

ADMINISTRATIVE DOCUMENT PROCESSING AND APPROVAL

Page 1 of 1

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Sitewide Institutional Controls Plan for Hanford
CERCLA Response Actions and RCRA Corrective Actions

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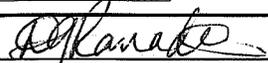
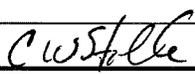
- Document number was changed from DOE/RL-2001-41, Rev. 5 to DOE/RL-2001-41, Rev. 6.
- Added Revision History Table for Rev. 6.
- Editorial and minor text changes were made.
- Table 3-2 - Added a new row to table listing the ROD for the Interim Remedial Action for 200-UP-1 OU.
- Section 5.0 - Removed hyperlink references to web sites.
- Appendix A - Added new Table A2-11 that identifies the institutional controls listed in the 200 UP-1 OU.
- Added Figure A-5 to show 200-UP-1 OU institutional control boundaries.
- Deleted reference sections from Appendices A and B.
- Appendix C - Added 2012 annual institutional control assessment.

REVIEWERS

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APPROVAL SIGNATURES

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By Janis D. Aardal at 1:25 pm, Jan 31, 2013

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SITEWIDE INSTITUTIONAL CONTROLS PLAN FOR HANFORD CERCLA RESPONSE ACTIONS AND RCRA CORRECTIVE ACTIONS

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

 U.S. DEPARTMENT OF
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SITEWIDE INSTITUTIONAL CONTROLS PLAN FOR HANFORD CERCLA RESPONSE ACTIONS AND RCRA CORRECTIVE ACTIONS

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Mission Support Alliance

Date Published
January 2013

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

 U.S. DEPARTMENT OF
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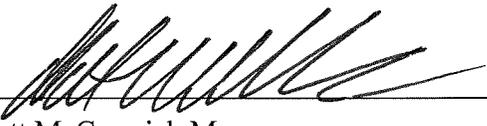
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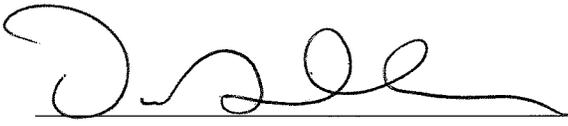
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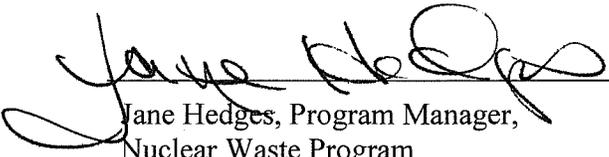
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APPROVAL

Title: SITEWIDE INSTITUTIONAL CONTROLS PLAN FOR HANFORD
CERCLA RESPONSE ACTIONS AND RCRA CORRECTIVE ACTIONS

Approval:  _____ 12/27/12
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The U.S. Environmental Protection Agency is providing approval of the Sitewide Institutional Control Plan (DOE/RL-2001-41, Rev. 5) as it pertains to CERCLA response actions only.

The approval signatures on this page indicate that this document has been authorized for information release to the public through appropriate channels. No other forms or signatures are required to document this information release.

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Revision History DOE/RL-2001-41, Sitewide Institutional Control Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions		
Revision Number	Publication Date	Description
6	TBD	<p>Revision 6 includes the following:</p> <ul style="list-style-type: none"> • Document number was changed from DOE/RL-2001-41, Rev. 5 to DOE/RL-2001-41, Rev. 6. • Added Revision History Table for Rev. 6. • Editorial and minor text changes were made. • Table 3-2 - Added a new row to table listing the ROD for the Interim Remedial Action for 200-UP-1 OU. • Section 5.0 – Removed hyperlink references to web sites. • Appendix A - Added new Table A2-11 that identifies the institutional controls listed in the 200-UP-1 OU. • Added Figure A-5 to show 200-UP-1 OU institutional control boundaries. • Deleted reference sections from Appendices A and B. • Appendix C - Added 2012 annual institutional control assessment.

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EXECUTIVE SUMMARY

Many major Federal laws such as *Atomic Energy Act of 1954*; *Resource Conservation Recovery Act of 1976* (RCRA); *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), Executive Orders; and regulations influence the use of institutional controls at the U.S. Department of Energy (DOE) sites. Some regulatory drivers directly authorize or require the use of institutional controls, while others do not. DOE also uses institutional controls when no specific statutory requirement exists to supplement active remediation, pollution control, public and resource protection, and physical security, or to bolster the integrity of engineered remedies. DOE has conducted activities for over 50 years, using land ownership and access control, environmental monitoring and surveillance, and other tools to support protection efforts at operational and inactive facilities, including radioactive waste burial grounds.

The requirement to have a *Sitewide Institutional Control Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions* (Plan) is provided in the following documents:

- EPA/ROD/R10-00/121, *Record of Decision for the USDOE Hanford 100-Area, Benton County, Washington*
- EPA (2001), *USDOE Hanford Site, First Five-Year Review Report*
- EPA/ROD/R10-01/119, *Record of Decision for the USDOE Hanford 300 Area, Benton County, Washington*
- DOE/EIS-0222-F, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement*.

The Hanford Site includes waste sites that are cleaned up under CERCLA response actions; RCRA corrective actions; and the treatment, storage, and disposal (TSD) units closed under RCRA. The CERCLA and/or RCRA decision documents identify required institutional controls.

This Plan describes how institutional controls are implemented and maintained and serves as a reference for the selection of institutional controls in the future. This Plan was initially developed to fulfill the requirement of a Sitewide plan that describes how the DOE-Richland Operations Office (DOE-RL) will implement and maintain the operable unit-specific institutional controls specified in CERCLA decision documents. This Plan is revised to include institutional controls identified in the RCRA corrective action documents.

Institutional controls are mechanisms to prevent inappropriate uses of land, facilities, and environmental media and to prevent unacceptable human health and environmental exposure to residual contaminants that could pose risks above levels deemed protective. 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 may 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.

This Plan addresses the elements of the following Environmental Protection Agency (EPA) guidance documents regarding the implementation of institutional controls:

- EPA-540-F-00-005, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, OSWER 9355.0-74FS-P
- Draft Guidance: "Institutional Controls: A Guide to Implementing, Monitoring, and Enforcing Institutional Controls at Superfund, Brownfields, Federal Facility, UST and RCRA Corrective Action Cleanups," February 2003
- EPA-540-R-09-001, *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites (Interim Final)*, OSWER 9355.0-89.

This Plan will be updated when a new CERCLA decision document and/or RCRA decision document listing institutional controls are issued.

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TERMS

ALE	(Fitzner-Eberhardt) Arid Lands Ecology (Reserve)
AMD	record of decision amendment
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy, Richland Operations Office
DOE-ORP	U.S. Department of Energy, Office of River Protection
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ESD	explanation of significant differences
IC	institutional controls
NESHAP	National Emission Standards for Hazardous Air Pollutants
NCP	National Contingency Plan (National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR 300)
NPL	“National Priorities List” (40 CFR 300, Appendix B)
O&M	operations and maintenance
OU	operable unit
Plan	<i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions</i>
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RI/FS	remedial investigation/feasibility study
ROD	record of decision
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
TSD	treatment, storage, and disposal
WAC	<i>Washington Administrative Code</i>
WIDS	Waste Information Data System database

DEFINITIONS

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

CERCLA Decision Document. Refers to *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* action memorandums, interim and final records of decision (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 action 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.

Explanation of Significant Differences. A document that revises 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.

Final Closeout Report. Documents compliance with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* decision documents and remedial design report/remedial action work plans for a Superfund site and provides a consolidated record of all removal and remedial actions for the entire National Priorities List (40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National Priorities List") site. The final closeout report describes how the cleanup was accomplished and provides the overall technical justification for site deletion from the National Priorities List.

Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement). An agreement among 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 to achieve 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 to 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.

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

National Priorities List (40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan,” Appendix B, “National Priorities List”). A list 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 in 1989. One site, the 1100 Area, was removed from the National Priorities List in 1996, and portions of the 100 Area were removed 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 (40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan,” Appendix B, “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 40 CFR 300.425(e)(3), 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 (40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan,” Appendix B, “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 Oil and Hazardous Substances Pollution Contingency Plan” (40 CFR 300.425(e)).

Operable Unit. A group of land disposal sites placed together for the purposes of doing a remedial investigation/feasibility study and subsequent cleanup actions. The primary criteria for placement of a site into an operable unit include geographic proximity, similarity of waste characteristics and site type, and the possibility for economies of scale (Source: Ecology et al. 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*, Appendix A). Soil and groundwater contamination generally are placed in separate operable units.

Past-Practice Unit. A past-practice unit is an area containing hazardous constituents and hazardous substances that will be addressed by a *Resource Conservation and Recovery Act of 1976* corrective action and/or *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* response action.

RCRA Corrective Action. Corrective action refers to the cleanup process or program under the *Resource Conservation and Recovery Act of 1976* and all activities related to the investigation, characterization, and cleanup of a release of hazardous wastes or hazardous waste constituents from solid waste management units at permitted treatment, storage, and disposal facilities to any environmental medium. For the purpose of this Plan, “RCRA” also includes *Revised Code of Washington, Chapter 70.105, Hazardous Waste Management Act* (RCW 70.105). However, the term may also refer to a specific action taken to remediate a solid waste management unit at an individual facility.

Remedial Design and Remedial Action Work Plan. This definition reflects changes to the Tri-Party Agreement Action Plan (Ecology et al. 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*) (resulting from Change Control Form P-11-06-01) to clarify requirements for remedial design and remedial action deliverables. This is the plan for implementing the remedy selected in the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* remedial action decision documents. All remedial design/remedial action activities must conform to the remedy set forth in the related record of decision or other decision documents (e.g., record of decision amendment). The remedial design and remedial action work plan contains a conceptual-level design.

Remedial Design Report. This definition reflects changes to the Tri-Party Agreement Action Plan (Ecology et al. 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*) (resulting from Change Control Form P-11-06-01) to clarify requirements for remedial design and remedial action deliverables. This report documents the 90 percent level of the remedial design. It may contain a different level of design than 90 percent if agreed to by the lead regulatory agency. Due to the Tri-Party Agreement Action Plan, Section 11.6 requirement for a remedial design and remedial action work plan to be delivered within 180 days of signature of the record of decision, the record of decision report is likely to be a separate deliverable because the remedial design and remedial action work plan submittal only requires a conceptual-level design.

Remedial Design Report/Remedial Action Work Plan. The plan for implementing the remedy selected in the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* remedial action decision documents. All remedial design/remedial action activities must conform to the remedy set forth in the related record of decision or other decision document (e.g., record of decision amendment).

Solid Waste Management Unit. Any discernible location at a facility, as defined for the purposes of corrective action, where solid waste has been placed at any time, irrespective of whether the location was intended for the management of solid or dangerous waste. Such locations include any area at a facility at which solid waste, including spills, have been routinely and systematically released. Such units include regulated units as defined by WAC 173-303, “Dangerous Waste Regulations.”

Treatment, Storage, and Disposal Facilities. Facilities that treat, store, or dispose of hazardous wastes and operate under permit in compliance with *Resource Conservation and Recovery Act of 1976*.

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

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

Waste Information Data System. A database that identifies all waste management units on the Hanford Site, describes the status of each unit, and includes descriptive information (e.g., location, waste types) (Source: Ecology et al. 1989b, *Hanford Federal Facility Agreement and Consent Order Action Plan*, Appendix A). 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

The *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions* (Plan) describes the institutional controls (IC) for the Hanford Site and how they are implemented and maintained in accordance with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) decision documents and the *Resource Conservation and Recovery Act of 1976* (RCRA) decision documents¹. The CERCLA decision documents present the selected remedial actions chosen in accordance with CERCLA, as amended by the *Superfund Amendments and Reauthorization Act of 1986* and 40 CFR 300, “National Oil and Hazardous Substances Pollution Contingency Plan;” RCRA decision documents describe the closure and the corrective actions selected under RCRA. These documents are developed as part of the cleanup mission at the Hanford Site. The selected remedies/corrective actions chosen under CERCLA or RCRA may include ICs.

The ICs primarily are administrative in nature and typically augment the engineered components of a selected remedy to minimize the potential for human exposure to contamination. Common types of ICs include procedural restrictions for access, fencing, warning notices, permits, easements, deed notifications, leases and contracts, and land-use controls.

This Plan serves as a reference for the selection of ICs in the future. The appendices list the IC requirements identified in the CERCLA and/or the RCRA decision documents. Although not a program or budget document, this Plan provides project managers with information for developing funding requests.

This Plan also addresses the elements of the U.S. Environmental Protection Agency (EPA) Region 10 guidance (EPA, 1999, *Region 10 Final Policy on the Use of Institutional Controls at Federal Facilities*) regarding the implementation of ICs at federal facilities.

The focus of ICs may change as cleanup is completed. Active ICs, such as controlling access to the site or controlling activities that may affect remedial action, generally are employed during remediation. After cleanup is completed, passive ICs such as permanent markers, public records and archives, or regulations regarding land or resource use are employed. Some active ICs such as monitoring and controlling access to the site also may be employed after cleanup is completed. CERCLA record of decision (ROD) documents and RCRA decision documents identify specific requirements for ICs.

1.1 SITE BACKGROUND

The Hanford Site, located in southeastern Washington State, is 1,517 km² (586 mi²) of semiarid shrub and grasslands and is just north of the confluence of the Snake and Yakima Rivers with the Columbia River (Figure 1-1). Significant natural, biological, and cultural resources exist on the 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, which has restricted public access.

¹ RCRA is implemented by the State of Washington through the Hazardous Waste Management Act.

safety and emergency response purposes and to protect human health and the environment from remaining hazards.

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

Current activities at the Hanford Site are focused on waste management, environmental restoration, facility stabilization, and research and technology development.

DOE manages operations on the Hanford 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.

1.2 TRI-PARTY AGREEMENT

In October 1989, the Hanford Site was added to 40 CFR 300, Appendix B, “National Priorities List” (NPL). In anticipation of the NPL listing, the DOE, Richland Operations Office (DOE-RL) entered into an agreement with EPA and the Washington State Department of Ecology (Ecology). The Tri-Party Agreement (Ecology et al. 1989a, *Hanford Federal Facility Agreement and Consent Order*) established the legal framework and schedule for cleanup at the Hanford Site. The waste management units at the Hanford Site are grouped into operable units (OU). For cleanup of each OU, the Tri-Party Agreement generally designates either EPA or Ecology as the lead regulatory agency.

1.2.1 Integration of RCRA and CERCLA

RCRA (as implemented by the State of Washington through the Hazardous Waste Management Act and its implementing Dangerous Waste Regulations) and CERCLA overlap in many areas. RCRA and CERCLA both require cleanup action for releases regardless of time of release. RCRA regulated releases are also regulated under CERCLA. Many of the RCRA treatment, storage, and disposal (TSD) units on the Hanford Site previously closed and requiring post-closure care, or awaiting closure, are located in close proximity to past-practice units. These TSD units have been incorporated into the appropriate OU with the past-practice units so that integrated investigation and cleanup actions result. These TSD units will be closed under the authority of RCRA, generally in coordination with the past-practice activities. To streamline the interface between RCRA and CERCLA authorities within an OU, the past-practice units contained within an OU will be designated as CERCLA units or as RCRA units.

For the CERCLA sites, the ICs are listed in the CERCLA decision documents. Appendix A provides the list of CERCLA ICs. RCRA activities on the Hanford Site are conducted under WA7890008967, *Hanford Facility Dangerous Waste Permit*. This is the only RCRA permit that has been issued to the Hanford Site. Where applicable, this permit contains ICs for the sites cleaned up under RCRA corrective action decisions or closed under RCRA closure requirements (when post-closure care is required). Appendix B provides the list of RCRA ICs.

1.2.2 Treatment, Storage, and Disposal Operations

The Hanford Site has and will continue to provide the TSD of hazardous and mixed wastes. Over 50 TSD groups on the Hanford Site are in the process of being permitted and/or closed in accordance with RCRA and the Washington State Dangerous Waste Regulations. A group represents one or more TSD units and reflects the level at which a Part B permit application

and/or closure plan is developed. Ecology has the primary authority for administering the RCRA permit program.

1.2.3 Past-Practice Units

A past-practice unit is an area containing hazardous constituents and hazardous substances that will be addressed by a RCRA corrective action and/or CERCLA response action. Based on Tri-Party Agreement designations, some past-practice units contained within certain OUs will be addressed as RCRA-CERCLA Past-Practice Units. The purpose of this category is to address releases of RCRA hazardous constituents from sources other than TSD units at the Hanford Site, regardless of the date of waste receipt at the unit. This includes single incident releases at any location on the Hanford Site and corrective action beyond the Hanford Site boundary. Releases of CERCLA hazardous substances also will be addressed. The releases will be addressed using both the State Hazardous Waste Management Act corrective action program and CERCLA authority and processes.

1.3 CERCLA REMEDIAL ACTIONS AND NATIONAL PRIORITIES LIST

The NPL lists the national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining sites that warrant further investigation.

EPA designated four Hanford Site areas as separate NPL sites: the 100, 200, 300, and 1100 Areas. Each NPL site is further divided into OUs. The Tri-Party Agreement, Appendix C, lists specific waste sites and OUs.

The EPA, Region 10, deleted the 1100 Area from the NPL on September 30, 1996. The EPA, Region 10, also deleted portions of the 100 Area NPL Site on July 8, 1998. The portions deleted were waste sites located in the 100-IU-1 and 100-IU-3 OUs.

