the U.S. Department of the Interior, Fish and Wildlife Service and the U.S. Department of Energy, Richland Operations Office for the Fitzner-Eberhart Arid Lands Ecology Reserve at the Hanford Site and the Wahluke Slope Permit</i>). • A permit is required for excavation. <p>1100 Area NPL Site (deleted from NPL in 1996)</p> <ul style="list-style-type: none"> • Land use for the portion owned by the Port of Benton is managed under the jurisdiction of local governments through the implementation of state law. • Land-use management for the ALE Reserve, which is part of the National Monument, is conducted by the USFWS under an MOU with DOE. • A notation on the deed to the Horn Rapids Landfill property prevents groundwater use and drilling. |
|---|

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601, et seq.

DOE, 1999, *Final Hanford Comprehensive Land Use Plan Environmental Impact Statement*, DOE/EIS-0222-F, U.S. Department of Energy, Washington, D.C.

ALE Arid Lands Ecology (Reserve)

DOE U.S. Department of Energy

NPL National Priorities List

The land-use policies, real property management process and implementing procedure requirements are integrated into the RL Integrated Management System (RIMS) and contractor procedures. The Comprehensive Land Use Plan (CLUP) for the Site is presented in the *Final Hanford Comprehensive Land Use Plan Environmental Impact Statement* (DOE 1999) and contains the land-use map, land-use definitions, and the land-use policies that DOE uses to manage land use and its interactions with the local governments (that may have limited or full jurisdiction of portions of the land in the future), stakeholders and the Tribal Nations.

Changes to land use and the use requests are managed by DOE through a process involving the local stakeholders, Tribal Nations, and affected local governments. The Site Planning Advisory Board, which consists of representatives from the cooperating agencies with land-use authority, and affected Tribal governments, advises DOE on land-use and resource-management issues. Specifically, the Site Planning Advisory Board advises DOE when considering proposals for changes to land use and land-use requests that are not in conformance with the CLUP.

The review process for site-specific land use and use requests is defined in the CLUP. To ensure compatibility with the CLUP, any proposed changes in land use must be submitted to the DOE Real Estate Office. The review process includes the following six steps.

1. The use request is submitted to the RL Site Realty Office.
2. The RL Site Realty Office determines the category of the request, by identifying whether it
 - Is an “Allowable Use,” which is any reservation of land for a physical development or land-use activity that is consistent with the land-use designation and policies of the land-use map and CLUP, or a specifically identified part of an approved area management plan (AMP), except for “Amendments” or uses that are identified as “Special Use;”
 - Is a “Special Use,” which includes activities requiring further review and approval prior to being allowed; or
 - Requires an “Amendment” to the land-use plan because it changes the map land-use designation of an area, changes CLUP policy, or changes the use of land or an existing facility to a use that is inconsistent with the land-use designation.
3. If the request is a “Special Use” or “Amendment,” the RL Site Realty Office consults with and obtains recommendations from the Site Planning Advisory Board and the Real Estate Advisory Panel. If the request is an “Allowable Use,” the review process continues directly to Step 5.
4. If the request is an “Amendment,” the Site Management Board¹³ reviews the request and forwards approval or denial to RL Site Realty Office.

¹³ See Definitions preceding 1.0.

5. The RL Site Realty Office coordinates the review with the *National Environmental Policy Act of 1969* (NEPA) Compliance Officer for integration of applicable requirements (policies to be reviewed include compliance with the existing Resource Management Plans).
6. The NEPA Compliance Officer conducts a project review, including the review and approval of categorical exclusions, the resolution of NEPA environmental assessments and environmental impact statements, and the coordination of a review of applicable CERCLA decision document requirements.

The process for reviewing and approving the disposition of land is similar to the process for approving land-use requests. The RL Site Realty Office manages both processes. Before the transfer, sale, or lease of any property subject to cleanup under CERCLA is conducted, the DOE will assess whether the property is subject to institutional control requirements based on the corresponding CERCLA decision documents. The DOE will notify the EPA and the State before any such transaction in accordance with the Sitewide requirements listed in Section 1.4.3 and applicable requirements in the CERCLA decision documents and work plans. Notification of a land-use action or a real property action occurs in accordance with the Tri-Party Agreement requirement for project managers' meetings and/or at Interagency Management Integration Team¹⁴ meetings.

Excavation Permits

The objectives of the excavation permitting process are as follows:

- Avoid unplanned disturbance or infiltration
- Inform and protect workers regarding potential exposure to hazardous materials
- Avoid the creation of potential pathways for the migration of hazardous materials.

The Hanford Site has a Sitewide excavation permit that contractors are required to obtain before performing any excavation work, including well drilling. The work control process requires an excavation permit as part of the work planning process. The excavation permit process is defined in contractor procedures and contains the following features.

- Excavation permits generally follow the *Revised Code of Washington*.
- A review of the Waste Information Data System (WIDS) is required to identify the proximity of existing waste sites (more information regarding WIDS is provided in Section 2.2.5).
- Cultural and biological resource surveys are required to comply with Section 106 of the *National Historic Preservation Act* and the *Endangered Species Act of 1973*.
- NEPA documentation requirements must be identified.

¹⁴ See Definitions preceding 1.0.

- The presence of any underground objects (e.g., utilities) must be identified.
- Excavation work is required to follow the applicable health and safety requirements.

In addition to obtaining an excavation permit, wells must be registered with Ecology.

Each prime contractor is responsible for ensuring that excavations are performed in accordance with excavation permit requirements. The following are the steps required for excavation.

1. The excavation permit originator initiates the excavation permit process using the Hanford Site Excavation Permit (Figure 2-6).
2. The necessary reviews are performed. These include reviews of the information in WIDS, the cultural and biological resources that may be present, applicable resource management plans, and applicable NEPA documents.
3. The permit then must be logged and issued.
4. No less than two and no more than 10 work days before excavation begins, the organization conducting the excavation must call the Emergency Notification Center for Excavation (1-800-424-5555) to allow outside electric, gas, sewer, telephone, and water companies to locate and explain any potential underground interferences.
5. Notification to the excavation coordinator is made when excavation work is completed.

2.2.4 Groundwater Use Management

The DOE will restrict well drilling and groundwater use in accordance with the institutional control requirements of the CERCLA decision documents and as described in applicable work plans. Groundwater use on the Hanford Site generally is restricted, except for the purposes of monitoring and treatment, as approved by the EPA or Ecology or as authorized in EPA-approved documents. Groundwater use also is controlled through excavation permits and the land-use process (as described earlier). A summary of current groundwater use management in the four NPL sites is provided in Figure 2-7.

Figure 2-6. Hanford Site Excavation Permit Form.

| HANFORD SITE EXCAVATION PERMIT | | | EXCAVATION PERMIT NO. <input style="width: 80px;" type="text"/> |
|--|---|---|--|
| 1. Work Package No. | 2. W.O./Project No. | 3. Location of Excavation | |
| <input style="width: 95%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | |
| 4. Originated By | | Date | 5. Engineering Change Notice (ECN) |
| <input style="width: 95%;" type="text"/> | | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> |
| 6. Drawings Required (Identification Numbers) | | | |
| <input style="width: 100%; height: 30px;" type="text"/> | | | |
| 7. Description of Work (Attach composite drawing of excavation location and all known interferences) | | | |
| <input style="width: 100%; height: 100%;" type="text"/> | | | |
| 8. Special Instructions or Comments (When anything unusual or unexpected is identified in an excavation, STOP and carefully hand dig until the discovery can be properly evaluated. Also refer to any company-specific safety procedures.) | | | |
| <input style="width: 100%; height: 80%;" type="text"/> | | | |
| 9. List Facilities, Services, and Utilities Affected by Excavation | | | |
| <input style="width: 100%; height: 30px;" type="text"/> | | | |
| APPROVALS | | | |
| 10. Project/Field Engineer | Date | 18. Traffic Engineer | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 11. Environmental | Date | 19. Track Maintenance | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 12. Radiological Control | Date | 20. 600 Area Landlord | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 13. Steam System | Date | 21. Safeguards and Security | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 14. Electrical Utilities | Date | 22. Land Use Planning | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 15. Water Utilities | Date | 23. Other | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 16. Telecommunications | Date | 24. Facility/System Owner | Date |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| 17. Process Sewer - 300 Area | Date | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| Locate Request No. | | | <input style="width: 80px;" type="text"/> |
| CALL 1-800-424-5555, 2 TO 10 WORKING DAYS PRIOR TO DIGGING | | | A-7400-373 (11/00) |

A limited number of wells currently are in operation for purposes other than research or testing. These wells include those that supply drinking water at the following facilities:

- Fast Flux Test Facility in the 400 Area (one main and two backup wells),
- Hanford Patrol Training Center (one well),
- Yakima Barricade (one well), and
- Energy Northwest (formerly Washington Public Power Supply System) (two wells).