At waste sites where the remedial action does not result in fully unrestricted use of the site, operations and maintenance (O&M) measures may continue to ensure effective implementation of the remedial action. O&M measures include engineered remedies such as landfill caps, gas collection systems, and groundwater containment. O&M measures also may include requirements for maintaining ICs and 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 site may be deleted from the NPL and still have residual contamination. Any ICs required following the deletion would be specified in the final ROD and documented in the waste site's final closeout report. Furthermore, deletion from the NPL does not preclude eligibility for subsequent response actions if future site conditions or circumstances warrant. DOE-RL conducts five-year reviews to evaluate effectiveness of remedies. The reviews also include sites deleted from the NPL but have continued monitoring and/or ICs.

1.3.1 100 Area National Priorities List Site

The 100 Area NPL site is located in the northern portion of the Hanford Site. The portion of the 100 Area north and east of the Columbia 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 include 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 has been relocated to a dry storage facility in the 200 Area on the Hanford Site Central Plateau.

Source contamination in the 100 Area is grouped geographically into 17 OUs. 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 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 (100-IU-1 OU, the Riverland Rail Yard, and 100-IU-3 OU, including several waste sites on the Wahluke Slope). Remediation is achieved in the source waste sites by reducing concentrations of, or limiting exposure pathways to, contaminants in the upper 4.6 m (15 ft) of the soil (residential land-use scenario). The levels of reduction will be such that the total dose for radionuclides does not exceed 15 mrem/year above Hanford Site background for 1,000 years following remediation and RCW 70.105D, "Public Health and Safety," "Hazardous Waste Cleanup -- Model Toxics Control Act," Method B levels for nonradionuclides. Excavation below 4.6 m (15 ft) will require ICs due to the presence of contaminants. ICs that limit access to the site and restrict use of groundwater will be in place until the remedial action objectives have been attained.

The remedial actions defined in the decision documents have been initiated and completed on approximately half of the waste sites. Tri-Party Agreement Milestone M-16-00F established the date for completion of the 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, with all remediation work identified in interim action RODs to be completed by December 2012.

1.3.2 200 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 on the Central Plateau. The 200 East and 200 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 in tanks. Leaks from piping and single-shell 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 TSD facilities, including the Environmental Restoration Disposal Facility and high-level nuclear waste tank farm operations.

The 200 Area NPL site is divided into 18 source OUs that contain over 900 soil waste sites and associated structures. 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 ponds, cribs, ditches, tanks, and burial grounds. In addition to the 18 source OUs, the 200 Area NPL site has four groundwater OUs. The 200 West Area contains the 200-ZP-1 Groundwater OU and the 200-UP-1 Groundwater OU. The 200 East Area contains the 200-BP-5 Groundwater OU and the 200-PO-1 Groundwater OU. EPA/ROD, 2005, *Record of Decision, 221-U Facility (Canyon Disposition Initiative), Hanford Site, Washington*, requires ICs during cleanup activities and after cleanup activities are completed.

1.3.3 300 Area National Priorities List Site

The 300 Area NPL site encompasses a large portion of the area just north of the city of Richland, Washington. Although a significant portion of the 300 Area NPL site is not contaminated, the nominal boundaries (i.e., the boundaries encompass all associated NPL waste sites, but do not include the land between the waste sites) 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 primarily were 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 in designated landfills and burial grounds and discharged to unlined surface ponds and trenches.

The 300 Area NPL site consists of three OUs. 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 Groundwater OU addresses groundwater contamination beneath the burial grounds and soil waste sites. Cleanup and monitoring activities have been initiated on remedial actions authorized through two RODs and three ROD explanations of significant differences, and cleanup has been completed on removal actions authorized through three CERCLA action memorandums. Remediation is achieved for source sites through compliance with *Washington Administrative Code (WAC) 173-340-745*, “Model Toxics Control Act -- Cleanup,” “Soil Cleanup Standards for Industrial Properties” cleanup values for organic and inorganic chemical (i.e., nonradionuclide) constituents in soils to support industrial land use and total dose for radionuclides below 15 mrem/year above Hanford Site background. Tri-Party Agreement Milestones M-16-03A and M-16-00B established a September 2012 date for completion of all 300 Area interim remedial actions.

1.3.4 1100 Area National Priorities List Site

The 1100 Area was deleted from the NPL on September 30, 1996. Although the site has been deleted from the NPL, DOE-RL maintains ICs as required by DOE, 1996, *Superfund Final Closeout Report, U.S. Department of Energy 1100 Area*, and EPA/ROD/R10-93/063, *Record of Decision for the USDOE Hanford 1100 Area Final Remedial Action*. In 2010, EPA published *Explanation of Significant Differences for 1100 Area* (EPA, 2010a). This document lists ICs for Horn Rapids Landfill, which is described in Appendix A, Table A4-3.

The ownership of a portion of the property in the 1100 Area NPL site (the former 1100 Area and 3000 Area) has been transferred to the Port of Benton. The (Fitzner-Eberhardt) Arid Lands Ecology Reserve (ALE) and the Wahluke Slope, which is included in the Hanford Reach National Monument, is managed by the U.S. Fish and Wildlife Service, under a memorandum of understanding (RL, 2001, *First Amended 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 Operation of the Fitzner-Eberhardt Arid Lands Ecology Reserve at the Hanford Site; Fourth Amendment to the Wahluke Slope Permit*).

2.0 INSTITUTIONAL CONTROLS

This section defines ICs and describes the regulatory basis for the ICs and the different types of ICs.

2.1 DEFINITION OF INSTITUTIONAL CONTROLS

EPA/540/F-00/005, *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups*, states

ICs:

- Are non-engineered instruments such as administrative and/or legal controls that minimize the potential for human exposure to contamination by limiting land or resource use;
- Are generally to be used in conjunction with, rather than in lieu of, engineering measures such as waste treatment or containment;
- Can be used during all stages of the cleanup process to accomplish various cleanup-related objectives; and,
- Should be “layered” (i.e., use multiple ICs) or implemented in a series to provide overlapping assurances of protection from contamination.

WAC 173-340-440(1) defines ICs as follows:

(1) Purpose. Institutional controls are measures undertaken to limit or prohibit activities that may interfere with the integrity of an interim action or cleanup action or that may result in exposure to hazardous substances at a site.

Institutional controls may include:

- (a) Physical measures such as fences;
- (b) Use restrictions such as limitations on the use of property or resources; or requirements that cleanup action occur if existing structures or pavement are disturbed or removed;
- (c) Maintenance requirements for engineered controls such as the inspection and repair of monitoring wells, treatment systems, caps or ground water barrier systems;
- (d) Educational programs such as signs, postings, public notices, health advisories, mailings, and similar measures that educate the public and/or employees about site contamination and ways to limit exposure; and
- (e) Financial assurances (see Subsection 11 of this section).

Some common examples of tools to implement institutional controls include restrictions on use or access, zoning, governmental permitting, public advisories, or installation master plans. Institutional controls may be temporary or permanent restrictions or requirements.

ICs are used at the Hanford Site for the following reasons.

- Limit access to, or uses of, land, facilities, and other real properties

- Protect the environment (including cultural and natural resources)
- Maintain the physical safety and security of DOE facilities
- Prevent or limit inadvertent human and environmental exposure to residual contaminants and other hazards
- Protect and maintain effectiveness of the remedy.

2.2 REGULATORY BASIS FOR INSTITUTIONAL CONTROLS

Remediation at most DOE sites is conducted under CERCLA or RCRA. Both CERCLA and RCRA require cleanup of hazardous substances in the environment to levels protective of human health and the environment.

In 40 CFR 300.430(a)(1)(iii)(D), the following language is provided for ICs:

EPA expects to use institutional controls such as water use and deed restrictions to supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure to hazardous substances, pollutants, or contaminants. Institutional controls may be used during the conduct of the remedial investigation/feasibility study (RI/FS) and implementation of the remedial action and, where necessary, as a component of the completed remedy. The use of institutional controls shall not substitute for active response measures (e.g., treatment and/or containment of source material, restoration of ground waters to their beneficial uses) as the sole remedy unless such active measures are determined not to be practicable, based on the balancing of trade-offs among alternatives that is conducted during the selection of [the] remedy.

When ICs are part of the remedy, they are listed in the CERCLA decision documents, as shown in Appendix A. These decision documents provide the regulatory basis for ICs.

DOE P 454.1, *Use of Institutional Controls*, documents a commitment to the effective and appropriate use of ICs; establishes a general framework for a consistent approach to the use of ICs throughout DOE; and recognizes that DOE sites need flexibility to tailor ICs to specific needs, jurisdictions, and time periods. DOE P 454.1 delineates how DOE, including the National Nuclear Security Administration, will use ICs in the management of resources, facilities, and properties under its control and in the implementation of programmatic responsibilities.

Cleanups under RCRA make use of ICs. With respect to the use of ICs under RCRA corrective action authorities, 61 FR 19448 states:

EPA expects to use institutional controls such as water and land use restrictions primarily to supplement engineering controls as appropriate for short-and long-term management to prevent or limit exposure to hazardous waste and constituent.

In addition to the use of ICs for corrective action, RCRA closure regulations, such as 40 CFR 264.119(b)(1), specifically require a deed notice for units where waste is left in place. The owner or operator must record, in accordance with state law, a notation on the deed to the facility property, that will in perpetuity notify any potential purchaser that the land had been used to manage hazardous wastes, and that its use is restricted under the closure regulations.

In a notice published May 1, 1996 (61 FR 19342), EPA states: “committed to consistency of results between the RCRA corrective action and Superfund remedial programs,” and that expectations for corrective actions were based on those published in the CERCLA National Contingency Plan (NCP) (40 CFR 300). The NCP preamble (55 FR 8706-7) and NCP regulations (40 CFR 300.430(a)(1)(iii)(D)) contain the following expectations: “EPA expects to use ICs such as water use and deed restrictions to supplement engineering controls as appropriate for short- and long-term management to prevent or limit exposure. The use of ICs shall not substitute for active response measures as the sole remedy unless such active measures are determined not to be practicable, based on the balancing of trade-offs.”

EPA has stated that its goal is to establish RCRA regulations that are consistent with the CERCLA program. Therefore, guidance published for CERCLA remedies generally is considered applicable to RCRA corrective actions.

Washington State implements a federally authorized state RCRA program. Ecology promulgates Dangerous Waste Regulations through WAC. Ecology’s implementing regulations for RCRA corrective action (WAC 173-303-64620) use Ecology’s cleanup regulations at WAC 173-340.

WAC 173-340-440(4) states the following about ICs:

- (4) Circumstances required. Institutional controls shall be required to assure both the continued protection of human health and the environment and the integrity of an interim action or cleanup action in the following circumstances:
 - (a) The cleanup level is established using Method A or B and hazardous substances remain at the site at concentrations that exceed the applicable cleanup level;
 - (b) The cleanup level is established using Method C;
 - (c) An industrial soil cleanup level is established under WAC 173-340-745;
 - (d) A ground water cleanup level that exceeds the potable ground water cleanup level is established using a site-specific risk assessment under WAC 173-340-720 (6)(c) and institutional controls are required under WAC 173-340-720 (6)(c)(iii);
 - (e) A conditional point of compliance is established as the basis for measuring compliance at the site;
 - (f) Any time an institutional control is required under WAC 173-340-7490 through 173-340-7494; or
 - (g) Where the department determines such controls are required to assure the continued protection of human health and the environment or the integrity of the interim or cleanup action.

2.3 INSTITUTIONAL CONTROLS IN CERCLA, THE NCP, AND RCRA

CERCLA, as amended by *Superfund Amendments and Reauthorization Act of 1986*, NCP, and RCRA, support the use of ICs in remediation of a site. CERCLA, Section 121(d)(2)(B)(ii)(III) refers to the use of enforceable measures (e.g., ICs) as part of the remedial alternative at sites. EPA can enforce the implementation of ICs, but not necessarily their long-term maintenance. For

example, the local government with zoning jurisdiction may agree to change the zoning of the site to prohibit residential land uses as part of the remedy, but the local government retains the authority to change the zoning designation in the future. EPA is authorized, under CERCLA section 104(j), to acquire (by purchase, lease, or otherwise) real property interests, such as easements, needed to conduct a remedial action provided that the state in which the interest is to be acquired is willing to accept transfer of the interest following the remedial action. Transfers of contaminated federal property are subject to special deed requirements under CERCLA sections 120(h)(3)(A)(iii) and 120(h)(3)(C)(ii)(I) and (II).

The NCP provides EPA's expectations for developing appropriate remedial alternatives, including ICs under CERCLA. In particular, it states that EPA expects to use treatment to address the principal threats posed by sites; engineering controls for wastes that pose relatively low risk or where treatment is impracticable; and a combination of the two to protect human health and the environment (40 CFR 300.430(a)(1)(iii)(A), (B), and (C)). In appropriate situations, a combination of treatment, containment, and ICs may be necessary. The NCP also emphasizes the use of ICs to supplement engineering controls during all phases of cleanup and as a component of the completed remedy, but cautions against their use as the sole remedy unless active response measures are determined to be impracticable (40 CFR 300.430(a)(1)(iii)(D)). In the case where ICs are the entire remedy, the response to comments section of the preamble to the NCP states that special precautions must be made to ensure the controls are reliable (55 FR 8706, "Preamble to National Oil and Hazardous Substances Pollution Contingency Plan," Appendix D, subpart A).

RCRA requirements are imposed through legal mechanisms different from those used under CERCLA. In RCRA, authorized states are the primary decision makers, this results in a wide variety of state-specific mechanisms being available.

If the IC is being imposed through a RCRA permit, steps should be taken to ensure that long-term enforcement is not lost through property transfer or permit expiration. Cleanups under RCRA are conducted in connection with the closure of regulated units and facility-wide corrective action either under a permit (RCRA, Sections 3004(u) and (v)), interim status order (RCRA, Section 3008(h)) or imminent hazard order (RCRA, Section 7003), or other authorities. It also should be noted that landfill closure requirements under 40 CFR 264.119 require deed notices that the land has been used to manage hazardous waste, although the notice itself does not restrict future use.

2.4 TYPES OF INSTITUTIONAL CONTROLS

Several commonly used terms exist for describing or classifying ICs. These classifications often are not mutually exclusive or only apply to certain types of ICs.

EPA generally classifies ICs into the following categories:

1. Governmental controls (e.g., zoning, local ordinances).
2. Proprietary controls (e.g., easements, restrictive covenants).
3. Enforcement and permit tools (e.g., consent decrees, administrative orders).
4. Informational tools (e.g., notices filed in the land records, advisories).

DOE classifies ICs into the following categories:

1. Active/Passive Controls

The concepts of active and passive controls have long been understood to apply to the long-term management of radioactive waste. Active controls require clear institutional and human responsibilities and the active performance of responsibilities such as controlling access to a disposal site by means such as guards, performing maintenance operations or remedial actions at a site, controlling or cleaning up releases from a site, or monitoring parameters related to disposal system performance. Passive controls are defined by their dependence on the design of controls and structures such as permanent markers placed at a disposal site; public records and archives; government ownership and regulations regarding land or resource use; and other methods of preserving knowledge about the location, design, and contents of a disposal system.

2. Proprietary/Governmental Controls

This classification of ICs is based on the legal authority of landowners to control use of their land. Proprietary controls, such as easements, are based on the rights associated with ownership of an interest in land. Government controls rely on the powers of governments to protect the public health and safety through zoning, legislation, land ownership, or permit programs.

3. Structural/Nonstructural Controls

Structural controls include physical barriers (e.g., gates, fences, and natural barriers) to keep trespassers away from a site, signs to warn people of dangers, and engineered barriers (e.g., tanks) restricting or containing actual or potential contaminant migration. Nonstructural controls are all other limitations on the use of land that do not require physical means of exposure prevention.

Using the guidance provided by EPA and DOE, the ICs at the Hanford Site generally are divided into the following categories:

- Warning Notices (structural/nonstructural controls, active/passive controls)
- Entry Restrictions (structural/nonstructural controls)
- Land-Use Management (proprietary/governmental controls)
- Groundwater-Use Management (proprietary/governmental controls)
- Waste Site Information Management (informational tools)
- Miscellaneous Provision (trespassing incidents).

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3.0 INSTITUTIONAL CONTROLS AT THE HANFORD SITE

This chapter describes the types of ICs used and their implementation at the Hanford Site. Additional information is provided for IC requirements specific to the four NPL sites.

3.1 INSTITUTIONAL CONTROLS AND CERCLA DECISION DOCUMENTS

IC requirements are generally specified in the following CERCLA decision documents:

- ROD
- ROD amendment (AMD)
- Explanation of significant differences (ESD).

Action memorandums are another type of decision document that is used for removal actions. However, because removal actions usually are temporary measures and are not intended to fulfill NPL cleanup requirements, ICs typically are not specified in the action memorandums. To date, action memorandums issued to the Hanford Site do not include ICs. Therefore, action memorandums are not considered in this Plan.

The CERCLA decision documents, excluding action memorandums, that have been issued for the 100, 200, 300, and 1100 Area NPL sites are listed in Tables 3-1, 3-2, 3-3, and 3-4, respectively. Each table includes the type of decision documents issued for that particular NPL site in chronological order (from earliest to most recent), the dates the documents were signed, and the OU/remedial action addressed by each document. Some of the documents listed may not specify the ICs. A complete listing of the ICs identified in the CERCLA decision documents is provided in Appendix A.

3.2 INSTITUTIONAL CONTROLS AND RCRA CLOSURE DOCUMENTS

When a TSD unit is no longer used to treat, store, and/or dispose of dangerous or mixed waste, the TSD unit is closed. Closure is accomplished in a manner that is protective of human health and the environment. The *Hanford Facility Dangerous Waste Permit*, Revision 8C, WA7890008967, permit condition II.K.3.a states, "For "modified closures", the Permittees shall provide ICs in accordance with WAC 173-340-440 which restricts access to the TSD unit for a minimum of five (5) years following completion of closure. The specific details and duration of ICs shall be specified in Parts III, V, and/or VI of this Permit for a particular TSD unit."

The Hanford Site RCRA permit web site lists the TSD units. Some TSDs are still operating (still actively managing wastes). Some TSD units are clean closed. Some of them are in post-closure mode while others are waiting for final closure. The closure of the remainder of the unit may be integrated with the CERCLA remediation action. Table 3-5 lists the closed units and the units where ICs are required as a post-closure action. The post-closure actions may or may not include ICs.

Table 3-1. 100 Area National Priorities List CERCLA Decision Documents. (2 sheets)

Decision Document Type/ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
EPA/ROD/R10-95/126	Record of Decision for USDOE Hanford 100 Area	09/28/95	100 BC-1, 100-DR-1 100-HR-1	Table A1-1
EPA/ROD/R10-96/151	Record of Decision for USDOE Hanford 100 Area	02/02/96	100-IU-1, 100-IU-3, 100-IU-4, 100-IU-5	No ICs identified.
EPA/ROD/R10-96/134	Record of Decision for USDOE Hanford 100 Area	03/26/96	100-HR-3, 100-KR-4	Table A1-2
EPA/AMD/R10-97/044	Record of Decision Amendment for USDOE Hanford 100 Area	04/04/97	100-BC-1, 100-DR-1 100-HR-1	Table A1-3
EPA/ROD/R10-99/039	Interim Action Record of Decision for U.S. Department of Energy Hanford 100 Area and 200 Area	07/15/99	100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 10-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 OUs	Table A1-4
EPA/ROD/R10-99/059	Record of Decision for USDOE Hanford 100 Area	09/17/99	100-KR-2, Spent Fuel	Table A1-5
EPA/ROD/R10-99/112	Interim Remedial Action Record of Decision for USDOE Hanford 100 Area	09/29/99	100-NR-1, 100-NR-2	Table A1-6
EPA/AMD/R10-00/122	Interim Remedial Action Record of Decision Amendment for USDOE Hanford 100 Area	10/24/99	100-HR-3	Table A1-7
EPA/ROD/R10-00/120	Interim Remedial Action Record of Decision for USDOE Hanford 100 Area	01/18/00	100-NR-1	Table A1-8
EPA/ESD/R10-00/045	Explanation of Significant Difference for the 100 Area Remaining Sites ROD	06/15/00	100-IU-6	No ICs identified.
EPA/ROD/R10-00/121	Declaration of the Record of Decision for USDOE Hanford 100 Area	09/25/00	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)	Table A1-9
EPA/ESD/R10-03/606	Explanation of Significant Difference for the 100-HR-3 Operable Unit Record of Decision	03/31/03	100-HR-3	No ICs identified.

Table 3-1. 100 Area National Priorities List CERCLA Decision Documents. (2 sheets)

Decision Document Type/ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
EPA/ESD/R10-03/605	Explanation of Significant Difference for the 100-NR-1 Operable Unit Treatment, Storage, And Disposal Interim Action Record Of Decision And 100-NR-1/100-NR-2 Operable Unit Interim Action Record of Decision	05/21/03	100-NR-1, 100-NR-2	Table A1-10
ESD/Not listed (EPA, 2004a)	Explanation of Significant Differences for The 100 Area Remaining Sites Interim Remedial Action Record of Decision	4/26/04	100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 10-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 OUs	Table A1-11
ESD/Not listed (EPA, 2007)	Explanation of Significant Differences for the interim record of decision	11/1//2007	100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, 100-IR-2 Operable Units, Hanford Site (100 Area Burial Grounds)	Table A1-12
ESD/Not Listed (EPA, 2009a)	Explanation of Significant Differences for the 100 Areas Remaining Sites Interim Remedial Action record of decision	8//11/2009	100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1,100-FR-2, 100-HR-1, 100-HR-2, 100-KR-1, 100-KR-2, 100-IU-1, 100-IU-2, 100-IU-6, and 200-CW-3	No ICs identified.
ESD/Not listed (EPA, 2009b)	Explanation of Significant Differences for the 100-HR-3 and 100-KR-4 Operable Units Interim Record of Decision	8/11/2009	100-HR-3, 100-KR-4	References the DOE/RL-2001-41 (this document) for ICs.
AMD, Decision Summary and Responsive Summary/Not listed (EPA, 2010b)	U.S. Department of Energy 100-NR-1 and 100-NR-2 Operable Units Hanford Site – 100 Area Benton County, Washington	9/29/2010	100-NR-1, 100-NR-2	No ICs identified.
AMD = record of decision amendment. EPA = U.S. Environmental Protection Agency. ESD = Explanation of Significant Difference. IC = institutional control.		OU = operable unit. ROD = record of decision. USDOE = U.S. Department of Energy.		

Table 3-2. 200 Area National Priorities List CERCLA Decision Documents. (2 sheets)

Decision Document Type/ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
EPA/ROD/R10-95/100	Record of Decision, USDOE Hanford Environmental Restoration Disposal Facility (ERDF)	01/20/1995	ERDF	Table A2-1
EPA/ROD/R10-95/114	Record of Decision, USDOE Hanford 200 Area	05/24/1995	200-ZP-1	No ICs identified
EPA/ESD/R10-96/145	Explanation of Significant Differences, USDOE Hanford, Environmental Restoration Disposal Facility	07/30/96	ERDF	No ICs identified
EPA/ROD/R10-97/048	Record of Decision, USDOE Hanford 200 Area	02/11/1997	200-UP-1	Table A2-2
EPA/AMD/R10-97/101	Amended Record of Decision, USDOE Hanford Environmental Restoration Disposal Facility	09/25/1997	ERDF	No ICs identified
EPA/AMD/R10-99/038	Amended Record of Decision, USDOE Hanford Environmental Restoration Disposal Facility	03/25/1999	ERDF	Table A2-3
EPA/AMD/R10-02/030	Amended Record of Decision, USDOE Hanford Environmental Restoration Disposal Facility	03/11/2002	ERDF	Table A2-4
ROD/Not listed (Required Through the Time of Completion of Remedy Construction) (EPA, 2005)	Record of Decision, 221-U Facility, (Canyon Disposition Initiative), Hanford Site, Washington	09/30/2005	221-U Facility	Table A2-5
ROD/Not listed (Required After Construction of the Remedial Action) (EPA, 2005)	Record of Decision, 221-U Facility, (Canyon Disposition Initiative), Hanford Site, Washington	09/30/2005	221-U Facility	Table A2-6
ROD/Not listed (EPA, 2008)	Record of Decision, Hanford 200 Area, 200-ZP-1 Superfund Site, Benton County, Washington	09/29/2008	200-ZP-1	Table A2-8
ESD/Not listed (EPA, 2009d)	Explanation of Significant Differences for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County, Washington	02/24/2009	200-UP-1	Table A2-9
AMD and ESD/Not listed (EPA, 2009e)	ROD Amendment and Explanation of Significant Differences	07/22/2009	ERDF	No ICs identified.

Table 3-2. 200 Area National Priorities List CERCLA Decision Documents. (2 sheets)

Decision Document Type/ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
ROD/Not listed (EPA, 2011)	Record of Decision for the 200-CW-5 and 200-PW-1, 200-PW-3, and 200-PW-6 operable units	07/30/2011	200-CW-5, and 200-PW-1, 200-PW-3, and 200-PW-6	Table A2-10
ROD/Not Listed (EPA, 2012)	Record Of Decision For Interim Remedial Action Hanford 200 Area Superfund Site 200-UP-1 Operable Unit	09/27/2012	200-UP-1	Table A2-11
AMD = record of decision amendment.		IC = institutional control.		
EPA = U.S. Environmental Protection Agency.		ROD = record of decision.		
ERDF = Environmental Restoration Disposal Facility.		USDOE = U.S. Department of Energy.		
ESD = Explanation of Significant Difference.				

Table 3-3. 300 Area National Priorities List CERCLA Decision Documents. (2 sheets)

Decision Document Type/ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
EPA/ROD/R10-96/143	Record of Decision, USDOE Hanford 300 Area	07/17/1996	300-FF-1, 300-FF-5	Table A3-1
EPA/ESD/R10-00/505	Explanation of Significant Differences, USDOE Hanford 300 Area	01/12/2000	300-FF-1	No ICs identified
EPA/ESD/R10-00/524	Explanation of Significant Differences, USDOE Hanford 300 Area	06/15/2000	300-FF-5	Table A3-2
EPA/ROD/R10-01/119 (Required at Current Time and During Cleanup Activity)	Record of Decision, USDOE Hanford 300 Area	04/04/2001	300-FF-2	Table A3-3
EPA/ROD/R10-01/119 (Required After Cleanup is Complete)	Record of Decision, USDOE Hanford 300 Area	04/04/2001	300-FF-2	Table A3-4
ESD/Not listed (EPA, 2004b)	Explanation of Significant Differences for the 300-FF-2 Operable Unit Record Of Decision	05/2004	300-FF-2	Table A3-5
ESD/Not listed (EPA, 2004b)	Explanation of Significant Differences for the 300-FF-2 Operable	08/11/09	300-FF-2	No ICs identified.

Table 3-3. 300 Area National Priorities List CERCLA Decision Documents. (2 sheets)

Decision Document Type/ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
	Unit Interim Action Record of Decision			
EPA = U.S. Environmental Protection Agency. ROD = record of decision. ESD = Explanation of Significant Difference. USDOE = U.S. Department of Energy. IC = institutional control.				

Table 3-4. 1100 Area National Priorities List CERCLA Decision Documents.

Decision Document Type/ ID Number	Decision Document Title/Subject	Decision Document Signature Date	Operable Units Addressed by the Decision Documents	Table Listing Institutional Controls
EPA/ROD/R10-93/063	Record of Decision	09/24/93	1100-EM-1, 1100-EM2, 1100-EM-3, and 1100-IU-1	Table A4-1
Final Closeout Report/Not Listed (EPA/ESD/R10 96/145)	Superfund Final Closeout Report, USDOE Hanford, 1100 Area	07/25/96	1100-EM-1, 1100-EM2, 1100-EM-3, and 1100-IU-1	Table A4-2
ESD/Not Listed (EPA, 2011)	ESD USDOE Hanford 1100 Area	09/27/10	Horn Rapids Landfill	Table A4-3
EPA = U.S. Environmental Protection Agency. ROD = record of decision. ESD = Explanation of Significant Difference. USDOE = U.S. Department of Energy.				

Table 3-5. Hanford Site Treatment, Storage, and Disposal Units closed under Hanford Site RCRA Permit. (2 sheets)

Units	Closure Type	Table Listing Institutional Controls
100 Area		
183-H Solar Evaporation Basins	Modified Closure	Table B1-1
100-D Ponds	Clean Closed	No ICs identified
105-DR Large Sodium Fire Facility	Partially Clean Closed	No ICs identified
200 Area		
200 Area Ash Pit Demolition Site	Clean Closed	No ICs identified
216-B-3 Expansion Ponds	Clean Closed	No ICs identified
216-A-10 Crib	Clean Closed	No ICs identified
216-U-12 Crib	Procedurally Closed	No ICs identified
218-E-8 Borrow Pit Demolition Site	Clean Closed	No ICs identified
221-T Test Facility	Procedurally Closed	No ICs identified
224-T Transuranic Waste Storage & Assay Facility	Clean Closed	No ICs identified

Table 3-5. Hanford Site Treatment, Storage, and Disposal Units closed under Hanford Site RCRA Permit. (2 sheets)

Units	Closure Type	Table Listing Institutional Controls
241-Z Treatment & Storage Tanks	Clean Closed	No ICs identified
2101-M Pond	Clean Closed	No ICs identified
2727-S Storage Facility	Clean Closed	No ICs identified
2727-WA SRE Sodium Storage Building	Procedurally Closed	No ICs identified
Hanford Waste Vitirfication Plant	Permit application rejected, closed	No ICs identified
Plutonium Finishing Plant Treatment Unit	Clean Closed	No ICs identified
300 Area		
300 Area Solvent Evaporator	Clean Closed	No ICs identified
300 Area Waste Acid Treatment Storage	Clean Closed	No ICs identified
300 Area Process Trenches	Modified Closure	No ICs identified
303-K Storage Facility	Clean Closed	No ICs identified
303-M Oxide Facility	Clean Closed	No ICs identified
304 Concretion Facility	Clean Closed	No ICs identified
305-B Storage Facility	Clean Closed	No ICs identified
311 Tanks Capacity (Capacity transferred to 300 Area Waste Treatment System)	Clean Closed	No ICs identified
324 Pilot Plant	Procedurally Closed	No ICs identified
332 Storage Facility	Procedurally Closed	No ICs identified
3718-F Alkali Metal Treatment & Storage Area	Clean Closed	No ICs identified
Biological Treatment Test Facilities	Procedurally Closed	No ICs identified
Physical and Chemical Treatment Test Facilities	Procedurally Closed	No ICs identified
Thermal Treatment Test Facilities	Procedurally Closed	No ICs identified
400 Area		
437 Maintenance and Storage Facility	Procedurally Closed	No ICs identified
4843 Alkali Metal Storage Facility	Clean Closed	No ICs identified
Sodium Storage Facility/Sodium Reaction Facility	Procedurally Closed	No ICs identified
600 Area		
616 Nonradioactive Dangerous Waste Storage Facility	Clean Closed	No ICs identified
Hanford Patrol Academy Demolition Sites	Clean Closed	No ICs identified
3000 Area		
Simulated High-Level Waste Slurry Treatment/Storage	Clean Closed	No ICs identified
IC = institutional control.		

3.3 SITEWIDE INSTITUTIONAL CONTROLS REQUIREMENTS

The requirement for a Sitewide IC plan was established in the following documents:

- EPA/ROD/R10-00/121, *Record of Decision for the USDOE Hanford 100-Area, Benton County, Washington*
- EPA, 2001, *USDOE Hanford Site, First Five-Year Review Report*
- EPA/ROD/R10-01/119, *Record of Decision for the USDOE Hanford 300 Area, Benton County, Washington*
- In addition to the CERCLA documents listed above, the requirement is also identified in DOE/EIS-0222-F, *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statements*.

The 100 Area Burial Ground ROD (EPA/ROD/R10-00/121) lists the following specific Sitewide requirements.

- “DOE shall submit a Sitewide institutional controls plan that includes the applicable institutional controls for the 100 Area OUs. 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:”
 - “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.”
- “DOE will notify EPA and Ecology immediately upon discovery of any activity that is inconsistent with the OU-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 OUs 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 OU-specific objectives, including results of visual field inspections of all areas subject to OU-specific restrictions;”
 - “An evaluation of whether or not all OU-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.”

Table 3-6 identifies types, the mechanism, and objective for ICs implemented at the Hanford Site.

Table 3-6. Types, Objectives, and Mechanisms for Sitewide Institutional Controls.

Types	Objectives	Mechanisms
Warning Notices	Provide visual identification and warning of hazardous or sensitive areas.	Signs
Entry Restrictions	Control human access to hazardous or sensitive areas. Ensure adequate training for those who enter hazardous or sensitive areas. Avoid disturbance and exposure to remedies such as engineered barriers or an effective vegetative soil layer. Provide a basis for the enforcement of access restrictions.	Procedural requirements for access, warning signs
	Prevent unauthorized human access to hazardous or sensitive areas. Provide protective barriers to standard industrial hazards. Provide visual warnings. Avoid disturbance and exposure to remedies such as engineered barriers or an effective vegetative soil layer.	Fencing
Land-Use Management	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 ICs are maintained beyond change of ownership, as appropriate.	Land-use and real property controls
	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.	Excavation permits
Groundwater-Use Management	Ensure proper use of groundwater.	Land-use and real property controls, Excavation permits
Waste Site Information Management	Maintain and provide access to information on the location and nature of contamination.	Administrative
IC = institutional control.		

The ICs help 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 that is conducting activities on the Hanford Site
- Hanford Site visitors – Individuals who access the Hanford Site for a Hanford Site-related purpose (e.g., public tour)
- Inadvertent intruders – Individuals who inadvertently access the Hanford Site (e.g., inadvertent access to the Hanford Site along the Columbia River shoreline for recreational purposes)

- Remedies such as engineered barriers or a vegetative soil layer.

3.4 DESCRIPTION OF THE SITEWIDE INSTITUTIONAL CONTROLS

The description of ICs on the Hanford Site is provided in the following sections for each of the six categories of controls.

3.4.1 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 (Figure 3-1) and notification signs for hazardous (including radiological control) and sensitive areas (Figure 3-2).

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 fences and signs along the Hanford Site’s perimeter and public road corridors are designed and maintained in accordance with DOE orders. 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 safeguards and security include the following references.

Signs and markers for radiological controls are in accordance with the 10 CFR 835, “Occupational Radiation Protection” Final Rule and Section 229 of the *Atomic Energy Act of 1954*, as amended.

The *Hanford Facility Dangerous Waste Permit*, WA7890008967, specifies signage requirements for TSDs and some post-closure units. The post-closure document for 183-H Solar Evaporation Basin requires that roadways to the unit will remain administratively restricted to use by authorized personnel only. It further states that posted federal warning signs restrict access to the 100-H Area from the Columbia River.