Other water-supply wells include two for backup fire protection at Energy Northwest, two at the B Plant and one at the AY/AZ Tank Farm for emergency cooling water, and one in the 300 Area being used for aquatic studies.

In addition, drinking water systems are operated in accordance with the Washington State Department of Health *Washington Administrative Code*. Furthermore, new wells must be registered with Ecology. The control measures used to protect groundwater for drinking water systems are described in the *Hanford Site Wellhead Protection Plan* (WASTREN 1995a). The control measures taken to protect the water that drains into the rivers on or near the Site and that also interacts with and affects the groundwater are described in the *Hanford Site Watershed Control Plan* (WASTREN 1995b).

Oversight of the DOE water systems is the responsibility of RL, which must approve all uses. Groundwater management activities include ensuring compliance with applicable laws and regulations; implementing the groundwater protection and watershed control programs; identifying potential sources of contamination; conducting groundwater and vadose zone monitoring; conducting maintenance programs; and conducting emergency response actions.

Groundwater protection strategies include source control, remediation, and monitoring. The Hanford Site Groundwater Monitoring Project produces an annual report (not covered as part of this plan) documenting the results of groundwater monitoring for the previous year.¹⁵ The Groundwater Monitoring Project report summarizes groundwater monitoring results and provides an assessment of the effects of remediation or interim measures conducted under

Figure 2-7. Summary of Groundwater Use Management in the Four National Priorities List Sites.

| | |
|---|---|
| 100 Area, 200 Area, and 300 Area NPL Sites | |
| • | Groundwater use at the Hanford Site generally is restricted, except for monitoring and treatment, as approved by the EPA or Ecology. Exceptions are listed in Section 2.2.4 |
| 1100 Area NPL Site (deleted from the NPL in 1996) | |
| • | Groundwater use and drilling are prohibited on the Horn Rapids Landfill property and groundwater monitoring is conducted around the Horn Rapids Landfill to verify the modeled contaminant attenuation predictions and to evaluate the need for active remedial measures. |
| Ecology | Washington State Department of Ecology |
| EPA | U.S. Environmental Protection Agency |
| NPL | National Priorities List |

¹⁵ As of the writing of this plan, the most recent report is titled, *Hanford Site Groundwater Monitoring for Fiscal Year 2001*, prepared for the U.S. Department of Energy by Pacific Northwest National Laboratory (March 2002).

CERCLA. The report, along with operable unit-specific reports, fulfills the reporting requirements of DOE orders and the *Washington Administrative Code*.

The results of the Groundwater Monitoring Project will be reviewed and reported annually to identify any trends regarding the condition of the groundwater and the potential implication of those trends to institutional controls (e.g., prohibition of groundwater use). The data from the report are considered in evaluating both the effectiveness of the institutional controls and the need for any changes to the controls.

In the event that DOE transfers property with groundwater use restrictions to another entity, the appropriate use restrictions will be attached to the real estate transaction to ensure that specific institutional controls will remain in place.

2.2.5 Waste Site Information Management

DOE will maintain a 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. The WIDS database, in combination with this plan and the Administrative Record, will initially be used to meet this requirement. In the future, a database that serves the stewardship needs of non-DOE entities by focusing on key stewardship data elements, such as institutional control information, may be made available to entities having jurisdiction. A summary of current waste site information management for the four NPL sites is shown in Figure 2-8.

Information on the location and nature of waste sites is contained in the WIDS. The WIDS identifies waste management units on the Site, their location, waste type, and their current status. Other descriptive information contained in WIDS includes size, extent, appearance, testing or sampling efforts, regulatory information, bibliographic references, images, change history, and data validation. The system is maintained by the DOE in accordance with the WIDS change control system, which documents and traces additions, deletions and/or other changes dealing with the status of waste management units. The long-term preservation of waste site information is addressed by the Tri-Party Agreement Handbook Procedure, *Maintenance of the Waste Information Data Systems (WIDS)* (RL-TPA-90-0001, guideline number TPA-MP-14, March 1998) and it will be a key part of the Long-Term Stewardship Program.

Figure 2-8. Summary of Waste Site Information Management for the Four National Priorities List Sites.

100 Area, 200 Area, 300 Area, and 1100 Area NPL Sites

- The Waste Information Data System (WIDS) identifies waste management units on the Hanford Site, their location, waste type, current status, and associated institutional controls.
- Geographic-based information in the WIDS is available at http://www.bhi-erc.com/projects/p_m/eis/wids/wids.htm.
- Electronic documents in the Administrative Record for each operable unit are publicly available at <http://www2.hanford.gov/arpir>. Hanford Public Information Repositories also have the Administrative Record index. Further details regarding public information sources are provided in the *Community Relations Plan for the Hanford Federal Facility Agreement and Consent Order* (Ecology, EPA, and DOE, 2002).

Ecology, EPA, and DOE, 2002, *Community Relations Plan for the Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.

The Administrative Record, which is the body of documents and information that is considered or relied on to arrive at a final decision for remedial action or hazardous waste management at a particular operable unit, 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.

2.3 NPL-SPECIFIC INSTITUTIONAL CONTROLS

The institutional control requirements that are specific to particular waste sites are included in the CERCLA decision documents issued for those waste sites. As described in Chapter 1, institutional controls may be specified in RODs, ROD Amendments, ESDs, and other CERCLA decision documents. Appendix A presents a complete listing, by the four NPL sites, of the institutional controls required by existing CERCLA decision documents. Institutional controls for a particular waste site are required for the length of time specified in the corresponding CERCLA decision document. The DOE may implement Site safety and security requirements under the *Atomic Energy Act of 1954*, which may also satisfy institutional control requirements. This Sitewide Institutional Controls Plan explains how RL will implement and maintain the operable unit-specific institutional control requirements specified in CERCLA decision documents and as described in applicable work plans. This plan will be updated if the institutional control requirements change significantly. DOE will notify the EPA and Ecology on discovery of any activity that is inconsistent with the operable unit-specific institutional controls objectives for the Site. DOE will work with the EPA and Ecology to determine a plan of action to ensure the objectives of the controls are met.

3.0 FUTURE IMPLEMENTATION

This chapter briefly describes the implementation of institutional controls following cleanup and when land is transferred to another entity. In future updates of this plan, this chapter will reflect the institutional control requirements of any final RODs that may have been issued.

3.1 INSTITUTIONAL CONTROLS FOLLOWING CLEANUP

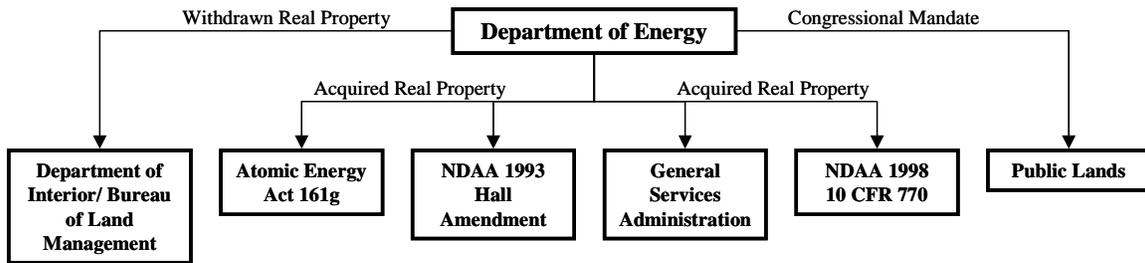
As discussed in Chapter 1, the institutional controls required following cleanup will be specified in final CERCLA decision documents for the respective operable units. The scope and duration of institutional controls will be based on an evaluation of residual contamination, the location of that material (e.g., at surface or at depth), reasonably anticipated future land and groundwater uses, and environmental impacts. Some interim CERCLA decision documents (e.g., the 300-FF-2 Interim ROD [EPA et al. 2001]) already specify institutional control requirements that will be required after cleanup is complete. In general, if the end state of the selected remedy cannot support unrestricted human use and unlimited human exposure, institutional controls will be required to maintain human health and protection. The implementation and maintenance of such institutional controls will be conducted as described in this plan and in accordance with the institutional control requirements of the CERCLA decision documents and work plans.