DOE has placed yellow “No Trespassing” signs every 152 m (500 ft) along the perimeter of the Hanford Site and on the public roadways that pass through the Hanford Site (Figure 3-1). The signs also cite that the unauthorized entry upon any facility, or real property in the custody of DOE, which has been subject to the provisions contained in 10 CFR 860, “Trespassing on Department of Energy Property,” is prohibited.

3.4.2 Entry Restrictions

DOE strives to prevent entry into waste sites in accordance with the IC requirements of the CERCLA decision documents and as described in applicable work plans. Entry restrictions are ICs that prevent or limit the access of humans to particular geographic areas. Procedural requirements for access and fencing are the two main types of access controls.

Figure 3-1. No Trespassing Sign.



Figure 3-2. Notification Signs for a Hazardous Area.



3.4.2.1 Procedural Requirements for Access

The objectives of the procedural requirements for access are as follows:

- 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.

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 Hanford Site access barricades (i.e., Rattlesnake, Yakima, and Wye) without a security badge. Foreign Nationals will require a properly trained Foreign National Escort, and areas being visited must be included in the person's Security Plan approved by DOE. Signs at the Hanford Site entrances identify the requirements for access.

Trespassing on the Hanford 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 directives and are implemented through the Security and Emergency Services Management System Description described in the RL Integrated Management System and the specific contractor procedures. The RL Integrated Management System is available on the DOE-RL web page. Visitors, Hanford Site contractors, and DOE personnel are required to obtain a badge from DOE's Central Badging Office to obtain access to the restricted areas. Before receiving a badge, all must receive the level of training required to access controlled areas or to perform work. This includes training on recognizing signs and hazard postings and following appropriate procedures. Security Police Officers are stationed at the Rattlesnake, Yakima, and Wye barricades to prevent unauthorized access.

The procedural requirements for access address the following items:

- Badges
 - Wearing and displaying the badges at all times while on the Hanford Site and presenting of badges on request
 - Badging 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.
- Verification and Tracking
 - Verification by personnel of proper badges at entry points where necessary to check identity and to control unauthorized entry
 - Employee's responsibilities when hosting Site visitors, including knowing the visitor's location at all times and the work being performed.

- Orientation and Training
 - Appropriate training for visitors and workers regarding policies and procedures, including safety, security, and escorting requirements, as well as emergency preparedness information
 - Escort training, which provides qualifications for personnel who will act as escorts.
- Violations
 - Denying security clearance and access to Hanford Site
 - Reporting of security incidents
 - Reporting of trespass incidents to regulators and local authorities in accordance with DOE policy, contracts, and as required by regulatory decision documents.

3.4.2.2 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 remedies such as engineered barriers or vegetative soil layers; and provide visual warnings. If a fence is considered to be a component of the ICs for a particular waste site (rather than a component of the engineered remedy), the decision document associated with the waste site should 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 ICs may be defined in the selected remedy. The need for fencing and the type of fence are 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 identified and corrective action is taken through the approved work control procedures.

3.4.2.3 Entry Restrictions for the Three National Priorities List Sites and the 1100 Area Site

The entry restrictions for the three NPL sites and the 1100 Area site are described in the following subsections.

100 and 200 Area National Priorities List Sites

- 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 Hanford 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.

300 Area National Priorities List Site

- The 300 Industrial Area perimeter is fenced
- A Hanford Site security badge is required for entry into the 300 Industrial Area
- Warning signs are posted limiting off-road access.

1100 Area Site (Deleted from National Priorities List in 1996)

- No Hanford Site security badge is required for access; however, access to the ALE, which is managed by the U.S. Fish and Wildlife Service, is restricted
- Horn Rapids Landfill (closed) is fenced, with warning signs and restricted access.

Entry Restrictions for the RCR TSD Units with Closure Plans

- A Hanford Site security badge is required for entry into areas where TSDs are located
- Access is monitored by Hanford Patrol at public access points (Rattlesnake, Yakima, and Wye barricades)
- Fences are around much of the Hanford Site
- The 200 East and 200 West Areas are fenced
- High-hazard areas are secured by additional fences
- TSD Units are marked with appropriate signage and barriers.

3.4.3 Land-Use Management

DOE will restrict the use of land on waste sites and prohibit activities that would interfere with the remedial activity in accordance with the IC requirements of the CERCLA decision documents and as described in applicable work plans. DOE shall prohibit activities that would damage the monitoring systems and its components identified in the CERCLA decision documents. Such monitoring systems could include wells and systems monitoring engineered barrier performance.

ICs that address land use have been grouped into the following three main elements:

- Land-use and real property controls, which are used to ensure that the use of land is in accordance with Hanford Site plans and CERCLA decision documents
- Site evaluations, which are required prior to any land disturbance activity
- Excavation permits, which are required for excavations on the Site to prevent unplanned disturbance or infiltration as prohibited by CERCLA decision documents.

3.4.3.1 Land-Use and Real Property Controls

The objectives of the ICs 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 DOE-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 P 430.1, *Land and Facility Use Planning*; DOE P 580.1, *Management Policy for Planning, Programming, Budgeting, Operation Maintenance and Disposal of Real Property*; and DOE O 430.1B, *Real Property Asset Management*.

The land-use policies, real property management process, and implementing procedure requirements are integrated into the DOE-RL Integrated Management System and contractor procedures. The comprehensive land-use plan for the Site is presented in DOE/EIS-0222-F and DOE/EIS-0222-SA-01, *Supplement Analysis*, 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.

DOE manages changes to land use and the land-use requests through a process involving the local stakeholders, Tribal Nations, and affected local governments. Chapter 6.0 of DOE/EIS-0222-F describes how the cooperating agencies with land-use authority, and affected Tribal governments, advise DOE on land-use and resource-management issues such as considering proposals for changes to land use and land-use requests that are not in conformance with DOE/EIS-0222-F.

The review process for site-specific land use and land-use requests is defined in Chapter 6.0 of DOE/EIS-0222-F. To ensure compatibility with DOE/EIS-0222-F, any proposed changes in land use must be submitted to the DOE-RL Real Estate Office.

The DOE-RL Real Estate Office reviews and approves the disposition of land. Before the transfer, sale, or lease of any property subject to cleanup under CERCLA or RCRA corrective action is conducted, DOE assesses whether the property is subject to IC requirements based on the corresponding CERCLA decision documents and RCRA corrective action decisions. DOE will notify the EPA and the state before any such transaction in accordance with the Sitewide IC requirements 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 Tri-Party Agreement requirements.

The following is a summary of land-use management of the four NPL sites.

100 Area, 200 Area, and 300 Area National Priorities List Sites

Land use is managed according to the comprehensive land use plan as described in DOE/EIS-0222-F and DOE/EIS-0222-SA-01 and in compliance with DOE orders and cleanup end states as established in CERCLA decision documents.

Land use for the Hanford Reach National Monument is managed by the U.S. Fish and Wildlife Service, with the exception of areas where DOE is conducting cleanup, in accordance with a memorandum of understanding (RL, 2001).

A permit is required for excavation in the 100, 200, and 300 Areas and the Hanford Reach National Monument.

1100 Area Site (Deleted from NPL in 1996)

Land use for the portion of land 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, which is a part of the Hanford Reach National Monument, is conducted by the U.S. Fish and Wildlife Service under a real estate permit and a memorandum of understanding (RL, 2001).

The 1100 Area ROD (EPA/ROD/R10-93/063), Section X (F), requires that DOE will record a notation on the deed to the Horn Rapids Landfill property as specified in National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR 61.151(d)(4)).

RCRA TSD Units

Land use is managed according to the comprehensive land use plan as described in DOE/EIS-0222-F and DOE/EIS-0222-SA-01 and in compliance with DOE orders and RCRA closure plan requirements.

3.4.3.2 Site Evaluation

The site evaluation process identifies possible sites for a proposed project and compares their relative merits based on environmental protection, technical, safety, and health protection, and life-cycle cost requirements. The process also is used to request, reserve, and use a specific parcel of land when multiple sites do not need to be evaluated. The outcome of the process is the documentation necessary to compare site alternatives, confirm site suitability, make recommendations, and ensure that the site selected meets requirements.

The site evaluation process generally consists of:

- Determining that a potential action requires a site evaluation
- Identifying site requirements
- Submitting the land-use request to a multi-contractor team to evaluate the request
- Developing recommendations
- Selecting the site.

Site evaluation applies to all land development, disturbances, and improvements on the Hanford Site, both temporary and permanent. Examples of the scope of this procedure include:

- Construction of new structures that preempt present or projected land use. Examples would be a fixed structure, a parking lot, roadway, a material/equipment staging area, or a utility corridor
- Expansion of an existing land use for a designated purpose such as burial grounds and associated remediation efforts, or gravel pits
- Installation of temporary or portable structures including trailers, cargo containers, or shelters.

The projects may be modified or terminated if there is a potential conflict with IC requirements.

3.4.3.3 Excavation Permits

The Hanford Site has a Sitewide excavation permit that contractors are required to obtain before performing any excavation work, including well drilling. An excavation permit is required for

any mechanical digging or hand digging greater than 304.8 mm (12 in.). It is also required for any mechanical digging less than 304.8 mm (12 in.) with the exception of using a guzzler (vacuum excavation).

The work control process requires an excavation permit as part of the work planning process. The excavation permit process contains the following features.

- A review of the Waste Information Data System (WIDS) database is required to identify the proximity of existing waste sites (more information regarding WIDS is provided in Section 3.4.5)
- Cultural and biological resource surveys are required to comply with Section 106 of the *National Historic Preservation Act of 1966* and the *Endangered Species Act of 1973*
- *National Environmental Policy Act of 1969* documentation requirements must be identified
- The presence of any underground objects (e.g., utilities) must be identified
- Excavation work is required to follow the applicable health and safety requirements
- The permit must undergo a review by disciplines such as environmental and radiological before it is issued
- Each Hanford Site contractor is responsible for ensuring that excavations are performed in accordance with excavation permit requirements.

3.4.4 Groundwater-Use Management

DOE will restrict well drilling and groundwater use in accordance with the IC requirements of the CERCLA decision documents and as described in applicable work plans. Groundwater use on the Hanford Site generally is restricted, except for limited research purposes and for monitoring and treatment, as approved by the EPA or Ecology or as authorized in EPA- or Ecology-approved documents. Groundwater use also is controlled through excavation permits and the land-use process (as described previously).

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

- Fast Flux Test Facility in the 400 Area (one main and two backup drinking water wells)
- Hanford Patrol Training Center (one irrigation well)
- Energy Northwest (formerly Washington Public Power Supply System) (two wells for drinking water and two wells for backup fire protection)
- B Plant (two wells for emergency cooling water)
- AY/A Tank Farm (one well for emergency cooling water)
- Pacific National Northwest Laboratory, 300 Area (one well for aquatic studies).

The drinking water systems are operated in accordance with the Washington State Department of Health regulations. All the new wells must be registered with Ecology. The control measures used to protect groundwater for drinking water systems are described in HNF-35051, Revision 5, *Small Water Systems Management Program for Group A Water Systems Managed by Mission Support Alliance, LLC, and CH2M HILL Plateau Remediation Company*, Appendix A,

“Wellhead Protection Plan.” 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 Wastren (1995), *Hanford Site Watershed Control Plan*.

Oversight of DOE water systems is the responsibility of DOE-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. The groundwater monitoring project report summarizes groundwater monitoring conducted under CERCLA and RCRA requirements and provides an assessment of the effects of remediation or interim measures conducted under CERCLA and RCRA. The report, along with OU-specific reports, fulfills the reporting requirements of DOE orders and the WAC.

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 ICs (e.g., prohibition of groundwater use). The data from the report are considered in evaluating both the effectiveness of the ICs 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 ICs will remain in place.

The following is a summary of groundwater-use management in the three NPL sites and the 1100 Area site:

- 100 Area, 200 Area, and 300 Area NPL sites
 - Groundwater use at the Hanford Site is restricted, except for monitoring and treatment, as approved by the EPA or Ecology.
- 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.

3.4.5 Waste Site Information Management

DOE maintains a tracking mechanism that identifies all waste site land areas that are under restriction or control in accordance with the IC requirements of the CERCLA decision documents and as described in applicable work plans.

WIDS identifies waste management units on the Hanford Site, their location, waste type, status, and associated ICs.

Other descriptive information contained in WIDS includes size, extent, and appearance; testing or sampling efforts; regulatory information; bibliographic references; images; change history; and data validation. DOE maintains the system 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 in RL-TPA-90-0001, *Tri-Party Agreement Handbook Management Procedures*, Guideline Number TPA-MP-14, “Maintenance of the Waste Information Data System (WIDS),” and it will be a key part of the Long-Term Stewardship Program.

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 OU, 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.

3.4.6 Miscellaneous Provision

The ICs listed in the CERCLA decision documents sometimes include requirements that are miscellaneous in nature (i.e., they do not clearly fit into any specific IC category). Some examples are as follows.

- DOE shall notify EPA and Ecology of any trespassing incidents
- DOE shall notify the Benton County Sherriff’s Office of any trespassing incidents
- DOE shall evaluate the effectiveness of the ICs and report to EPA and Ecology
- DOE contractors will provide an annual update on the effectiveness of the ICs to EPA and Ecology at the Area Unit Managers Meetings every September
- DOE shall comply with the Sitewide ICs plan as approved by EPA and Ecology.

3.5 IMPLEMENTATION OF INSTITUTIONAL CONTROLS AT THE HANFORD SITE

Some CERCLA decision documents require that no later than 180 days after the decision document is signed, DOE shall update the Sitewide IC plan to include the ICs required by the decision document and specify the implementation and maintenance actions that will be taken, including periodic inspections. The implementation and maintenance actions, including specific inspections, are generally identified in project-specific documents such as a surveillance and maintenance plan or O&M plan. Table 3-7 lists documents where the implementation and maintenance actions for ICs for the OUs are addressed. This table will be updated, as necessary, during the next revision of this Plan.

Table 3-7. Documents Implementing Institutional Controls and Maintenance Actions. (2 sheets)

Operable Units	Implementing Document
221-U Facility (Canyon Disposition Initiative) (Institutional Controls Requirements Required Through the Time of Completion of Remedy Construction)	DOE/RL-2006-21, Rev. 0, <i>Remedial Design/Remedial Action Work Plan for 221-U Facility</i> DOE/RL-98-20, Rev. 1, <i>Surveillance and Maintenance Plan for the 221-U Facility (U Plant)</i>
221-U Facility (Canyon Disposition Initiative) (Institutional Controls Required After Construction of the Remedial Action)	Project Operation and Maintenance Manual (not published)
200-ZP-1	DOE/RL-2009-78, <i>200 West Area 200-ZP-1 Pump-and-Treat Remedial Design Remedial Action Work Plan Surveillance and Maintenance Plan</i> (not published)

Table 3-7. Documents Implementing Institutional Controls and Maintenance Actions. (2 sheets)

Operable Units	Implementing Document
	DOE/RL-2009-124, Rev. 1, <i>200 West Area Groundwater Pump-and-Treat Facility Operations and Maintenance Plan.</i>
200-UP-1	DOE/RL-97-36, Rev. 3, 200-UP-1 Remedial Design/Remedial Action Work Plan Surveillance and Maintenance Plan (not published) Project Operation and Maintenance Manual (not published)

3.6 FUTURE IMPLEMENTATION OF INSTITUTIONAL CONTROLS AT THE HANFORD SITE

DOE anticipates that the Hanford Site will remain in federal ownership for the foreseeable future. DOE will be responsible for implementation and oversight of the ICs after cleanup is completed as discussed in DOE/RL-2010-35, *Hanford Long-Term Stewardship Program Plan.*

Institutional Controls Following Cleanup

As discussed in Section 1.0, the ICs required following cleanup will be specified in final CERCLA decision documents for the respective OUs and final closure documents for RCRA TSD units. These final decision documents for the most part are yet to be developed. The scope and duration of ICs 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 action CERCLA decision documents (e.g., the 300-FF-2 Interim ROD [EPA/ROD/R10-01/119]) already specify IC 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, ICs will be required to maintain human health and protection of the environment. The implementation and maintenance of such ICs will be conducted as described in this Plan and in accordance with the IC requirements of the CERCLA decision documents and work plans. In the event that any of the Hanford Site land areas are transferred to an outside entity, the ICs that will remain in place on transfer of the land will be conveyed using the appropriate mechanism at the time of the transfer.

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4.0 MANAGEMENT AND OVERSIGHT

This chapter describes the management and oversight of ICs, including the roles and responsibilities of DOE-RL and the regulators, how the effectiveness of ICs will be assessed and reported, and when this Plan will be updated.

4.1 KEY PARTIES AND THEIR ROLES

DOE-RL is the primary responsible party in implementing ICs at the Hanford Site. The lead regulatory agency approves and other regulatory agencies concur with the IC requirements as a part of a selected remedy as defined in a CERCLA decision document. Ecology approves ICs selected in RCRA closure/post-closure plans. This section describes the roles of these key parties.

4.1.1 U.S. Department of Energy

The responsibility for implementing Sitewide IC requirements resides with DOE-RL; DOE Office of River Protection (ORP), does not have responsibility for CERCLA actions at this time. DOE-ORP is currently responsible for RCRA closure decisions and associated ICs in the tank farms. Currently, most other final RCRA closure documents are prepared by DOE-RL. Any questions regarding ICs should be directed to DOE-RL. DOE-RL also is the interface with the regulatory agencies, including EPA and Ecology, as well as the local governments. Table 4-1 lists the DOE-RL points of contact for ICs.

Table 4-1. U.S. Department of Energy, Richland Operations Office
Institutional Controls Points of Contact.