3.2 INSTITUTIONAL CONTROLS FOR LAND THAT IS TRANSFERRED

As the DOE completes its cleanup objectives, land will become available to support other uses. Land may be transferred to other entities either through a change in ownership, management, use, or administrative control. Institutional controls may be required in accordance with CERCLA decision documents if cleanup has not been completed to an unrestricted-use standard. It is intended that the entities receiving the land will maintain and monitor the institutional controls (or their equivalent) that DOE has put in place or that DOE will retain the right of access to the property to continue that responsibility. The institutional controls that will remain in place on transfer of the land will be conveyed using the appropriate mechanism at the time of the transfer.

The transfer of DOE property follows a well-defined process. The specific statutes that grant DOE land transition authority include the, *DOE Organization Act of 1977*, *The Energy Reorganization Act of 1974*, and the *National Defense Authorization Act of 1993* (Hall Amendment). The DOE can make transfers pursuant to authority under the *Atomic Energy Act of 1954*, Section 161(g). In addition, Congress sometimes directs DOE by legislation to dispose certain properties (Figure 3-1).

Figure 3-1. Potential Disposition Paths for Excess DOE Real Property.



The options for disposing of real property include leases, easements, permits, licenses, sales, and the return of land to public domain. The RIMS provides guidance regarding the disposition of real property to ensure that the applicable Federal Property Management Regulations requirements are met, the appropriate NEPA reviews are conducted, and that the appropriate approval from a Certified Realty Specialist is obtained. RIMS guidance also includes a systematic review process of all property actions. The process includes a review by a board of DOE personnel and coordination with external stakeholders.

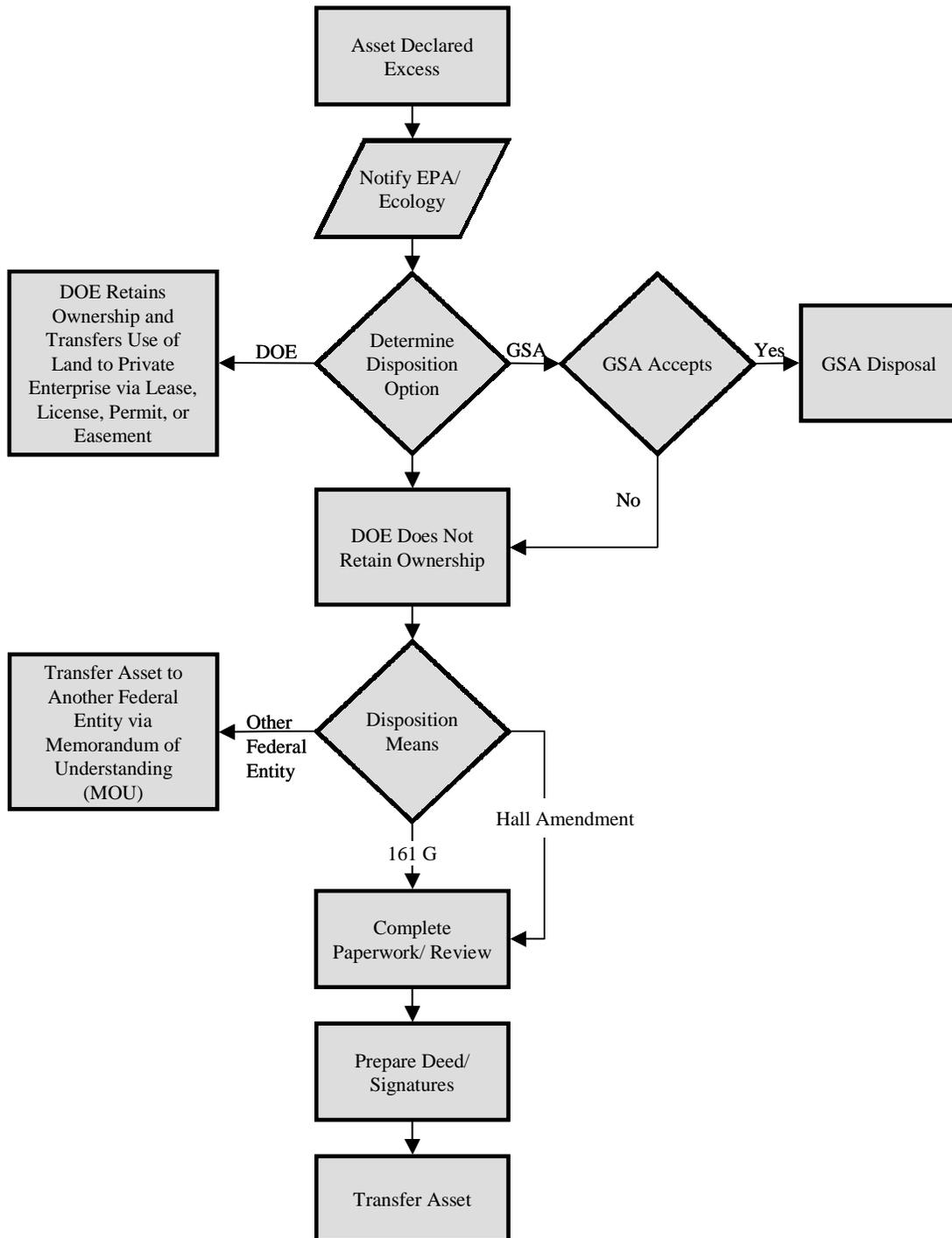
Figure 3-2 provides an overview of the real property disposition process. The process shown is for illustrative purposes to show the series of decisions that must be addressed before transferring property.

Before the transfer, sale, lease, or change of management (e.g., management of the land to be conducted by another Federal agency) of any property for which cleanup under CERCLA was conducted, the DOE will assess whether the property is subject to institutional control requirements based on the corresponding CERCLA decision documents. If such requirements exist, the DOE will comply with those requirements and conduct the following actions:

- Notify the EPA and the State before any such action in accordance with the Sitewide requirements listed in Section 1.4.3.
- Retain appropriate property interests.
- Attach institutional controls to the property, as appropriate.
- Conduct other efforts in support of long-term stewardship of the property (e.g., information management).

The DOE will comply with those statutory and regulatory requirements applicable to the transfer of property where continuing institutional controls are necessary. In addition, to the extent that the DOE intends to transfer land where there is an ongoing remedial action (e.g., groundwater response action), the DOE will ensure that adequate notice is provided to the EPA such that the EPA has sufficient time to evaluate the DOE's demonstration that the remedial action is operating properly and successfully pursuant to CERCLA § 120(h)(3).

Figure 3-2. DOE Real Property Transition and Disposition.



In the transfer of DOE land, several mechanisms for passing information along to future owners and/or users of DOE land regarding present or past contamination will be used. This process includes filing the necessary paperwork required by Federal law for the DOE to dispose of real property. CERCLA Section 120 requirements apply to all DOE property transfers that meet the following criteria: hazardous substances have been stored (for at least 1 year), disposed of, or

released; property is not contaminated and at which Federal operations that are being terminated; and property that is to be closed and that is encumbered by a lease beyond the closure date where any hazardous substance or petroleum product or its derivatives have been stored, disposed of, or released. Included in these requirements are the notifications required by CERCLA and the disclosure of the storage, release, or disposal of hazardous materials on the Site. CERCLA also requires that the Federal government retain property interests for contaminated DOE land that is transferred to the private sector (CERCLA Sections 120(h)(3)(A)(iii) and 120(h)(3)(c)(ii) and (iii)). See CERCLA § 120(h)(1), (3), (4), and (5)) for CERCLA information reporting requirements.

In the future, the DOE will explore the possibility of transferring ownership of land parcels, such that the receiver of the land will be responsible for the enforcement, monitoring, and maintenance of any controls associated with that parcel. The DOE would take the necessary steps to ensure that the appropriate controls are transferred to the new owner. The DOE would inform the receiver of any controls and may use the appropriate mechanisms to attach the controls to the property. Additional measures could be taken, as necessary, to ensure the continued protection of public health and safety. Any additional measures that could be required would be determined on a case-by-case basis and would be included in the transfer documents.

For lands transferred to other Federal agencies, proprietary controls may not be an option because a deed does not exist or the landholding Federal agency lacks the authority to encumber the property. In such cases, the DOE will work with the agency to ensure that institutional controls for the active site will remain effective. This may be documented in a memorandum of understanding or other appropriate instrument.

Before the property transaction, the DOE will conduct other efforts to support long-term stewardship of the property. The DOE will continue to pursue the issue of future responsibility for monitoring, maintaining and enforcing the institutional controls (and the funding) on property transferred out of its control. This is a policy issue that may need to be addressed at the national level.

4.0 MANAGEMENT AND OVERSIGHT

This chapter describes the management and oversight of institutional controls, including the roles and responsibilities of the DOE and the regulators, how the effectiveness of institutional controls will be assessed and reported, and when this plan will be updated. This chapter concludes with a summary of DOE future actions regarding institutional controls.

4.1 KEY PARTIES AND THEIR ROLES

The DOE is the primary responsible party in implementing institutional controls at the Hanford Site. The EPA approves, and Ecology may be asked to concur with, the institutional control requirements as a part of a selected remedy as defined in a CERCLA decision document. This section describes the roles of these key parties.

4.1.1 U.S. Department of Energy

The responsibility for implementing Sitewide institutional control requirements resides with the RL. The DOE Office of River Protection does not have responsibility for CERCLA actions at this time. Any questions regarding institutional controls should be directed to the RL. The RL also is the interface with the regulatory agencies, including the EPA and Ecology, as well as the local governments, which may have limited or full jurisdiction of portions of the land in the future. The RL points of contact for institutional controls are listed in Table 4-1.

As new CERCLA decision documents are issued and cleanup projects progress, institutional controls will be implemented as described in this plan and in operable unit-specific RD/RA work plans. Furthermore, the EPA, in some instances in consultation with Ecology, may require additional institutional controls on a site-specific basis if deemed necessary. Entities that are required to implement institutional controls will use this plan's guidance as their basis to manage required controls.

RL can use several management tools, including, but not limited to, internal procedures, laws, regulations, DOE orders, agreements, consent orders, *Federal Register* notices, informational announcements and contracts to adhere to the institutional control requirements specified in CERCLA decision documents and described in this plan. Contractors and employees are required to comply with applicable environmental laws, DOE orders, and administrative orders via contract requirements.

The RL is responsible for the oversight and integration of these controls and for compliance. The RIMS is the requirements-based system that describes how the RL conducts work. Responsibilities and accountabilities at RL are managed through the RIMS. The RIMS provides to RL management and staff the necessary and sufficient policies, manuals, and procedures for efficient and effective conduct of the work they perform.

Table 4-1. RL Institutional Control Points of Contact.

| Area | Points of Contacts | Areas of Responsibility |
|-------------------------------|---|--|
| Sitewide | Assistant manager responsible for closure | Integrated planning of Sitewide institutional controls |
| 100, 200, 300, and 1100 Areas | Assistant manager responsible for each individual NPL Site (i.e., 100, 200, 300, and 1100 Area) | Implementing institutional controls in the NPL Site and ensuring they remain reliable, enforced, and effective |

NPL National Priorities List

As discussed in Chapter 1, the RL executes work through the use of contractors. The contractors use corrective action management systems to identify, track, evaluate, document, and report any necessary corrective actions. The corrective action management systems provide a systematic process to ensure that corrective actions are taken for noted deficiencies.

RL is responsible for the development of an annual institutional controls report, in accordance with this plan, to evaluate the implementation and effectiveness of the controls (see Section 4.2 for more information about the report).

4.1.2 Regulatory Agencies

The EPA and Ecology are the primary regulatory agencies that conduct oversight for the RL cleanup activities at the Hanford Site, as identified in the Tri-Party Agreement. Each operable unit is assigned a lead regulatory agency that has regulatory oversight responsibility with respect to actions under the Tri-Party Agreement regarding the particular operable unit. The EPA and Ecology have joint authority to determine the choice of lead regulatory agency (EPA or Ecology) and the regulatory process, in consultation with the RL, for each operable unit.

The lead agency is required by CERCLA and the NCP to conduct 5-year reviews of remedial actions that result in any hazardous substances, pollutants, or contaminants remaining at the Site. The purpose of a 5-year review is to determine whether the remedy at a site is protective of human health and the environment. The 5-year review report also identifies deficiencies found during the review, if any, and identifies recommendations to address them. These deficiencies may include deficiencies related to institutional controls.

EPA conducted the first 5-year review of the four NPL sites from February 2000 through September 2000. The results of the reviews that were conducted are contained in *USDOE Hanford Site First Five-Year Review Report*, (EPA 2001). One of the action items related to institutional controls was the development of a Sitewide institutional controls plan by July 2001, which is addressed by this plan.

4.2 ASSESSMENT AND REPORTING

A focused and periodic self-assessment and reporting of institutional controls provides for an evaluation of the effectiveness of the controls and the opportunity for cost-effective improvements. This oversight activity includes the following activities:

- Assessing the performance of the institutional controls to ensure their effectiveness
- Identifying the need to make any adjustments to the institutional controls based on performance findings.

The RL contractors have the primary responsibility for these activities. Surveillance is the primary tool used to measure the day-to-day performance of the institutional controls. Each contractor has surveillance procedures that address the planning, performing, and reporting of surveillance, along with the activities required to address any noted deficiencies. Furthermore, the RL conducts oversight and evaluation of contractor activities based on the corresponding procedures in the RIMS.

The RL will conduct an annual assessment regarding the performance of the institutional controls described in this plan. The assessment can be directed through the use of an evaluation form to focus the scope of the assessments on primary outcomes and to provide an objective review of the controls. A template for an evaluation form is provided in Appendix B. The annual assessment will include a summary report that concentrates on recommendations regarding repairs and improvements to the implementation of the institutional controls. An example outline for the report is provided in Appendix C. The report will be submitted to the EPA and Ecology as a primary document under the Tri-Party Agreement, in accordance with the 100 Area Burial Ground Interim Action ROD. It is RL's intent to include the regulatory agencies in the assessment process.

Initially, the assessment will be conducted on an annual basis. The first report will be issued within 12 months of approval of this Institutional Controls Plan. Recommendations from this first assessment and subsequent assessments will be initiated via the RL Baseline Control Process. Subsequent assessments are planned to be completed by the end of each fiscal year, unless otherwise agreed to by the RL, the EPA, and Ecology. Once the assessment process is well-established and the RL has demonstrated the effectiveness of the institutional controls, the frequency of future assessment reports may be modified subject to approval by the EPA and Ecology.

4.3 UPDATES TO THE SITEWIDE INSTITUTIONAL CONTROLS PLAN

Updates to this plan will be managed by the RL, the EPA, and Ecology pursuant to the requirements established in the Tri-Party Agreement for primary documents. The RL, the EPA, or Ecology may determine an update is needed based on the results of the annual assessment of the effectiveness of institutional controls. Furthermore, if the institutional control requirements in the CERCLA decision documents change significantly as new decision documents are issued, this plan will be modified accordingly.

4.4 SUMMARY OF FUTURE DOE ACTIONS

A summary of the next RL actions regarding the Sitewide institutional controls plan is provided in Table 4-2, along with the dates for the actions to be completed.