Area	Points of Contacts	Areas of Responsibility
Sitewide	Assistant manager responsible for closure	Integrated planning of Sitewide ICs
100, 200, 300, and 1100 Areas	Assistant manager responsible for each individual NPL Site (i.e., 100, 200, 300, and 1100 Areas)	Implementing ICs in the NPL site and ensuring they remain reliable, enforced, and effective
IC = institutional control.		NPL = National Priorities List.

As new CERCLA and/or RCRA decision documents are issued and cleanup projects progress, ICs will be implemented as described in this Plan and in OU-specific remedial design report/remedial action work plans. Furthermore, the EPA, in some instances in consultation with Ecology, may require additional ICs on a site-specific basis if deemed necessary. Entities that are required to implement ICs will use this Plan's guidance as their basis to manage required controls.

DOE-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 IC requirements specified in CERCLA decision documents and described in this Plan. In addition to meeting ICs and contractual obligations, contractors and employees are required to comply with applicable environmental laws, DOE orders, and administrative orders via contract requirements.

DOE-RL is responsible for the oversight and integration of these controls and for compliance.

As discussed in Chapter 1.0, DOE-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.

DOE-RL is the lead agency for CERCLA five-year reviews. The purpose of a five-year review is to determine whether the remedy (including ICs) at a site is protective of human health and the environment. The five-year review report also identifies deficiencies found during the review, if any, and identifies recommendations to address those deficiencies.

4.1.2 Regulatory Agencies

EPA and Ecology are the primary agencies that conduct oversight for DOE-RL cleanup activities at the Hanford Site as identified in the Tri-Party Agreement. Each OU and RCRA TSD Unit is assigned a lead regulatory agency that has regulatory oversight responsibility with respect to actions under the Tri-Party Agreement regarding the particular OU. EPA and Ecology have joint authority to determine the choice of lead regulatory agency and the regulatory process, in consultation with DOE-RL, for each OU and RCRA TSD Unit. Requirements for the review and inspection of RCRA TSDs are contained in the Hanford Site RCRA Permit.

DOE conducted the third CERCLA five-year review of the four NPL sites in 2011. The results of the reviews that were conducted are contained in the *Hanford Site, Third CERCLA Five-Year Review Report* (DOE/RL-2011-56).

4.2 ASSESSMENT AND REPORTING

A focused and periodic self-assessment and reporting of ICs 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 ICs to ensure their effectiveness
- Identifying the need to adjust the ICs based on performance findings.

DOE contractors have the primary responsibility for these activities, with oversight from DOE to ensure adequate implementation of assessments. Surveillance is the primary tool used to measure the day-to-day performance of the ICs. 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, DOE-RL conducts oversight and evaluation of contractor activities based on the corresponding procedures in the DOE-RL Integrated Management System.

Initially, the Sitewide IC assessments were conducted on an annual basis. However, based on the results of the annual IC assessments and the ongoing review of ICs by individual projects, it has been determined that a Sitewide review of ICs is most appropriately conducted in conjunction with the Sitewide CERCLA five-year review. DOE-RL will continue to conduct IC assessments as required by the CERCLA and/or RCRA decision documents. Requirements for the review and inspection of RCRA TSD ICs are contained in the Hanford Site RCRA Permit. The ongoing review of the ICs by individual projects also will continue. The Sitewide ICs assessment, in conjunction with the CERCLA five-year review, will be a “roll up” of these reviews and will serve as a means to evaluate effectiveness of the ICs. Based on the ongoing review, the contractors will provide an annual update on the effectiveness of the ICs to EPA and Ecology at the Area Unit Managers Meetings every September.

**4.3 UPDATES TO THE SITEWIDE
INSTITUTIONAL CONTROLS PLAN**

Updates to this Plan will be managed by DOE, EPA, and Ecology pursuant to the requirements established in the Tri-Party Agreement for primary documents. This Plan will be modified as the CERCLA and/or RCRA decision documents are issued.

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- National Historic Preservation Act of 1966*, 16 USC 470, et seq.
- RCW 70.105, “Hazardous Waste Management,” Title 70, Chapter 105, *Revised Code of Washington*, as amended, Washington State Legislature, Olympia, Washington.
- RCW 70.105D, “Public Health and Safety,” “Hazardous Waste Cleanup -- Model Toxics Control Act,” Title 70, Chapter 105D, *Revised Code of Washington*, as amended, Washington State Legislature, Olympia, Washington.
- Resource Conservation and Recovery Act of 1976*, 42 USC 6901, et seq.
- RL, 2001, *First Amended 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 Operation of the Fitzner-Eberhardt Arid Lands Ecology Reserve at the Hanford Site; Fourth Amendment to the Wahluke Slope Permit*, U.S. Department of Energy, Richland Operations Office, Richland, Washington, and U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., June 14.
- RL-TPA-90-0001, 1998, *Tri-Party Agreement Handbook Management Procedures*, Guideline Number TPA-MP-14, “Maintenance of the Waste Information Data System (WIDS),” U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Superfund Amendments and Reauthorization Act of 1986*, 42 USC 11001, et seq.
- Superfund Site Final Closeout Report, U.S. Department of Energy Hanford 1100 Area*, Richland, Washington, July 25, 1996.
- WA7890008967, *Hanford Facility Dangerous Waste Permit*, Washington State Department of Ecology, Olympia, Washington.
- WAC 173-303, “Dangerous Waste Regulations,” *Washington Administrative Code*, as amended.

WAC 173-303-64620, "Requirements," *Washington Administrative Code*, as amended.

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

WAC 173-340-440, "Institutional Controls," *Washington Administrative Code*, as amended.

Waste Information Data System Report, Hanford Site database.

Wastren, 1995, *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 controls (IC) requirements. The decision documents and the operable unit (OU) for which they are written are listed by “National Priorities List” (40 CFR 300, Appendix B) (NPL) area, along with the IC category, IC requirements, and the corresponding section of the *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* (the Plan) where the IC categories are addressed.

Some decision documents have figures identifying the IC boundaries. Figures A-1 through A-6 show the IC boundaries identified in the decision documents and described in the tables immediately preceding the figures.

A1.0 INSTITUTIONAL CONTROLS REQUIRED BY 100 AREA CERCLA DECISION DOCUMENTS

This section presents the ICs required by each of the 100 Area CERCLA decision documents. The decision documents for the 100 Area include several records of decision (ROD), explanation of significant differences (ESD) from previously issued RODs for the specific OUs, and the ROD amendments. The IC requirements are presented in Tables A1-1 through A1-12. The tables include the text of the individual IC requirements contained in the decision documents.

Table A1-1. Institutional Controls Requirements Listed in EPA/ROD/R10-95/126, Record of Decision for 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions Land-Use Management Groundwater-Use Management	The U.S. Department of Energy will control access and use of the Hanford 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.	3.4.2 3.4.3 3.4.4

Table A1-2. Institutional Controls Requirements Listed in EPA/ROD/R10-96/134, Record of Decision for 100-HR-3 and 100-KR-4 Operable Units.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions Land-Use Management	Institutional controls are required to prevent human exposure to groundwater. The U.S. Department of Energy is responsible for establishing and maintaining land-use and access restrictions until maximum contaminant levels 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 U.S. Department of Energy will prohibit any activities that would interfere with the remedial activity without U.S. Environmental Protection Agency and Washington State Department of 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 U.S. Department of Energy will provide the U.S. Environmental Protection Agency and Washington State Department of Ecology with written verification that these restrictions have been put in place.	3.4.2 3.4.3

Table A1-3. Institutional Controls Requirements Listed in EPA/AMD/R10-97/044, Record of Decision Amendment for 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Waste Site Information Management	Institutional controls and long-term monitoring will be required for sites where wastes are left in place	3.4.5

Table A1-4. Institutional Requirements Listed in EPA/ROD/R10-99/039, Record of Decision for 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 10-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 Operable Units. (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	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.	3.4.2

Table A1-4. Institutional Requirements Listed in EPA/ROD/R10-99/039, Record of Decision for 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 10-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 Operable Units. (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Land-Use Management	DOE will use the onsite excavation permit process to control land use (e.g., well drilling or excavation of soil) within the 100 Area operable units.	3.4.3
Warning Notices	DOE will maintain existing signs prohibiting public access.	3.4.1
Miscellaneous Provision	DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents.	3.4.6
Miscellaneous Provision	Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	3.4.6
Land-Use Management	DOE will add access restriction language to any land transfer, sale, or lease of property that the U.S. Government considers appropriate while ICs are compulsory.	3.4.3
Miscellaneous Provision	Until final remedy selection, DOE shall not delete or terminate any IC requirement established in this Interim Action ROD unless EPA and Ecology have provided written concurrence on the deletion or termination and appropriate documentation has been placed in the Administrative Record.	3.4.6
Miscellaneous Provision	DOE will evaluate the implementation and effectiveness of ICs for the 100 Area operable units on an annual basis. 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 IC requirements continue to be met and a description of any deficiencies discovered and measures taken to correct problems.	3.4.6
DOE = U.S. Department of Energy. IC = institutional control. EPA = U.S. Environmental Protection Agency. ROD = record of decision.		

Table A1-5. Institutional Controls Requirements Listed in EPA/ROD/R10-99/059, Record of Decision for 100-KR-2 Operable Unit.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Warning Notices Entry Restrictions	The U.S. Department of Energy will maintain or implement access restrictions to prevent public access until final remedial action is completed. Current access controls include signs along the river, a 2.4 m (8-ft) fence, locked access to buildings containing the primary hazards, and routine patrols. Institutional controls will be included in the remedial design report/remedial action work plan subject to U.S. Environmental Protection Agency approval.	3.4.1 3.4.2

Table A1-9. Institutional Controls Requirements Listed in EPA/ROD/R10-00/121, 100 Area Burial Ground Record of Decision (100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, 100-KR-2 Operable Units). (3 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
100 Area Burial Ground Institutional Controls Requirements		
Entry Restrictions	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.	3.4.2
Groundwater-Use Management	Well drilling is prohibited, except for monitoring or remediation wells authorized in documents approved by EPA and/or the Ecology. Groundwater use is prohibited, except for monitoring and treatment, as approved by EPA or Ecology.	3.4.4
Land-Use Management	No intrusive work is allowed on or near the waste sites covered in this ROD without prior approval of EPA or Ecology.	3.4.3
Warning Notices	DOE shall maintain signs that warn river users of potential hazards along the shoreline from 100 Area waste sites.	3.4.1
Warning Notices	DOE shall post and maintain in good condition "No Trespassing" signs along the 100 Area shoreline.	3.4.1
Warning Notices	DOE shall maintain signs along access roads that warn Site visitors and workers of potential hazards from 100 Area waste sites.	3.4.1
Miscellaneous Provision	DOE shall report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	3.4.6

Table A1-9. Institutional Controls Requirements Listed in EPA/ROD/R10-00/121, 100 Area Burial Ground Record of Decision (100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, 100-KR-2 Operable Units). (3 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Sitewide Institutional Controls Requirements		
Land-Use Management Groundwater-Use Management Waste Site Information Management Miscellaneous Provision	<p>DOE shall submit a Sitewide IC plan that includes the applicable ICs for the 100 Area OUs. 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> <p>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 ICs 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 timeframe that the restrictions apply, and the tools and procedures DOE will use to implement the restrictions or controls and to evaluate the effectiveness of these restrictions or controls.</p> <p>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 also must be covered.</p> <p>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, Hanford Reach National Monument-related uses, groundwater withdrawals, paving, construction, renovation work on structures, Tribal use, or other activities.</p> <p>Include a tracking mechanism that identifies all land areas under restriction or control.</p> <p>Include a process to promptly notify EPA and Ecology before any making anticipated change in land-use designation, restriction, land users, or activity for any ICs required by a decision document.</p>	3.4.3 3.4.4 3.4.5 3.4.6
Land-Use Management Miscellaneous Provision	<p>DOE will notify EPA and Ecology immediately upon discovery of any activity that is inconsistent with the OU-specific IC 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 also will identify deficiencies with the IC process, evaluate how to correct the process to avoid future problems, and implement these changes after consulting with EPA and Ecology.</p>	3.4.3 3.4.6

Table A1-10. Institutional Controls Requirements Listed in EPA/ESD/R10-03/605, Explanation of Significant Differences for the 100-NR-1 Operable Unit Treatment, Storage, and Disposal Interim Action Record of Decision and 100-NR-1 and 100-NR-2 Operable Units.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Land-Use management	Prohibition on irrigation only at the 116-N-1 waste site.	3.4.3
Miscellaneous Provision	Revised the reporting date for the annual institutional controls assessment report from March 30 to September 30. (NOTE: Subsequently, the annual reporting requirement was changed to occur as part of the <i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i> five-year review effort, as discussed in Section 4.2 of this Plan. An update of the results of the annual institutional controls assessment results is to be provided to the U.S. Environmental Protection Agency and Washington State Department of Ecology at the Area Unit Managers Meetings every September.)	3.4.6

Table A1-11. Institutional Controls Listed in Explanation of Significant Differences for the 100 Area Remaining Sites Interim Action Record of Decision for 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 100-KR-1, 100-KR-2, 100-IU-2, 100-IU-6, and 200-CW-3 Operable Units. (EPA, 2004a)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Miscellaneous Provision	Revised the reporting date for the annual institutional controls assessment report from March 30 to September 30. (NOTE: Subsequently, the annual reporting requirement was changed to occur as part of the <i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i> 5-year review effort, as discussed in Section 4.2 of this Plan. An update of the results of the annual institutional assessment results is to be provided to the U.S. Environmental Protection Agency and Washington State Department of Ecology at the Area Unit Managers Meetings every September.)	3.4.6

Table A1-12. Institutional Controls Listed in Explanation of Significant Differences for the 100 Area Interim Action Record of Decision for 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, and 100-KR-2 Operable Units (100 Area Burial Grounds) (Specific to 118-B-1 Burial Ground). (EPA, 2007)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Miscellaneous Provision	A report is required every 5 years to document effectiveness of the institutional controls, which must include identification of any deficiencies and corrective actions taken or to be taken.	3.4.6
Miscellaneous Provision	Institutional controls are required to be maintained in accordance with both the Burial Ground Record of Decision and the <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions</i> (DOE/RL-2001-41, as amended).	3.4.6
Land-Use Management	Irrigation of 118-B-1 burial ground is prohibited. The duration of institutional controls required is 140 years.	3.4.3

A2.0 INSTITUTIONAL CONTROLS REQUIRED BY 200 AREA CERCLA DECISION DOCUMENTS

This section presents the ICs required by the 200 Area CERCLA decision documents. The requirements are presented in Tables A2-1 through A2-10. The tables include the text of the individual IC requirements contained in the decision documents.

Table A2-1. Institutional Controls Requirements Listed in EPA/ROD/R10-95/100, Record of Decision for Environmental Restoration Disposal Facility.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Institutional controls shall be imposed to restrict public access to the landfill.	3.4.2

Table A2-2. Institutional Controls Requirements Listed in EPA/ROD/R10-97/048, Record of Decision 200-UP-1 Operable Unit.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Land-Use Management Entry Restrictions	ICs are required to prevent human exposure to groundwater. DOE is responsible for establishing and maintaining land-use and access restrictions until the final remedy is selected and implemented.	3.4.3 3.4.2
Miscellaneous Provision	ICs include placing written notification of the remedial action in the facility land-use master plan.	3.4.6
Land-Use Management	DOE will prohibit any activities that would interfere with the remedial activity without the lead agency's concurrence.	3.4.3
Land-Use Management	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. DOE will provide the Washington State Department of Ecology and U.S. Environmental Protection Agency within written verification that these restrictions have been put in place.	3.4.3
DOE = U.S. Department of Energy. IC = institutional control.		