Table 4-2. Summary of Next RL Actions Regarding Sitewide Institutional Controls.^a

| Action | Date |
|---|---|
| Conduct an annual assessment of the institutional controls. | Within 12 months of approval of this Institutional Controls Plan. Subsequent assessments are planned to be completed by the end of each fiscal year (September 30), unless otherwise agreed to by RL, EPA, and Ecology. |

^a An additional related activity DOE is performing is to enhance warning notices in the 100 and 300 NPL areas by December 31, 2002, in accordance with the corresponding RD/RA work plans.

DOE U.S. Department of Energy
 Ecology Washington State Department of Ecology
 EPA U.S. Environmental Protection Agency
 NPL National Priorities List
 RD/RA Remedial Design/Remedial Action
 RL U.S. Department of Energy, Richland Operations Office

5.0 REFERENCES

- 10 CFR 835, 1998, "Occupation Radiation Protection," Title 10, *Code of Federal Regulations*, Part 835, as amended.
- 40 CFR 61, 1998, "National Emission Standard for Radionuclide Emissions from Department of Energy Facilities," Title 40, *Code of Federal Regulations*, Part 61, as amended.
- 40 CFR 300, 2001, "National Oil and Hazardous Substances Pollution Contingency Plan (NCP)," Title 40, *Code of Federal Regulations*, Part 300, as amended.
- Atomic Energy Act of 1954*, 42 USC 2011, et seq.
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980*, 42 USC 9601 et seq.
- DOE Organization Act of 1977*, 42 USC 7112, et seq.
- DOE, 1994, *Protection and Control of Safeguards and Security Interests*, DOE Order 5632.1C, U.S. Department of Energy, Washington, D.C.
- DOE, 1995, *Safeguards and Security Program*, DOE O 470.1, U.S. Department of Energy, Washington, D.C.
- DOE, 1996, *Land and Facility Use Planning*, DOE Policy 430.1, U.S. Department of Energy, Washington, D.C.
- DOE, 1998b, *Life-Cycle Asset Management*, DOE O 430.1, U.S. Department of Energy, Washington, D.C.
- DOE, 1999, *Final Hanford Comprehensive Land Use Plan Environmental Impact Statement*, DOE/EIS-0222-F, U.S. Department of Energy, Washington, D.C.
- Ecology, EPA, and DOE, 1996, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., as amended, Washington State Department of Ecology, Olympia, Washington; U.S. Environmental Protection Agency, Washington, D.C.; and U.S. Department of Energy, Washington, D.C.
- Ecology, EPA, and DOE, 2002, *Community Relations Plan for the Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.
- Energy Reorganization Act of 1974*, 42 USC 5891, et seq.
- Endangered Species Act of 1973*, 16 USC 1531, et seq.

EPA, 1999, *Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities*, U.S. Environmental Protection Agency, Office of Environmental Cleanup Region X, Region X Final Policy on the Use of Institutional Controls at Federal Facilities, Memorandum, May 1999.

EPA, 2001, *USDOE Hanford Site, First Five Year Review Report*, April 2001, U.S. Environmental Protection Agency, Region 10, Hanford Project Office, Richland, Washington.

EPA, Ecology, and DOE, 2000, *Interim Record of Decision: U.S. DOE Hanford 100 Area (Burial Grounds) Hanford Site, Benton County, Washington*, Washington State Department of Ecology, Olympia, Washington; U.S. Environmental Protection Agency, Washington, D.C.; and U.S. Department of Energy, Washington, D.C.

EPA, Ecology, and DOE, 2001, *Record of Decision: U.S. DOE Hanford 300 Area FF-2 Operable Unit, Hanford Site, Benton County, Washington*, Washington State Department of Ecology, Olympia, Washington; U.S. Environmental Protection Agency, Washington, D.C.; and U.S. Department of Energy, Washington, D.C.

National Environmental Policy Act of 1969, 42 USC 4321, et seq.

National Historic Preservation Act, 1966, 16 USC 470, et seq.

RCW 70.105D, "Hazardous Waste Cleanup -- Model Toxics Control Act," Title 70, Chapter 105D, *Revised Code of Washington*, as amended, Washington State Department of Ecology, Olympia, Washington.

Resource Conservation and Recovery Act of 1976, 42 USC 6901, et seq.

RL, 2001, *Memorandum of Understanding between the U.S. Department of the Interior, Fish and Wildlife Service and the U.S. Department of Energy, Richland Operations Office for the Fitzner-Eberhardt Arid Lands Ecology Reserve at the Hanford Site and the Wahluke Slope Permit*, June 2001, Richland, Washington.

Superfund Amendments and Reauthorization Act of 1986, 42 USC 11001, et seq.

WAC 173-340, 1990, "Model Toxics Control Act -- Cleanup," *Washington Administrative Code*, as amended.

WASTREN, 1995a, *Hanford Site Wellhead Protection Plan*, WASTREN, Inc., Richland, Washington.

WASTREN, 1995b, *Hanford Site Watershed Control Plan*, WASTREN, Inc., Richland, Washington.

APPENDIX A

**INSTITUTIONAL CONTROLS REQUIRED BY EXISTING CERCLA DECISION
DOCUMENTS**

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APPENDIX A

INSTITUTIONAL CONTROLS REQUIRED BY EXISTING CERCLA DECISION DOCUMENTS

This appendix provides a Sitewide list of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) decision documents that have institutional control requirements. The decision documents and the operable units for which they are written are listed by National Priorities Listing (NPL) area, along with the institutional control requirements and the corresponding section of the plan that explains how the requirements will be met.

A.1 INSTITUTIONAL CONTROLS REQUIRED BY EXISTING 100 AREA DECISION DOCUMENTS

This section presents the institutional controls required by each of the 100 Area CERCLA decision documents. The decision documents for the 100 Area include several Records of Decision (ROD), as well as an Explanation of Significant Differences (ESD) from a previously issued ROD. The requirements are presented in the following tables:

- Table A.1.1. 100 Area Burial Ground Interim Action ROD Requirements
- Table A.1.2. Explanation of Significant Difference for the 100 Area Remaining Sites ROD Requirements
- Table A.1.3. 100-NR-1 Operable Unit ROD Requirements
- Table A.1.4. Amended 100-HR-3 Operable Unit ROD Requirements
- Table A.1.5. 100-NR-1 and 100-NR-2 Interim Remedial Action ROD Requirements
- Table A.1.6. 100-KR-2 ROD Requirements
- Table A.1.7. 100 Area Remaining Sites and Portions of 200 Area Interim Remedial Action ROD Requirements
- Table A.1.8. 100-BC-1, 100-DR-1 and 100-HR-1 Operable Units Amendment ROD Requirements
- Table A.1.9. 100-HR-3 and 100-KR-4 Operable Units ROD Requirements
- Table A.1.10. 100-IU-1, 100-IU-3, 100-IU-4, and 100-IU-5 Operable Units ROD Requirements
- Table A.1.11. 100 BC-1, 100-DR-1 and 100-HR-1 Interim Remedial Action ROD Requirements.

The following tables include the text of the individual institutional control requirements contained in the decision documents. The tables also indicate the section of the Sitewide Institutional Controls Plan that explains how the requirements will be met.

Table A.1.1. 100 Area Burial Ground Interim Action ROD Requirements. (2 sheets)

| ROD Requirement | How Requirement is Met |
|--|---|
| 100 Area Burial Ground Institutional Controls Requirements | |
| The DOE will continue to use a badging program to control access to the associated sites for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times. | Section 2.2.2 |
| Well drilling is prohibited, except for monitoring or remediation wells authorized in EPA and Ecology-approved or Ecology-approved documents. Groundwater use is prohibited, except for monitoring and treatment, as approved by EPA or Ecology. | Section 2.2.4 |
| No intrusive work is allowed on or near the waste sites covered in this ROD without prior approval of EPA or Ecology. | Section 2.2.4 |
| DOE shall maintain signs that warn river users of potential hazards along the shoreline from 100 Area waste sites. | Section 2.2.1 |
| DOE shall post and maintain in good condition "No Trespassing" signs along the 100 Area Shoreline. | Section 2.2.1 |
| DOE shall maintain signs along access roads that warn Site visitors and workers of potential hazards from 100 Area waste sites. | Section 2.2.1 |
| DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents. | Section 2.2.2 |
| Sitewide Institutional Controls Requirements | |
| <p>DOE shall submit a Sitewide institutional controls plan that includes the applicable institutional controls for the 100 Area operable units. This Sitewide plan will be submitted to EPA and Ecology for approval as a primary document under the Tri-Party Agreement by July 2001. This plan shall be updated by DOE periodically at the request of EPA or Ecology. At a minimum, the plan shall contain the following:</p> <ul style="list-style-type: none"> • Include a comprehensive facility-wide list of all areas or locations covered by any and all decision documents at the Hanford Site that have or should have institutional controls for protection of human health or the environment. The information on the list will include, at a minimum, the location of the area, the objectives of the restriction or control, the time frame that the restrictions apply, the tools and procedures DOE will use to implement the restrictions or controls and to evaluate the effectiveness of these restrictions or controls • Cover, and legally bind where appropriate, all entities and persons, including, but not limited to, employees, contractors, lessees, agents, licensees, and visitors. In areas where DOE is aware of routine trespassing, trespassers must also be covered • Cover all activities, and reasonably anticipated future activities, including, but not limited to, any future soil disturbances, routine and non-routine utility work, well placement and drilling, recreational activities, national monument-related uses, groundwater withdrawals, paving, construction, renovation work on structures, tribal use, or other activities • Include a tracking mechanism that identifies all land areas under restriction or control • Include a process to promptly notify both EPA and Ecology before any making anticipated change in land-use designation, restriction, land users or activity for any institutional controls required by a decision document. | <p>Section 1.3 Section 1.4.4 Chapter 2 Section 4.2</p> <p>Section 2.2.2</p> <p>Chapter 2</p> <p>Section 2.2.5 Section 2.2.3 Section 4.2</p> |
| DOE will notify EPA and Ecology immediately upon discovery of any activity that is inconsistent with the operable unit-specific institutional controls objectives for the Site, or of any change in the land use or land-use designation of a site. DOE will work together with EPA and Ecology to determine a plan of action to rectify the situation, except in the case where DOE | Section 2.2.3 Section 4.2 |

Table A.1.1. 100 Area Burial Ground Interim Action ROD Requirements. (2 sheets)

| ROD Requirement | How Requirement is Met |
|--|--|
| believes the activity creates an emergency situation, DOE can respond to the emergency immediately upon notification to EPA and Ecology and need not wait for EPA or Ecology input to determine a plan of action. DOE will also identify deficiencies with the institutional controls process, evaluate how to correct the process to avoid future problems, and implement these changes after consulting with EPA and Ecology. | |
| DOE will identify a point of contact for implementing, maintaining, and monitoring institutional controls for the 100 Area, as well as the Hanford Site. | Section 4.1.1 |
| DOE will comply with Tri-Party Agreement requirements to request and obtain funding to institute and maintain institutional controls as a compliance requirement under the Tri-Party Agreement. | - ^a |
| DOE will notify EPA and Ecology at least 6 months before any transfer, sale, or lease of any property subject to institutional controls required by a CERCLA decision document so that EPA and Ecology can be involved in discussions to ensure that appropriate provisions are included in the conveyance documents to maintain effective institutional controls. If it is not possible for DOE to notify EPA and Ecology at least 6 months before any transfer, sale, or lease, then DOE will notify EPA and Ecology as soon as possible, but no later than 60 days before the transfer, sale, or lease of any property subject to institutional controls. | Section 3.2 |
| DOE will not delete or terminate any institutional controls unless EPA and Ecology have concurred in the deletion or termination. | Section 1.4.2 |
| <p>DOE will evaluate the implementation and effectiveness of institutional controls for the Hanford Site and the 100 Area operable units on an annual basis. The annual institutional controls monitoring report shall be written by DOE and submitted to EPA and Ecology as a primary document under the Tri-Party Agreement. The report shall be consistent with the requirements established in the Sitewide institutional controls plan. Justification will be provided for any information that is not included as required by the Sitewide plan. The annual monitoring report will be due on September 30 of each year and will summarize the results of the evaluation for the preceding calendar year. In addition, after the comprehensive Sitewide approach is well established and DOE has demonstrated its effectiveness, the frequency of future monitoring reports may be modified subject to approval by EPA and Ecology. The institutional controls monitoring report, at a minimum, must contain:</p> <ul style="list-style-type: none"> • A description of how DOE is meeting the Sitewide institutional controls requirements; • A description of how DOE is meeting the operable unit-specific objectives, including results of visual field inspections of all areas subject to operable unit-specific restrictions; • An evaluation of whether or not all operable unit-specific and Sitewide institutional controls requirements are being met • A description of any deficiencies and what efforts or measures have been or will be taken to correct problems. | Section 4.2 |
| EPA and Ecology review of the institutional controls monitoring report will follow existing procedures for agency review of primary documents. | See Tri-Party Agreement, Appendix 2, Action Plan, Chapter 9, Documentation and Records |

^aThis is an existing Tri-Party Agreement requirement.

Table A.1.2. Explanation of Significant Difference for the 100 Area Remaining Sites ROD Requirements.

| ROD Requirement | How Requirement is Met |
|--|------------------------|
| No specific institutional control requirements were given. | See Table A.1.7 |

Table A.1.3. 100-NR-1 Operable Unit ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|------------------------|
| DOE will continue to use a badging program and control access to the sites associated with this ROD for the duration of the interim action. Visitors entering any of the sites associated with the Interim Action ROD are required to be escorted at all times. | Section 2.2.2 |
| DOE will utilize the onsite excavation permit process to control land use (e.g., well drilling and excavation of soil) within the 100 Area operable units to prohibit any drilling or excavation except as approved by Ecology. | Section 2.2.3 |
| DOE will maintain existing signs prohibiting public access. | Section 2.2.1 |
| DOE will provide notification to Ecology upon discovery of any trespass incidents. | Section 2.2.2 |
| Trespass incident will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution. | Section 2.2.2 |
| DOE will add access restriction language to any land transfer, sale, or lease of property that the U.S. Government considers appropriate while institutional controls are compulsory, and Ecology will have to approve any access restrictions before transfer, sale, or lease. | Section 3.2 |
| Until final remedy selection, DOE shall not delete or terminate any institutional control requirement established in this Interim Action ROD unless Ecology have provided written concurrence on the deletion or termination and appropriate documentation has been placed in the Administrative Record. | Section 1.4.2 |
| DOE will evaluate the implementation and effectiveness of institutional controls for the 100-NR-1 on an annual basis. The DOE will submit report to Ecology by July 31 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the institutional controls requirements continue to be met and a description of any deficiencies discovered and measures taken to correct problems. | Section 4.2 |

Table A.1.4. Amended 100-HR-3 Operable Unit ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|------------------------|
| Institutional controls for protection of human health required by the 1996 ROD are unchanged. | See Table A.1.9 |

Table A.1.5. 100-NR-1 and 100-NR-2 Interim Remedial Action ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|-------------------------------|
| DOE will continue to use a badging program to control access to the sites associated with this ROD for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times. | Section 2.2.2 |
| DOE will utilize the onsite excavation permit process to control well drilling and excavation of soil within the 100 Area operable units to prohibit any drilling or excavation except as approved by Ecology. | Section 2.2.3 |
| DOE will maintain existing signs prohibiting public access. | Section 2.2.1 |
| DOE will provide notification to Ecology upon discovery of any trespass incidents. | Section 2.2.2 |
| Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution. | Section 2.2.2 |
| 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 while institutional controls are compulsory, and Ecology will have to approve any access restrictions before transfer, sale, or lease. | Section 3.2 |
| Until final remedy selection, DOE shall not delete or terminate any institutional control requirement established in this Interim Action ROD unless Ecology have provided written concurrence on the deletion or termination and appropriate documentation has been placed in the Administrative Record. | Section 1.4.2 |
| DOE will evaluate the implementation and effectiveness of institutional controls for the 100-NR-1 and 100-NR-2 operable units on an annual basis. DOE shall submit a report to Ecology by July 31 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the institutional control requirements continue to be met and a description of any deficiencies discovered and measures taken to correct problems. | Section 4.2 |