Table A2-3. Institutional Controls requirements Listed in EPA/AMD/R10-99/038, Record of Decision Amendment for Environmental Restoration Disposal Facility.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Institutional controls shall be imposed to restrict public access to the landfill.	3.4.2

Table A2-4. Institutional Requirements Listed in EPA/AMD/R10-02/030, Record of Decision Amendment for Environmental Restoration Disposal Facility.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Institutional controls shall be imposed to restrict public access to the landfill.	3.4.2

Table A2-5. Institutional Controls Requirements (Required through the Time of Completion of Remedy Construction) Listed in Record of Decision for 221-U Facility (Canyon Disposition Initiative). (2 sheets) (EPA, 2005)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to prevent unacceptable exposure of humans to contaminants at the 221-U Facility site addressed in the scope of this ROD until remedy construction is complete. Visitors entering any site areas are required to be badged and escorted at all times. See Figure A-1 for a site map showing the extent of the 221-U Facility site and the boundaries of the land-use controls. A more detailed map will be developed and included in the remedial design/remedial action work plan to be approved by EPA and Ecology.	3.4.2
Land-Use Management	No intrusive work shall be allowed at the 221-U Facility site unless the EPA and Ecology have approved the plan for such work and that plan is followed.	3.4.3
Land-Use Management	DOE shall prohibit well drilling at the 221-U Facility site except for monitoring, characterization, or remediation wells authorized in EPA- and Ecology-approved documents.	3.4.3

Table A2-6. Institutional Controls (Required After Construction of the Remedial Action)
Listed in Record of Decision for 221-U Facility
(Canyon Disposition Initiative). (3 sheets) (EPA 2005)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Land-Use Management	Activities that would disrupt or lessen the performance of the engineered surface barrier are to be prohibited. The engineered surface barrier is anticipated to cover the area delineated in Figure A-1. These restrictions shall be maintained until the concentrations of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure.	3.4.3
Land-Use Management	DOE shall maintain an effective vegetative soil layer to promote the succession of native plants as a feature of the evapotranspiration surface barrier and prohibit activities that would lessen the effectiveness of the vegetation, barrier, and run on/run off controls. These infiltration control measures shall be maintained unless (or until) DOE can demonstrate that the proposed activity or change in maintenance will result in no negative impact on groundwater or river water quality from any potential release of contamination from the site and EPA and Ecology approve the change.	3.4.3
Land-Use Management	No irrigation will be permitted for agriculture or landscaping on the 221-U Facility site. This infiltration restriction shall be maintained unless (or until) DOE can demonstrate that the proposed irrigation will have no negative impact on groundwater or river water quality from any potential release of contamination from the site and EPA and Ecology approve the change.	3.4.3
Land-Use Management	No intrusive work shall be allowed at the 221-U Facility site unless the EPA and Ecology have approved the plan for such work and that plan is followed. This restriction shall be maintained until the concentrations of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure.	3.4.3
Land-Use Management	DOE shall prohibit well drilling at the 221-U Facility site except for monitoring, characterization, or remediation wells authorized in EPA- and Ecology-approved documents. This restriction shall be maintained until the concentrations of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure.	3.4.3
Groundwater-Use Management	Groundwater use is prohibited at the 221-U Facility site, except for limited research purposes and monitoring and treatment authorized in EPA- and/or Ecology-approved documents. This prohibition applies until contaminant concentrations in the groundwater are at or below drinking water restrictions and EPA and Ecology authorize removal of restrictions. Decision documents for the 200-UW-1 Source OU and 200-UP-1 Groundwater OU as well as the Sitewide IC plan will contain the ICs and implementing details prohibiting well drilling and groundwater use in the U Plant Area and portions of the 200 West Area as defined in those decision documents.	3.4.4

Table A2-7. Institutional Requirements Listed in Record of Decision Amendment for Environmental Restoration Disposal Facility, Dated 5/24/2007.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Institutional controls shall be imposed to restrict public access to the landfill.	3.4.2

Table A2-8. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 Superfund Site Benton County, Washington. (2 sheets) (EPA, 2008)

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to prevent unacceptable exposure of humans to contaminants in the 200-ZP-1 OU groundwater addressed in the scope of this ROD until the remedy is complete. Visitors entering any site areas of the 200-ZP-1 OU will be required to be badged and escorted at all times.	3.4.2
Land-Use Management	No intrusive work shall be allowed in the 200-ZP-1 OU unless EPA has approved the plan for such work and that plan is followed.	3.4.3
Land-Use Management	DOE shall prohibit well drilling in the 200-ZP-1 OU, except for monitoring, characterization or remediation wells authorized in EPA-approved documents.	3.4.3
Groundwater-Use Management	Groundwater use in the 200-ZP-1 OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in EPA -approved documents. The <i>Sitewide Institutional Controls Plan</i> will contain the ICs and implementing details prohibiting well drilling and groundwater use in the 200-ZP-1 OU, as defined in the decision document for the 200-ZP-1 OU.	3.4.4
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-ZP-1 groundwater OU.	3.4.2
Miscellaneous Provision	In the event of any unauthorized access to the site (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	3.4.6
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat, MNA, and flow-path control components of the remedy are to be prohibited.	3.4.3
Land-Use Management	DOE shall prohibit activities that would damage the pump-and-treat, MNA, and flow-path control components (e.g., extraction wells, injection wells, piping, treatment plant, or monitoring wells).	3.4.3
Miscellaneous	DOE shall report on the effectiveness of ICs for the 200-ZP-1 OU remedy in an annual report, or on an alternative reporting	3.4.6

Figure A-2. Land Use Control Boundary for the 200-ZP-1 Operable Unit.

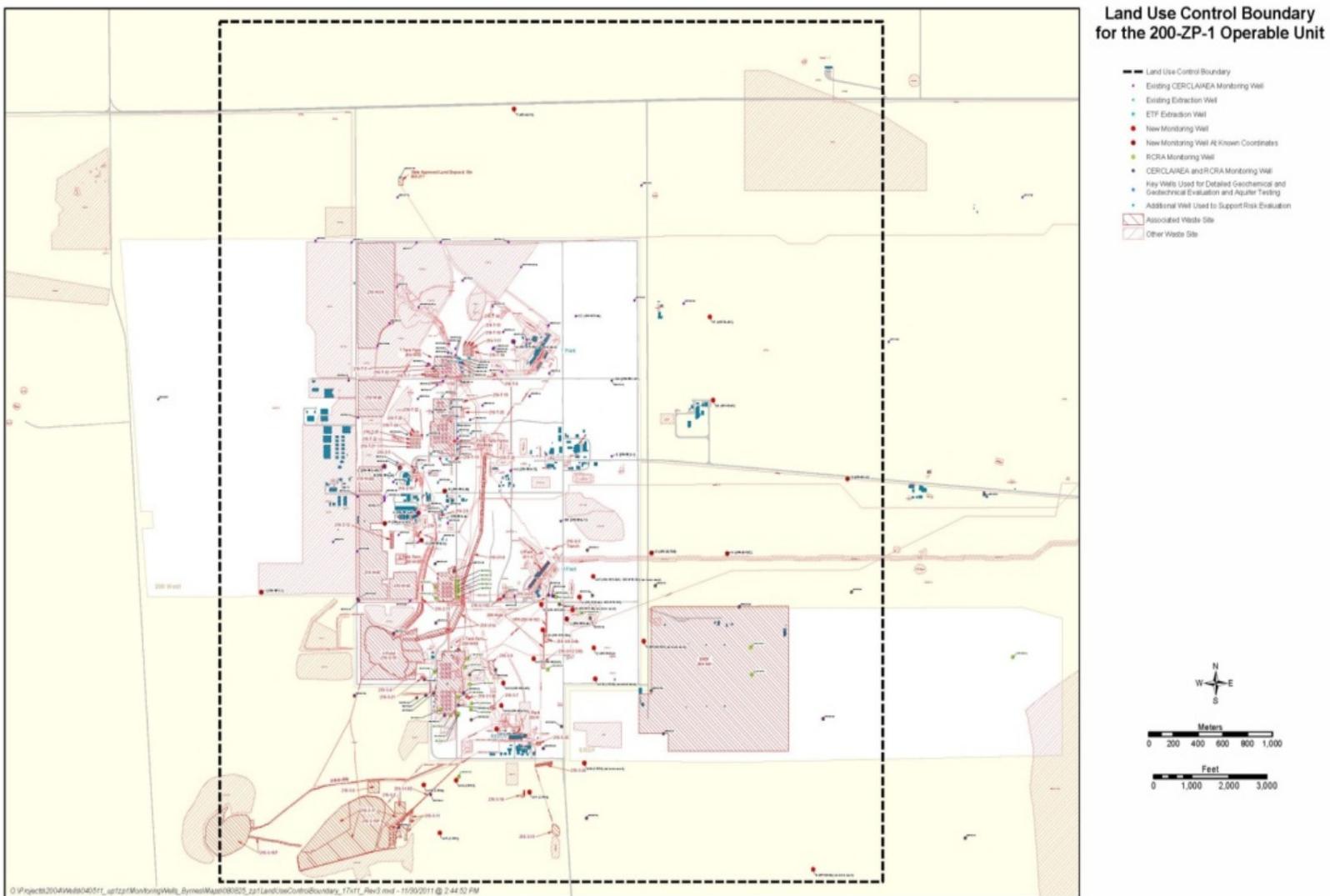


Table A2-9. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington. (2 sheets) (EPA, 2009d)

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to 200-UP-1 Groundwater OU to prevent unacceptable exposure of humans to contaminants, except as otherwise authorized in Ecology-approved documents.	3.4.2
Entry Restrictions	Visitors entering any site areas of the 200-UP-1 Groundwater OU will be required to be badged and escorted at all times.	3.4.2
Land-Use Management	No intrusive work shall be allowed in the 200-UP-1 Groundwater OU unless Ecology has approved the plan for such work and that plan is followed.	3.4.3
Land-Use Management	DOE shall prohibit well drilling in the 200-UP-1 Groundwater OU, except for monitoring, characterization or remediation wells authorized in Ecology-approved documents.	3.4.3
Groundwater-Use Management	Groundwater use in the 200-UP-1 Groundwater OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in Ecology-approved documents.	3.4.4
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-UP-1 Groundwater OU.	3.4.1
Miscellaneous Provision	In the event of any unauthorized access (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	3.4.6
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat component of the remedy are to be prohibited.	3.4.3
Land-Use Management	DOE shall prohibit activities that would damage the remedy components (e.g., extraction wells, piping, treatment plant, monitoring wells).	3.4.3
Land -Use Management	DOE will prevent the development and use of property above the 200-UP-1 Groundwater OU for residential housing, elementary and secondary schools, childcare facilities, and playgrounds.	3.4.3
Miscellaneous Provision	DOE shall report on the effectiveness of ICs for the 200-UP-1 Groundwater OU interim remedy in an annual report, or on an alternative reporting frequency specified by Ecology. Such reporting may be for the 200-UP-1 Groundwater OU alone or may be part of a Hanford Sitewide report.	3.4.6

Figure A-3. 200-PW-3 Waste Site IC Boundaries.

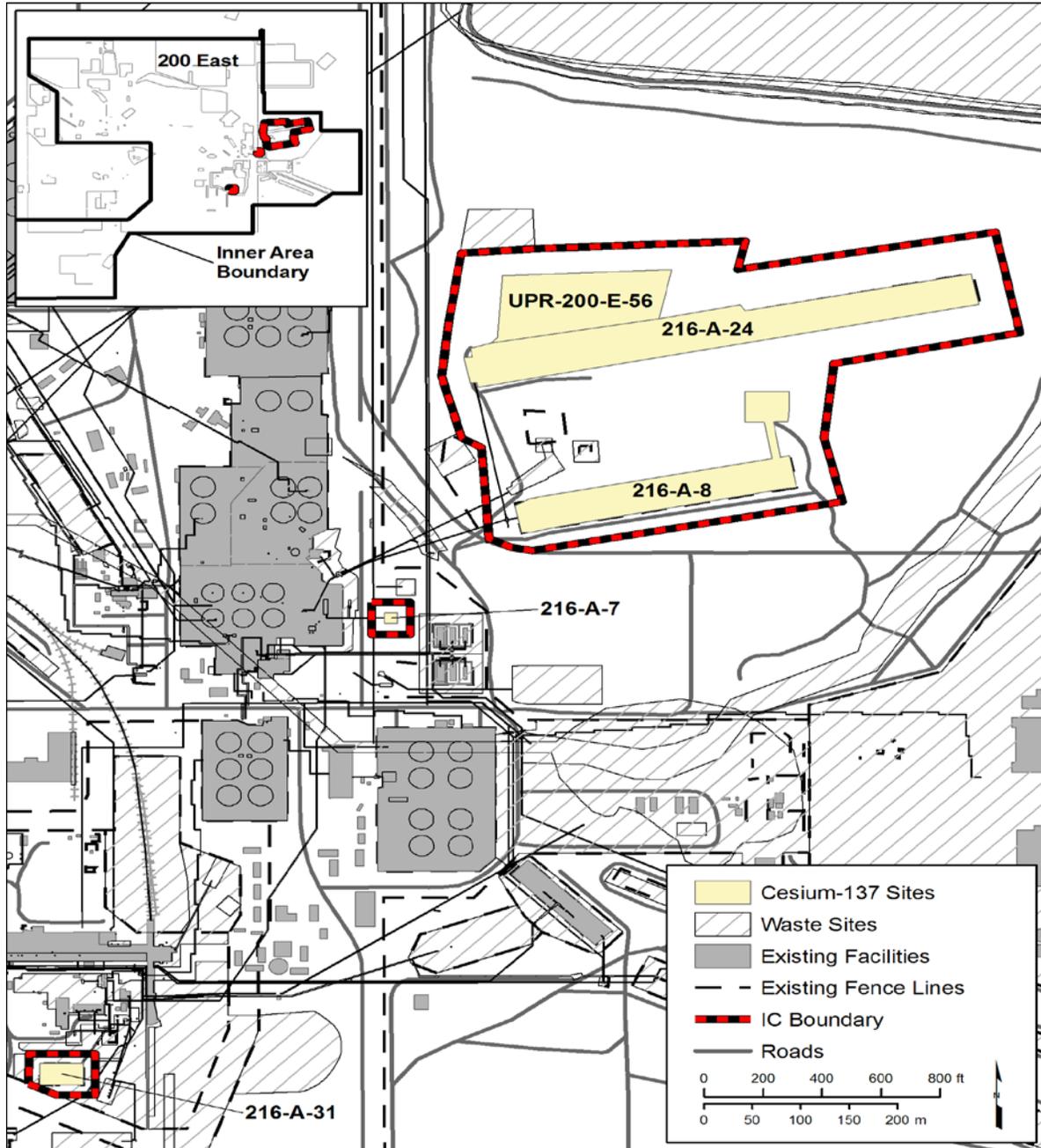


Figure A-4. 200-CW-5, 200-PW-1, and 200-PW-6 OU IC Boundaries.

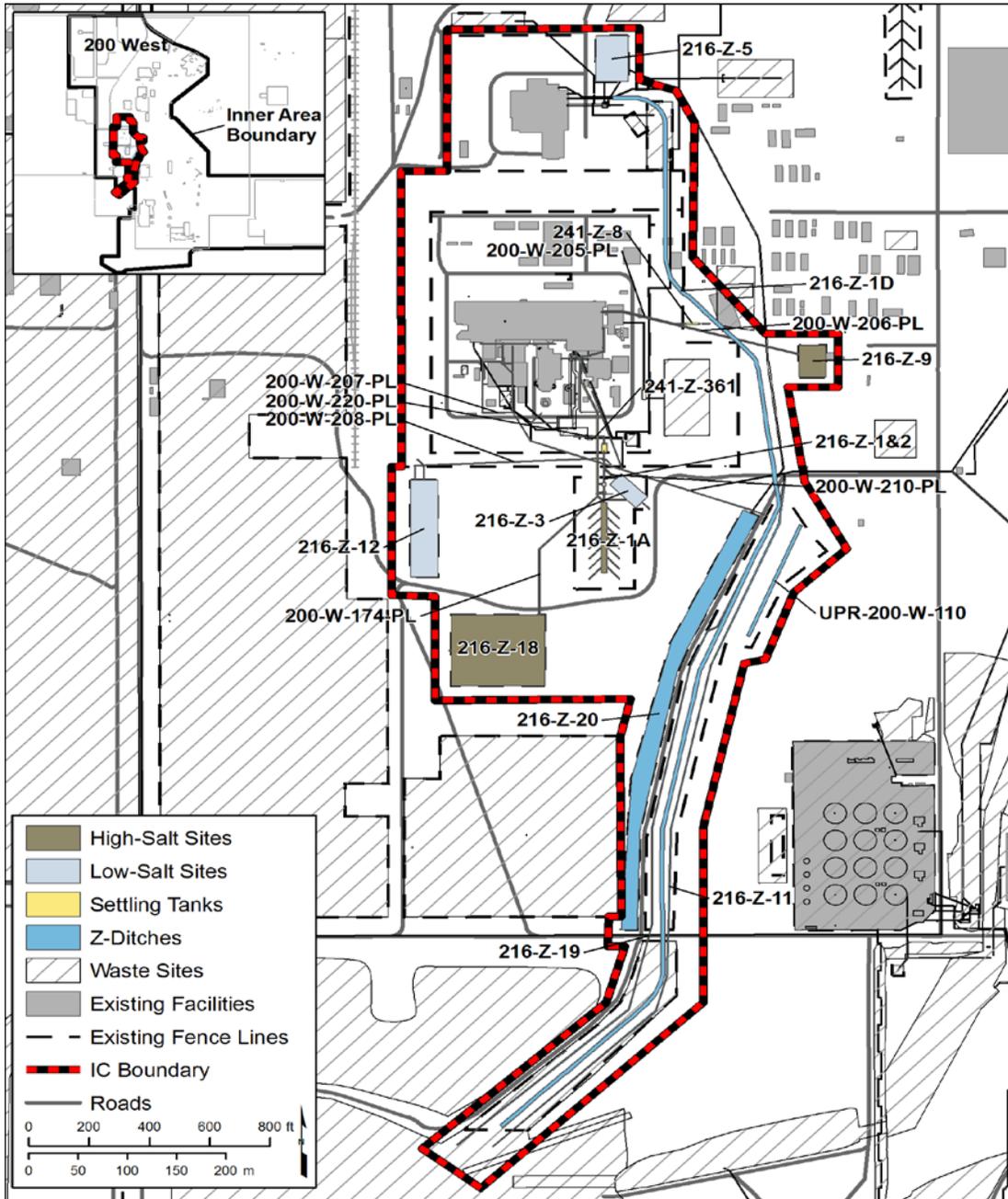


Table A2-11. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area Superfund Site 200-UP-1 Operable Unit (2 sheets).