Table A.1.6. 100-KR-2 ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|-------------------------------|
| The DOE will maintain or implement access restrictions to prevent public access until final remedial action is completed. | Section 2.2.2 |
| Current access controls include signs along the river, and 8-foot fence, locked access to buildings containing the primary hazards, and routine patrols. Institutional controls will be included in the RDR/RAWP subject to EPA approval. | Section 2.2.1 |

Table A.1.7. 100 Area Remaining Sites and Portions of 200 Area Interim Remedial Action ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|------------------------|
| DOE will continue to use a badging program to control access to the associated sites for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times. | Section 2.2.2 |
| DOE will utilize the onsite excavation permit process to control land use (e.g. well drilling or excavation of soil) within the 100 Area operable units. | Section 2.2.3 |
| DOE will maintain existing signs prohibiting public access. | Section 2.2.1 |
| DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents. | Section 2.2.2 |
| Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution. | Section 2.2.2 |
| 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 while institutional controls are compulsory. | Section 3.2 |
| Until final remedy selection, DOE shall not delete or terminate any institutional control requirement established in this Interim Action ROD unless EPA and Ecology have provided written concurrent on the deletion or termination and appropriate documentation has been placed in the Administrative Record. | Section 1.4.2 |
| DOE will evaluate the implementation and effectiveness of institutional controls for the 100 Area operable units on an annual basis. The DOE shall submit a report to EPA and Ecology by March 30 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the institutional control requirements continue to be met and a description of any deficiencies discovered and measures taken to correct problems. | Section 4.2 |

Table A.1.8. 100-BC-1, 100-DR-1 and 100-HR-1 Operable Unit Amendment ROD Requirements.

| ROD Requirement | How Requirement is Met |
|--|------------------------|
| Use of institutional controls is mentioned, but no new requirements are given. | See Table A.1.11 |

Table A.1.9. 100-HR-3 and 100-KR-4 Operable Units ROD Requirements.

| ROD Requirement | How Requirement is Met |
|--|--|
| <p>Institutional controls are required to prevent human exposure to groundwater. The DOE is responsible for establishing and maintaining land-use and access restrictions until MCLs and risk-based criteria are met or the final remedy is selected. Institutional controls include placing written notification of the remedial action in the facility land-use master plan. The DOE will prohibit any activities that would interfere with the remedial activity without EPA and Ecology concurrence. In addition, measures necessary to ensure the continuation of these restrictions will be taken in the event of any transfer or lease of the property before a final remedy is selected. A copy of the notification will be given to any prospective purchaser/transferee before any transfer or lease. The DOE will provide EPA and Ecology with written verification that these restrictions have been put in place.</p> | <p>Section 2.2.2 Section 2.2.3 Section 2.2.4 Section 4.2</p> |

Table A.1.10. 100-IU-1, 100-IU-3, 100-IU-4, and 100-IU-5 Operable Units ROD Requirements

| ROD Requirement | How Requirement is Met |
|--|------------------------|
| There are no institutional controls mentioned in this ROD. | NA |

Table A.1.11. 100 BC-1, 100-DR-1 and 100-HR-1 Interim Remedial Action ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|--|
| <p>DOE will control access and use of the Site for the duration of the cleanup, including restrictions on the drilling of new groundwater wells in the existing plumes or their paths. It is expected that institutional controls will be enforced until the remedial action objectives have been attained.</p> | <p>Section 2.2.2 Section 2.2.3 Section 2.2.4</p> |

A.2 INSTITUTIONAL CONTROLS REQUIRED BY EXISTING 200 AREA DECISION DOCUMENTS

This section presents the institutional controls required by each of the 200 Area CERCLA decision documents. The requirements are presented in the following tables:

- Table A.2.1. 100 Area Remaining Sites and Portions of 200 Area Interim Remedial Action ROD Requirements
- Table A.2.2. Amended ROD Environmental Restoration Disposal Facility (ERDF) (March 25, 1999) Requirements
- Table A.2.3. Amended ROD ERDF (September 30, 1997) Requirements
- Table A.2.4. 200-UP-1 Operable Unit ROD Requirements
- Table A.2.5. ERDF ROD ESD Requirements
- Table A.2.6. 200-ZP-1 Operable Unit Interim Remedial Measure ROD Requirements
- Table A.2.7. ERDF ROD Requirements.

The tables presented below include the text of the individual institutional control requirements contained in the decision documents. The tables also indicate the section of the Sitewide Institutional Controls Plan that explains how the requirements will be met.

Table A.2.1. 100 Area Remaining Sites and Portions of 200 Area Interim Remedial Action ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|-------------------------------|
| DOE will continue to use a badging program to control access to the associated sites for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times. | Section 2.2.2 |
| DOE will utilize the onsite excavation permit process to control land use (e.g. well drilling or excavation of soil) within the 100 Area operable units. | Section 2.2.3 |
| DOE will maintain existing signs prohibiting public access. | Section 2.2.1 |
| DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents. | Section 2.2.2 |
| Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution. | Section 2.2.2 |
| 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 while institutional controls are compulsory. | Section 3.2 |
| Until final remedy selection, DOE shall not delete or terminate any institutional control requirement established in this Interim Action ROD unless EPA and Ecology have provided written concurrent on the deletion or termination and appropriate documentation has been placed in the Administrative Record. | Section 1.4.2 |
| DOE will evaluate the implementation and effectiveness of institutional controls for the 100 Area operable units on an annual basis. The DOE shall submit a report to EPA and Ecology by March 30 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the institutional control requirements continue to be met and a description of any deficiencies discovered and measures taken to correct problems. | Section 4.2 |

Table A.2.2. Amended ROD Environmental Restoration Disposal Facility (ERDF) Requirements (March 25, 1999).

| ROD Requirement | How Requirement is Met |
|---|-------------------------------|
| No institutional control requirements were added, modified, or deleted. | See Table A.2.7 |

Table A.2.3. Amended ROD ERDF Requirements (September 30, 1997).

| ROD Requirement | How Requirement is Met |
|---|-------------------------------|
| No institutional control requirements were added, modified, or deleted. | See Table A.2.7 |

Table A.2.4. 200-UP-1 Operable Unit ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|---|
| Institutional controls are required to prevent human exposure to groundwater. The U.S. DOE is responsible for establishing and maintaining land-use and access restrictions until the final remedy is selected and implemented. | Section 2.2.2 Section 2.2.3 Section 2.2.4 |
| Institutional controls include placing written notification of the remedial action in the facility land-use master plan. | Section 2.2.3 |
| The U.S. DOE will prohibit any activities that would interfere with the remedial activity without the lead agency's concurrence. | Section 2.2.3 |
| In addition, measures necessary to ensure the continuation of this restriction will be taken in the event of any transfer or lease of the property before the final remedy is selected. A copy of the notification in a land-use plan will be given to any prospective purchaser/transfer before any transfer or lease. U.S. DOE will provide Ecology and EPA within written verification that these restrictions have been put in place. | Section 3.2 |

Table A.2.5. ERDF ROD ESD Requirements.

| ROD Requirement | How Requirement is Met |
|---|-------------------------------|
| No institutional control requirements were added, modified, or deleted. | See Table A.2.7 |

Table A.2.6. 200-ZP-1 Operable Unit Interim Remedial Measure ROD Requirements.

| ROD Requirement | How Requirement is Met |
|--|-------------------------------|
| No specific institutional control requirements were given. | NA |

Table A.2.7. ERDF ROD Requirements.

| ROD Requirement | How Requirement is Met |
|--|-------------------------------|
| Institutional controls shall be imposed to restrict public access to the landfill. | Section 2.2.2 |

A.3 INSTITUTIONAL CONTROLS REQUIRED BY EXISTING 300 AREA DECISION DOCUMENTS

This section presents the institutional controls required by each of the 300 Area CERCLA decision documents. The decision documents for the 300 Area include several RODs, as well as an Explanation of Significant Difference from a previously issued ROD. The requirements are presented in the following tables:

- Table A.3.1. 300 FF-2 ROD Requirements (Required at Current Time and During Cleanup Activity)
- Table A.3.2. 300 FF-2 ROD Requirements (Required After Cleanup is Complete)
- Table A.3.3. 300 Area Explanation of Significant Difference for the 300-FF-5 ROD Requirements
- Table A.3.4. 300 Area Explanation of Significant Difference for the 300-FF-1 ROD Requirements
- Table A.3.5. 300 300-FF-1 and 300-FF-5 ROD Requirements.

The tables presented below include the text of the individual institutional control requirements contained in the decision documents. The tables also indicate the section of the Sitewide Institutional Controls Plan that explains how the requirements will be met.

Table A.3.1. 300 FF-2 ROD Requirements
(Required at Current Time and During Cleanup Activity)

| ROD Requirement | How Requirement is Met |
|--|----------------------------------|
| Operable Unit Institutional Control Requirements | |
| DOE shall control access to the waste sites addressed in the scope of this ROD until cleanup is complete. Visitors entering any uncovered waste site areas are required to be escorted at all times. | Section 2.2.2 |
| DOE shall prohibit well drilling in any waste site areas, except for monitoring or remediation wells authorized in EPA approved documents. Groundwater use is prohibited, except for limited research purposes and monitoring and treatment authorized in EPA approved documents. These restrictions apply until groundwater cleanup objectives (as established in the 300-FF-5 ROD) have been achieved. | Section 2.2.3 Section 2.2.4 |
| DOE shall control all intrusive work in any waste site areas addressed by this ROD. | Section 2.2.3 |
| DOE shall post and maintain warning signs along the Columbia River shoreline that caution river users of potential hazards from 300 Area waste sites and spring discharges. | Section 2.2.1 |
| DOE shall post and maintain warning signs along access roads that caution Site visitors and workers of potential hazards from 300 Area waste sites. | Section 2.2.1 |
| DOE shall report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution. | Section 2.2.2 |
| Sitewide Institutional Control Requirements | |
| A plan for implementing these requirements shall be submitted by DOE in a Sitewide institutional controls plan (as required by the "100 Area Burial Ground ROD," September 2000). Pursuant to the 100 Area Burial Ground ROD, the Sitewide implementation plan must be submitted to EPA and Ecology as a primary document under the Tri-Party Agreement by July 2001. | Entire Plan (See Table A.1.1) |

Table A.3.2. 300 FF-2 ROD Requirements
(Required After Cleanup is Complete)

| ROD Requirement | How Requirement is Met |
|--|--------------------------------|
| 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. | Section 2.2.3 |
| DOE shall prevent the use of groundwater as a drinking water source as long as contaminant concentrations are above drinking water levels. | Section 2.2.4 |
| 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. | Section 2.2.1 Section 2.2.2 |
| DOE shall maintain groundwater and Columbia River protection standards including: 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 workplan. b) No irrigation will be permitted for agriculture or landscaping on former waste site locations. 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. | Section 2.2.3 Section 2.2.4 |
| 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 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. | Section 2.2.3 |
| 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 feet) 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. | Section 2.2.3 |
| 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. | Section 2.2.5 |
| 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. | Section 3.2 |

Table A.3.3. 300 Area Explanation of Significant Difference for the 300-FF-5 ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|------------------------|
| Institutional controls preventing use of the 300 Area groundwater will remain in place. | Section 2.2.4 |

Table A.3.4. 300 Area Explanation of Significant Difference (ESD) for the 300-FF-1 ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|------------------------|
| No institutional control requirements were added, modified, or deleted. | See Table A.3.5 |

Table A.3.5. 300-FF-1 and 300-FF-5 ROD Requirements.

| ROD Requirement | How Requirement is Met |
|---|--------------------------------|
| Institutional controls are required to prevent human exposure to groundwater and to ensure that unanticipated changes in land use do not occur that could result in unacceptable exposure to residual contamination. The DOE is responsible for establishing and maintaining land-use and access restrictions until cleanup criteria are met. | Section 2.2.3 Section 2.2.4 |
| Institutional controls include placing written notification of the remedial action in the facility land-use master plan. | Section 2.2.3 |
| The DOE will prohibit any activities that would interfere with the remedial activity without EPA concurrence. | Section 2.2.3 |
| In addition, measures acceptable to EPA that are necessary to ensure the continuation of these 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. | Section 3.2 |

A.4 INSTITUTIONAL CONTROLS REQUIRED BY EXISTING 1100 AREA DECISION DOCUMENTS

This section presents the institutional controls required by the 1100 Area CERCLA decision document and the Superfund Site Closeout Report (the 1100 Area was deleted from the NPL in 1996). The requirements are presented in the following tables:

- Table A.4.1. 1100 Area Superfund Site Closeout Report Requirements.
- Table A.4.2. 1100 Area ROD Requirements

The tables presented below include the text of the individual institutional control requirements contained in these documents. The tables also indicate the section of the Sitewide Institutional Controls Plan that explains how the requirements will be met.

Table A.4.1. 1100 Area Superfund Site Closeout Report Requirements

| Closeout Requirement | How Requirement is Met |
|--|------------------------|
| Plans are in place for DOE to inspect and maintain the integrity of the cap and fencing at the Horn Rapids Landfill. | Section 2.2.2 |
| Continued groundwater monitoring around the Horn Rapids Landfill is necessary to verify the modeled contaminant attenuation predictions and to evaluate the need for active remedial measures. | Section 2.2.4 |

Table A.4.2. 1100 Area ROD Requirements

| ROD Requirement | How Requirement is Met |
|---|------------------------|
| DOE will control access and use of the Site for the duration of the cleanup, including restrictions on the drilling of new groundwater wells in the plume or its path will be enforced until the Remedial Action Objectives have been attained. | Section 2.2.4 |
| DOE will record a notation on the deed to the Horn Rapids Landfill property as specified in the asbestos NESHAP (40 CFR 61). | Section 2.2.3 |

40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," *Code of Federal Regulations*, as amended.

CFR *Code of Federal Regulations*

DOE U.S. Department of Energy

NESHAP "National Emission Standards for Hazardous Air Pollutants"

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APPENDIX B

EXAMPLE EVALUATION FORM TEMPLATE

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APPENDIX B**EXAMPLE EVALUATION FORM TEMPLATE**

An example template for an evaluation form that can be used as the basis for evaluating the effectiveness of the institutional controls required by each CERCLA decision document is presented below. The template provided below can be used as a basis for conducting the assessment; however, the final evaluation method, including the supporting documentation, will be determined at the time of the assessment.

Example Evaluation Form Template

| Evaluation Criteria | Assessment | Possible Repairs and Improvements |
|--|------------|-----------------------------------|
| Sitewide Institutional Control Plan Requirements (e.g., Was the Waste Information Data System updated regularly to reflect ongoing cleanup actions?) | | |
| 1. | | |
| 2. | | |
| 3. | | |
| ... | | |
| Operable-Unit Specific CERCLA Decision Document Requirements (e.g., Were trespass incidents in the 300-FF-2 operable unit during the previous year being reported to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution?) | | |
| 1. | | |
| 2. | | |
| 3. | | |
| ... | | |

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APPENDIX C

EXAMPLE OUTLINE FOR ANNUAL REPORT

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APPENDIX C

EXAMPLE OUTLINE FOR ANNUAL REPORT

An example outline that can be used as the basis for reporting the results of the annual assessment of the effectiveness of institutional controls is presented below. The final outline of the report will be determined at the time of the writing of the report.

Example Outline for Annual Report

1. Introduction (1 page)

1.1 Purpose of Document

1.2 Content of Document

2. Status of Institutional Controls (1-2 pages)

A description of how DOE and its contractors are meeting the institutional control requirements, both site-wide and operable unit-specific, on the Hanford Site. (An appendix to the report may include the completed evaluation forms to document the status of the controls.)

3. Summary Evaluation (1-2 pages)

Evaluation of whether or not the institutional control requirements are being met based on the evaluation forms or other surveillance data that may be applicable.

4. Recommended Improvements (1-2 pages)

Recommendations for repairs or improvements to institutional controls that can be taken to address any issues identified in the evaluation.

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