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to 200-UP-1 OU Groundwater to prevent unacceptable exposure of humans to contaminants, except as otherwise authorized in lead regulatory agency approved documents.	3.4.2
Entry Restrictions	Visitors entering any site areas of the 200-UP-1 OU will be required to be badged and escorted at all times.	3.4.2
Land-Use Management	No intrusive work shall be allowed in the 200-UP-1 OU unless the lead regulatory agency has approved the plan for such work and that plan is followed.	3.4.3
Land-Use Management	DOE shall prohibit well drilling in the 200-UP-1 OU, except for monitoring, characterization, or remediation wells authorized in EPA approved documents.	3.4.3
Groundwater-Use Management	Groundwater use in the 200-UP-1 OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in EPA-approved documents.	3.4.4
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-UP-1 OU.	3.4.1
Miscellaneous Provision	In the event of any unauthorized access to the site (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	3.4.6
Land-Use Management	Activities that would disrupt or lessen the performance of the any component of the remedy are to be prohibited, except as otherwise authorized in lead regulatory agency approved documents.	3.4.3
Land-Use Management	The DOE shall prohibit activities that would damage the remedy components (e.g. extraction wells, piping, treatment plant, and monitoring wells), except as otherwise authorized in lead regulatory agency approved documents.	3.4.3
Land-Use Management	DOE will prevent the development and use of property above the 200-UP-1 OU for residential housing, elementary and secondary schools, childcare facilities, and playgrounds.	3.4.3
Miscellaneous Provision	DOE shall report on the effectiveness of ICs for the 200-UP-1 OU interim remedy in an annual report, or on an alternative reporting frequency specified by the lead regulatory agency. Such reporting may be for the 200-UP-1 OU or may be part of the Hanford Sitewide report.	3.4.6
Land-Use Management	Measures that are necessary to ensure continuation of ICs shall be taken before any lease or transfer of any land above the 200-UP-1 OU. DOE will provide notice to Ecology and EPA at least 6 months before any transfer or sale of 200-UP-1 OU or any land above the 200-UP-1 OU so that the lead regulatory agency can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective ICs. If it is not possible for DOE to notify Ecology and EPA at least 6 months before any transfer or sale, DOE will notify Ecology and	3.4.3

Table A3-4. Institutional Controls Requirements (Required After Cleanup is Complete) Listed In EPA/ROD/R10-01/119, Record Of Decision For 300-FF-2 Operable Unit. (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Land-Use Management	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 WAC 173-340-706 industrial cleanup levels for chemicals. DOE will maintain a surveillance program to document that risk or applicable or relevant and appropriate requirement-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.	3.4.3
Groundwater-Use Management	DOE shall prevent the use of groundwater as a drinking water source as long as contaminant concentrations are above drinking water levels.	3.4.4
Land-Use Management	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.	3.4.3
Land-Use Management Groundwater-Use Management	DOE shall maintain groundwater and Columbia River protection standards including the following: 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 EPA-approved remedial design report/remedial action work plan. 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.	3.4.3 3.4.4
Land-Use Management	DOE shall control the removal of soil or debris from former waste site locations in the 300 Area national priorities list (40 CFR 300, Appendix B) 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.	3.4.3

A4.0 INSTITUTIONAL CONTROLS REQUIRED BY EXISTING 1100 AREA CERCLA DECISION DOCUMENTS

This section presents the ICs required by the 1100 Area CERCLA decision documents. The decision documents include a ROD, ESD, and ICs listed in the 1100 Area Superfund Site final closeout report. The requirements are presented in Tables A4-1 through A4-3. The tables include the text of the individual IC requirements contained in these documents. The 1100 Area was deleted from the NPL in 1996.

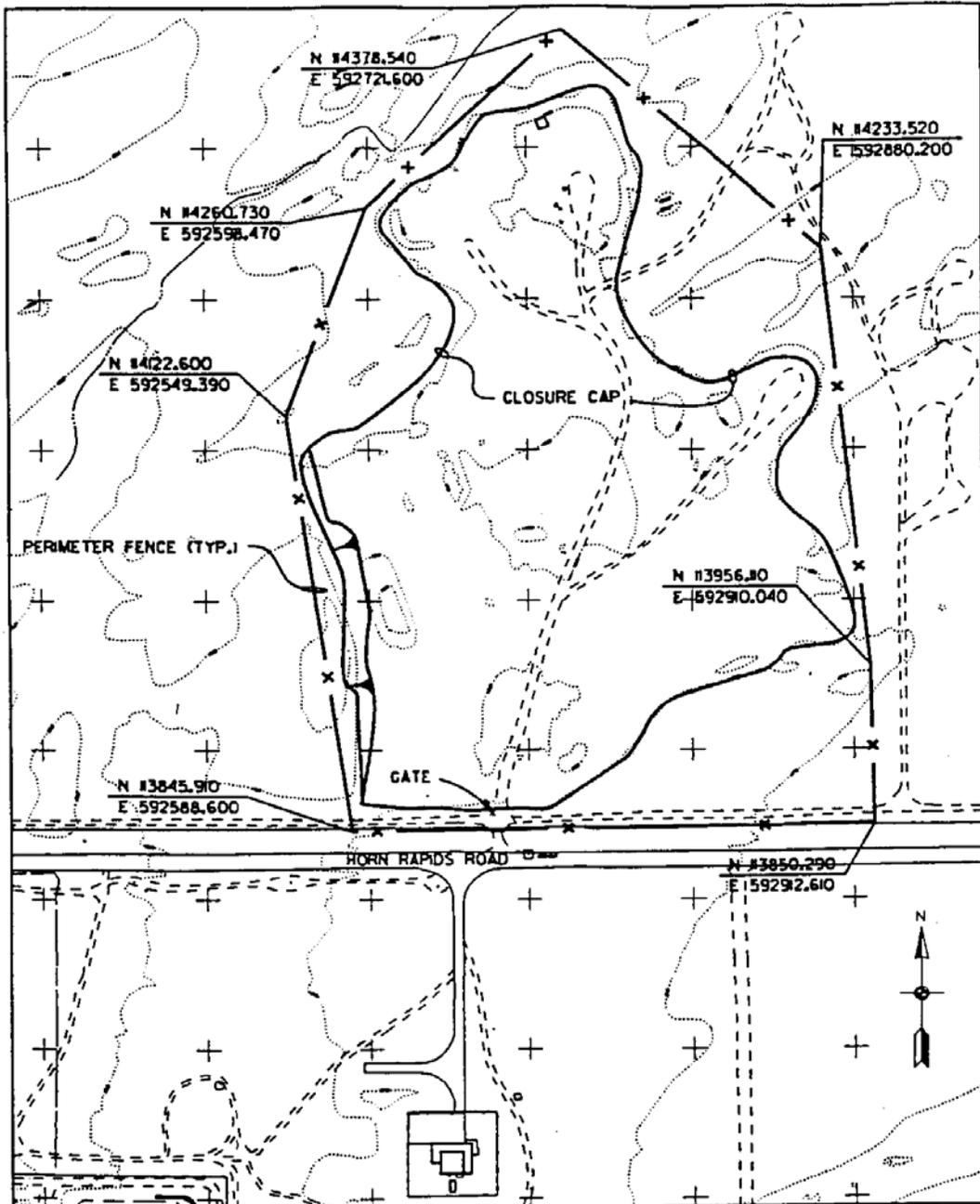
Table A4-1. Institutional Controls Requirements Listed in EPA/ROD/R10-93/063, Record of Decision for the USDOE Hanford 1100 Area Final Remedial Action for 1100-EM-1, 1100-EM-2, 1100-EM-3, and 1100-IU-1.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	The U.S. Department of Energy 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.	3.4.2
Land-Use Management	The U.S. Department of Energy will record a notation on the deed to the Horn Rapids Landfill property as specified in the asbestos National Emission Standards for Hazardous Air Pollutants standards.	3.4.3

Table A4-2. Institutional Controls Requirements Listed in the Superfund Site Final Closeout Report, U.S. Department of Energy 1100 Area, July 25, 1996.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Plans are in place for the U.S. Department of Energy to inspect and maintain the integrity of the cap and fencing at the Horn Rapids Landfill.	3.4.2
Groundwater-Use Management	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.	3.4.4

Figure A-6. Fence and Cap at the Horn Rapids Landfill.



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APPENDIX B
INSTITUTIONAL CONTROLS REQUIRED BY EXISTING RCRA
CORRECTIVE ACTION DOCUMENTS

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APPENDIX B

INSTITUTIONAL CONTROLS REQUIRED BY EXISTING RCRA CLOSURE PLANS

This appendix provides a Sitewide list of the *Resource Conservation and Recovery Act of 1976* (RCRA) closure plans that have institutional controls (IC) requirements. The closure plans and the treatment, storage, and disposal (TSD) units for which they are written are listed by Hanford area, along with the IC category, IC requirements, and the corresponding section of the *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* (the Plan) where the IC categories are addressed. Chapter 5.0 provides details for the references cited in the tables.

B1.0 INSTITUTIONAL CONTROLS REQUIRED BY RCRA TSD CLOSURE PLANS

This section presents the ICs required by RCRA closure plans for TSD units located in the 100 Area as determined by the Hanford Site RCRA Permit. The ICs are specified only for a modified closure. Currently there is only one TSD unit with post-closure ICs in the 100 Area. The ICs are presented in Table B-1, which includes the text of the ICs.

Table B-1. Institutional Controls Requirements Listed in the Modified Post Closure Institutional Controls and Periodic Assessments for 183-H Solar Evaporation Basin, Hanford Facility Dangerous Waste Permit WA 7890008967, Class 1 Modification, Quarter Ending 6/30/2002.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Groundwater-Use Management	Institutional controls are required to be maintained in order to ensure that groundwater is not used as a drinking water or irrigation source.	3.4.4
Land-Use Management	Should groundwater use restrictions be required after U.S. Department of Energy, Richland Operations Office relinquishment of the area, appropriate deed restrictions will be made.	3.4.3
Warning Signs Entry Restrictions	No direct exposure hazards remain at 183-H Solar Evaporation Basins. However, roadways to the unit and site access will remain administratively restricted to use by authorized personnel only. Posted federal warning signs restrict access to the 100-H Area from the Columbia River.	3.4.1 3.4.2

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APPENDIX C
ANNUAL INSTITUTIONAL CONTROL ASSESSMENTS

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APPENDIX C
ANNUAL INSTITUTIONAL CONTROL ASSESSMENTS

This appendix includes annual institutional control (IC) assessments conducted at Hanford. The requirement to conduct annual assessments and report at Unit Managers Meeting (UMM) every September was added to Section 4.2 of this plan in Revision 2 published in 2006.

**2006 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT
WASHINGTON CLOSURE HANFORD, LLC**

- **Evaluation Questions**

- Are IC requirements being properly reflected in waste site closeout documents (i.e., Cleanup Verification Packages and Waste Site Reclassification Forms)? (See *2004 Site Wide Institutional Controls Annual Assessment Report for Hanford CERCLA Response Actions*)
- Do subcontractor documents require that signage on new haul roads be maintained during remediation? (See *2004 Site Wide Institutional Controls Annual Assessment Report for Hanford CERCLA Response Actions*)
- Is access control maintained and warning signs posted along access roads for 300 Area waste sites? (See 300-FF-2 Record of Decision)

- **Evaluation completed in April 2006**

- **Scope and Findings**

- Ten recent Closeout Verification Packages (CVP) and RSVPs were reviewed; appropriate IC language was present in all documents.
- Three subcontractor documents issued after calendar year (CY) 2004 were reviewed; all contained language requiring that signage be installed and maintained.
- A perimeter inspection of access controls at Washington Closure Hanford, LLC (WCH)-controlled north areas of the 300 Area main industrial complex was conducted. Warning signs were present at all openings to WCH-controlled access areas; there were no physical barriers preventing access to WCH-controlled road in the northwest portion of the 300 Area main industrial complex.

- **Actions Taken**

- A fence with a locking gate was installed along Apple Street and around the queue in the northwest portion of the 300 Area to provide more positive access control.

**2007 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT
FLUOR HANFORD, INC.**

Source Document: *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions* (DOE/RL-2001-41 Rev. 2).

The Plan describes how the ICs are implemented and maintained, and serves as a reference for the selection of ICs in the future. ICs generally include non-engineered 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 ICs include procedural restrictions for access, fencing, warning notices, permits, easements, deed notifications, leases and contracts, and land-use controls.

- The Plan was updated in June 2007 to add 221-U requirements.
- The Plan addresses ICs for 200 Area UMM facilities 221-U, 200-UP-1, and 200 ZP-1.
 - The ICs for 221-U are divided into during and after remediation. The remediation has not started yet so the requirements do not yet apply.
 - The 200-UP-1 requirements are applicable when the remediation is complete.
 - No ICs are identified for 200-ZP-1.

**2007 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT
WASHINGTON CLOSURE HANFORD, LLC**

- *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, Rev. 2)*
 - Requires annual IC effectiveness review
 - Results to be reported in September UMM.
- Scope of 2007 review
- Reporting of public trespass events during CY 2006
- Selected 100 Area active waste sites within Hanford Reach Study Act area (¼ mile of the Columbia River shoreline)
 - Excavation Permits
 - Field inspection of signage.
- Status of 300 Area ICs established in response to last year's IC review
- Results
 - No public trespass events identified by Projects or Hanford Patrol
 - Approved Excavation Permits in place for all active remediation waste sites
 - Warning signs in place on 100-Area roadways and shoreline except for Spanish-language shoreline sign at 100-F
 - Shoreline sign repaired and in place
 - 300 Area ICs (fencing) in place and functioning properly.

Figure C-1. Roadway Signage at 100B/C West Gate.



Figure C-2. Roadway Signage at 100D/DR – East Entrance.



Figure C-3. Roadway Signage at 100-H Access Road.



Figure C-4. Shoreline Signage at 100-F – 7/26/07.



Figure C-5. Repaired Shoreline Sign at 100-F – 8/2/07.



Figure C-6. 300 Area NW Fence Line Looking East into Queue.



Figure C-7. Roadway and Entrance Sign at 618-10.



Figure C-8. Roadway and Entrance Signage at 618-7.



Figure C-9. Signage and Fencing at 618-10



Figure C-10. Signage and Fencing at 618-11.



Figure C-11. Roadway Signage at 600-111; 100-IU-6 OU.



Figure C-12. Warning Signs at ERDF.



Figure C-13. Fencing at ERDF.



**2009 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT
– CH2M HILL PLATEAU REMEDIATION COMPANY**

From: Crane, Tina M
Sent: Wednesday, October 14, 2009 4:49 PM
To: Walker, Curtis B
Subject: ICs at U Plant

- *Access Control: visitors are required to be badged and escorted...* The U Plant area lies inside the 200 West Area. Per Hanford Site access control procedures, all personnel entering the 200 Areas must be obtain training and a badge. Entry to the U Plant is further controlled by contractor level procedures and programs that ensure hazards are identified and minimized, worker safety is ensured and personnel are properly trained, badged and escorted as applicable.
- *No intrusive work at 221-U without proper approvals.* The U Plant RO/RAWP (OOE/RL-2006-21) was approved by Ecology and EPA in February 2009. Regulatory approval of intrusive work at 221-U outside the scope of that already approved will be petitioned as appropriate.
- *Well drilling is prohibited (with listed exceptions).* Well drilling is appropriately controlled through established programs and procedures which, among other controls, ensure drilling activities are screened and released by technical authorities and controlling organizations.
- *Groundwater use is prohibited (with listed exceptions).* This IC is protected by infrastructure programs and procedures established which ensure adherence with applicable regulations and restrictions.
- *Post and maintain warning signs to inform of potential hazards from 221-U.* The posting and maintenance of warning and informational signs is mandated by numerous well-established programs and procedures including (though not limited to) the radiological control and hazard communication programs.
- *DOE shall report incidents of unauthorized access to Benton County Sheriff.* The 221U is included in the security and patrol routines and procedures. Programs and procedures are well established to ensure personnel are informed and trained in notification requirements and protocols in response to abnormal and unlawful events.

The remaining ICs listed for U Plant are required after construction of the remedial action. Tina Crane CHPRC Environmental 11 Waste Office Cell': '93110 Tina_M_Crane@rl.gov file:IIC:\Documents and Settings\h0027369\Local Settings\ Temporary Internet Files\Cont... 11119/2009

**2009 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT – WASHINGTON
CLOSURE HANFORD, LLC**

Basis

- Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, Rev. 3)
 - Requires annual IC effectiveness review
 - Results to be reported in September UMM.
- Trespass events during CY 2008
- Access control/entry restrictions
- Excavation control
- Implementation of corrective actions from 2008 IC review
 - Correction of signage to 618-7 waste site and 618-10 and -11 Burial Grounds
- Field inspection of ICs
 - Required signage on entrances to active 100 Area waste sites within 100-B/C, 100-D, 100-H, and 100-N Areas
 - Required signage on entrance to 618-13 waste site in 300 Area

Results

- No public trespass events on WCH managed projects during CY 2008
 - Badging system in place and active
 - Approved Excavation Permits in place for all active remediation activities at 100-B/C, 100-D, 100-H, and 100-N Area waste sites
 - Corrective actions from 2008 review implemented at 618-10 and 618-11 Burial Grounds; remediation activities at 618-7 complete
 - Ample warning signage in place at roadway entrances to active 100-B/C, 100-D, 100-H, and 100-N Area waste sites
- Specific signage required by 100 Area RDR/RAWPs present at all roadway entrances except at west entrance to 100-D Area (D Avenue)
 - Required 100-D Area signage subsequently installed
 - Required warning signage in place at roadway entrance to 618-13 waste site

Figure C-14. Warning Sign at 618-10.



Figure C-15. Warning Signs at 618-11.



Figure C-16. Warning Signs at the Entrance of 100-B/C.



Figure C-17. Warning Sign at 100-B/C.



Figure C-18. Roadway Signage at East Entrance to 100-D.



Figure C-19. Roadway Signage at West Entrance to 100-D (New Signage Installed in Response to IC Review).



Figure C-20. Roadway Signage at Entrance to 100-H.



Figure C-21. Roadway Signage at Entrance to 100-N.



Figure C-22. Roadway Signage at Entrance to 618-13 Waste Site



**2010 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT CH2M HILL PLATEAU
REMEDATION COMPANY**

Below are the ICs that have been identified in Central Plateau (200 Area NPL Site) interim and final Record of Decision (ROD). In summary, no findings were identified in 2010.

Table C-1. Institutional Controls Requirements Listed in EPA/ROD/R10-97/048, Record of Decision 200-UP-1 Operable Unit

Institutional Controls Category	Institutional Controls Requirement	2010 Status
Land-Use Management Entry Restrictions	ICs are required to prevent human exposure to groundwater. DOE is responsible for establishing and maintaining land-use and access restrictions until the final remedy is selected and implemented.	No findings, land-use access restriction still in place.
Miscellaneous Provision	ICs include placing written notification of the remedial action in the facility land-use master plan.	No findings.
Land-Use Management	DOE will prohibit any activities that would interfere with the remedial activity without the lead agency's concurrence.	No findings, no activities have occurred that have interfered with the interim remedial action.
Land-Use Management	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. DOE will provide the Washington State Department of Ecology and U.S. Environmental Protection Agency written verification that these restrictions have been put in place.	No findings.
DOE = U.S. Department of Energy. IC = institutional control.		

Table C-3. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 Superfund Site Benton County, Washington. (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	2010 Status
Entry Restrictions	DOE shall control access to prevent unacceptable exposure of humans to contaminants in the 200-ZP-1 Groundwater OU addressed in the scope of this record of decision until the remedy is complete. Visitors entering any site areas of the 200-ZP-1 OU will be required to be badged and escorted at all times.	No findings, access controls are still in place.
Land-Use Management	No intrusive work shall be allowed in the 200-ZP-1 OU unless EPA has approved the plan for such work and that plan is followed.	No findings, work plans are being/have been submitted for approval.
Land-Use Management	DOE shall prohibit well drilling in the 200-ZP-1 OU, except for monitoring, characterization or remediation wells authorized in EPA-approved documents.	No findings, no unauthorized wells have been drilled.
Groundwater-Use Management	Groundwater use in the 200-ZP-1 OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in EPA-approved documents. The <i>Sitewide Institutional Controls Plan</i> will contain the ICs and implementing details prohibiting well drilling and groundwater use in the 200-ZP-1 OU, as defined in the decision document for the 200-ZP-1 OU.	No findings, no unauthorized groundwater use has occurred.
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-ZP-1 Groundwater OU.	No findings, signs have been/will be installed along pipelines.
Miscellaneous Provision	In the event of any unauthorized access to the site (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access to the site has occurred.
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat, MNA (Monitored Natural Attenuation), and flow-path control components of the remedy are to be prohibited.	No findings no activities have been implemented that would disrupt/lessen performance of remedy
Land-Use Management	DOE shall prohibit activities that would damage the pump-and-treat, MNA, and flow-path control components (e.g., extraction wells, injection wells, piping, treatment plant, or monitoring wells).	No findings, no activities have been implemented that would damage the remedy components.
Miscellaneous Provision	DOE shall report on the effectiveness of ICs for the 200-ZP-1 OU remedy in an annual report, or on an alternative reporting frequency specified by EPA. Such reporting may be for this OU alone or may be part of a Hanford Sitewide report.	No finding.

Table C-4. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington. (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	2010 Status
Entry Restrictions	DOE shall control access to 200-UP-1 Groundwater OU to prevent unacceptable exposure of humans to contaminants, except as otherwise authorized in Ecology approved documents.	No findings, access controls in place.
Entry Restrictions	Visitors entering any site areas of the 200-UP-1 Groundwater OU will be required to be badged and escorted at all times.	No findings.
Land-Use Management	No intrusive work shall be allowed in the 200-UP-1 Groundwater OU unless Ecology has approved the plan for such work and that plan is followed.	No findings, no intrusive work has occurred without prior approval.
Land-Use Management	DOE shall prohibit well drilling in the 200-UP-1 Groundwater OU, except for monitoring, characterization or remediation wells authorized in Ecology-approved documents.	No findings, no unauthorized wells have been drilled.
Groundwater-Use Management	Groundwater use in the 200-UP-1 Groundwater OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in Ecology-approved documents.	No findings, no unauthorized use of groundwater has occurred.
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-UP-1 Groundwater OU.	No findings, signs have been/will be installed along pipelines.
Miscellaneous Provision	In the event of any unauthorized access (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access to the site has occurred.
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat component of the remedy are to be prohibited.	No findings, no activities have been implemented that would disrupt/lessen performance of the interim remedy.
Land-Use Management	DOE shall prohibit activities that would damage the remedy components (e.g., extraction wells, piping, treatment plant, monitoring wells).	No findings, no activities have been implemented that would damage the remedy components.
Land -Use Management	DOE will prevent the development and use of property above the 200-UP-1 Groundwater OU for residential housing, elementary and secondary schools, childcare facilities, and playgrounds.	No findings, no property development has taken place.
Miscellaneous Provision	DOE shall report on the effectiveness of ICs for the 200-UP-1 Groundwater OU interim remedy in an annual report, or on an alternative reporting frequency specified by Ecology. Such reporting may be for the 200-UP-1 Groundwater OU alone or may be part of a Hanford Sitewide report.	No findings.

**2010 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT – WASHINGTON
CLOSURE HANFORD, LLC**

Basis

- Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, Rev. 3)
 - Requires annual IC effectiveness review
 - Results to be reported in September UMM.

Scope of Review

- This portion of review addressed only river corridor source waste sites, and included evaluation of:
 - Trespass events during CY 2009
 - Access control/entry restrictions
 - Excavation control
 - Field inspection of ICs.
- Required signage on entrances to active waste sites within 100-B/C, 100-K, 100-H, 100-D, 100-N, 100-IU-2 and 100-IU-6 Areas
- Required signage on entrance to 300 Area North waste sites and 618-10
- Shoreline signage at 100-B/C, 100-K, 100-N, 100-D, 100-F, 100-H, 300 Area

Results

- No public trespass events on WCH managed projects during CY 2009
- Badging system (access controls) in place and active
- Approved Excavation Permits in place for all active remediation activities at 100-B/C, 100-K, 100-H, 100-D, 100-N, 100-IU-2, and 100-IU-6 Area waste sites
- Ample warning signage in place at roadway entrances to active waste sites at 100-B/C, 100-K, 100-H, 100-D, 100-N, 100-IU-2, 100-IU-6, 300 North, 618-10
 - Specific signage required by 100 Area RDR/RAWPs present at all roadway entrances except at northern and southern entrances to 100-IU-6 waste sites, subsequently fixed
- Shoreline signage in place at 100-B/C, 100-N, 100-H, 300 Area
 - Signage could not be confirmed at 100-D and 100-K due to access limitations; will be checked during September RCRA river inspection
 - •English language sign at 100-F had blown over; subsequently fixed

**2011 ANNUAL INSTITUTIONAL CONTROL ASSESSMENT – CH2M HILL PLATEAU
REMEDICATION COMPANY**

Table C-5. Institutional Controls Requirements Listed in EPA/ROD/R10-97/048, Interim Record of Decision 200-UP-1 Operable Unit.

Institutional Controls Category	Institutional Controls Requirement	2011 Status
Land-Use Management Entry Restrictions	ICs are required to prevent human exposure to groundwater. DOE is responsible for establishing and maintaining land-use and access restrictions until the final remedy is selected and implemented.	No findings, land use access restriction still in place.
Miscellaneous Provision	ICs include placing written notification of the remedial action in the facility land-use master plan.	No findings.
Land-Use management	DOE will prohibit any activities that would interfere with the remedial activity without the lead agency's concurrence.	No findings, no activities have occurred that have interfered with the interim remedial action.
Land-Use Management	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. DOE will provide the Washington State Department of Ecology and U.S. Environmental Protection Agency within written verification that these restrictions have been put in place.	No findings.
DOE = U.S. Department of Energy. IC = institutional control.		

Table C-6. Institutional Controls Requirements (Required through the Time of Completion of Remedy Construction) Listed in Record of Decision for 221-U Facility (Canyon Disposition Initiative) (2 sheets).

Institutional Controls Category	Institutional Controls Requirement	2011 Status
Entry Restrictions	DOE shall control access to prevent unacceptable exposure of humans to contaminants at the 221-U Facility site addressed in the scope of this record of decision until remedy construction is complete. Visitors entering any site areas are required to be badged and escorted at all times. See Appendix A, Figure A-1, for a site map showing the extent of the 221-U Facility site and the boundaries of the land-use controls. A more detailed map will be developed and included in the remedial design/remedial action work plan to be approved by EPA and Ecology.	No findings, access controls still in place.

Table C-8. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington.

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to 200-UP-1 Groundwater OU to prevent unacceptable exposure of humans to contaminants, except as otherwise authorized in Ecology approved documents.	No findings, access controls are in place.
Entry Restrictions	Visitors entering any site areas of the 200-UP-1 Groundwater OU will be required to be badged and escorted at all times.	No findings.
Land-Use Management	No intrusive work shall be allowed in the 200-UP-1 Groundwater OU unless Ecology has approved the plan for such work and that plan is followed.	No findings, no intrusive work has occurred without prior approval.
Land-Use Management	DOE shall prohibit well drilling in the 200-UP-1 Groundwater OU, except for monitoring, characterization or remediation wells authorized in Ecology-approved documents.	No findings, no unauthorized wells have been drilled.
Groundwater-Use Management	Groundwater use in the 200-UP-1 Groundwater OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in Ecology-approved documents.	No findings, no unauthorized use of groundwater has occurred.
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-UP-1 Groundwater OU.	No findings, signs have been/will be installed along pipelines.
Miscellaneous Provision	In the event of any unauthorized access (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access to the site has occurred.
DOE = U.S. Department of Energy. OU = operable unit. Ecology = Washington State Department of Ecology.		

Table C-9. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington (2 Sheets).

Institutional Controls Categories	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat component of the remedy are to be prohibited.	No findings, no activities have been implemented that would disrupt/lessen performance of the interim remedy.
Land-Use Management	DOE shall prohibit activities that would damage the remedy components (e.g., extraction wells, piping, treatment plant, monitoring wells).	No findings, no activities have been implemented that would damage the remedy components.

Table C-9. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington (2 Sheets).

Institutional Controls Categories	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Land-Use Management	DOE will prevent the development and use of property above the 200-UP-1 Groundwater OU for residential housing, elementary and secondary schools, childcare facilities, and playgrounds.	No findings, no property development has taken place.
Miscellaneous Provision	DOE shall report on the effectiveness of institutional controls for the 200-UP-1 Groundwater OU interim remedy in an annual report, or on an alternative reporting frequency specified by Ecology. Such reporting may be for the 200-UP-1 Groundwater OU alone or may be part of a Hanford Sitewide report.	No findings.
DOE = U.S. Department of Energy. OU = operable unit.		

Table C-10. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200-UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington.

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Land-Use Management	Measures that are necessary to ensure continuation of ICs shall be taken before any lease or transfer of any land above the 200-UP-1 Groundwater OU. DOE will provide notice to Ecology and EPA at least 6 months prior to any transfer or sale of 200-UP-1 Groundwater OU or any land above the 200-UP-1 Groundwater OU so that Ecology can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective ICs. If it is not possible for DOE to notify Ecology and EPA at least 6 months prior to any transfer or sale, then the DOE will notify Ecology and EPA as soon as possible but no later than 60 days prior to the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions above, the DOE further agrees to provide Ecology and EPA with similar notice, within the same time frames, as to federal-to-federal transfer of property. DOE shall provide a copy of executed deed or transfer assembly to Ecology and EPA.	No findings, no transfer/sale of land has taken place.
Land-Use Management	The ICs specified above shall be maintained until the concentrations of hazardous substances in groundwater are at such levels to allow for unrestricted use and exposure and Ecology authorizes the removal of restrictions. DOE is responsible for implementing, maintaining, reporting on and enforcing the institutional controls.	No findings, land use controls are still in place.
DOE = U.S. Department of Energy. Ecology = Washington State Department of Ecology. EPA = U.S. Environmental Protection Agency. IC = institutional control. OU = operable unit.		

**2011 INSTITUTIONAL CONTROL ASSESSMENT – WASHINGTON CLOSURE
HANFORD, LLC**

Basis

- Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, Rev. 4)
 - Requires annual IC effectiveness review
 - Results to be reported in September UMM

Scope of Review

This portion of review addressed only river corridor source waste sites, and included evaluation of:

- Trespass events during CY 2010
- Access control/entry restrictions
- Excavation control
- Field inspection of ICs
 - Required signage on entrances to active waste sites in 100-IU-2/-6 areas
 - Required signage on entrance to 300 Area main industrial complex and 618-10
 - Shoreline signage at 100-B/C, 100-K, 100-N, 100-D, 100-F, 100-H, 300 Area

Results:

- No public trespass events on WCH managed projects during CY 2010
- Badging system (access controls) in place and active
- Approved Excavation Permits in place for all remediation activities checked at 100-B/C, 100-D, 100-F, 100-H, 100-K, 100-H, 100-D, 100-N, 100-IU-2, 100-IU-6, and 300 Area waste sites (approx. 60 sites checked)
- Warning signs in place at roadway entrances to waste sites within 300 Area main industrial complex and 618-10; additional sign to be installed
- Some temporary signage used at 100-IU-2/-6 waste sites; more permanent signs will be installed at main roadways
- Shoreline signage checked during September 2011 annual Columbia River RCRA inspection; signs at 100-K appear to have been removed

Mitigating Action

WCH replaced the removed signs at the locations at the 100-K Area on October 18, 2011. These signs were identified “signs at 100-K appear to have been removed” in the last bullet above. See photographs of replaced warning signs at 181-KE and 183-KW below.

Figure C-23. Warning Sign at 181-KE.



Figure C-24. Roadway Signage within 100-IU-6 near 600-202.



Figure C-25. Roadway Signage within 100-IU-6



Figure C-26. 100-IU-6 Small Waste Site Excavation.



Figure C-27. Warning Signs at 181-KE.



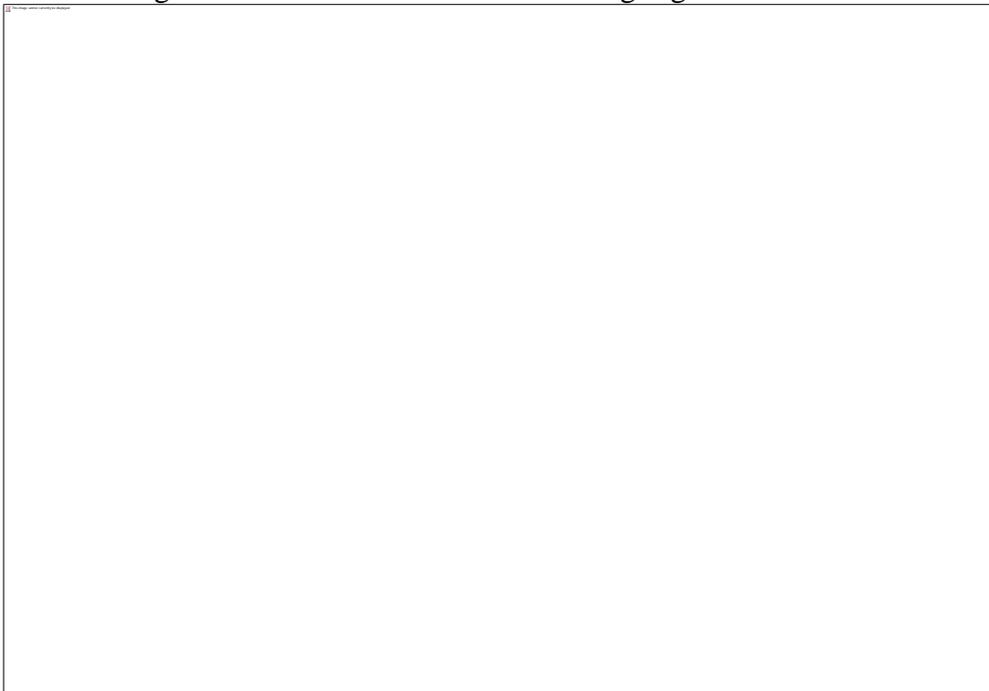
Figure C-28. Closure View of Warning Signs at 181-KE.



Figure C-29. Warning Signs at 183-KW.



Figure C-30. Closure View of Warning Signs at 183-KW.



2012 Institutional Controls Evaluation for Central Plateau Records of Decisions

Table C-11. Institutional Controls Requirements Listed in EPA/ROD/R10-97/048, Interim Record of Decision 200-UP-1 Operable Unit.

Institutional Controls Category	Institutional Controls Requirement	2012 Status
Land-Use Management Entry Restrictions	ICs are required to prevent human exposure to groundwater. DOE is responsible for establishing and maintaining land-use and access restrictions until the final remedy is selected and implemented.	No findings, land use access restriction still in place.
Miscellaneous Provision	ICs include placing written notification of the remedial action in the facility land-use master plan.	No findings.
Land-Use management	DOE will prohibit any activities that would interfere with the remedial activity without the lead agency's concurrence.	No findings, no activities have occurred that have interfered with the interim remedial action.
Land-Use Management	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. DOE will provide the Washington State Department of Ecology and U.S. Environmental Protection Agency within written verification that these restrictions have been put in place.	No findings.
DOE = U.S. Department of Energy. IC = institutional control.		

Table C-12. Institutional Controls Requirements (Required through the Time of Completion of Remedy Construction) Listed in Record of Decision for 221-U Facility (Canyon Disposition Initiative) (2 sheets).

Institutional Controls Category	Institutional Controls Requirement	2012 Status
Entry Restrictions	DOE shall control access to prevent unacceptable exposure of humans to contaminants at the 221-U Facility site addressed in the scope of this ROD until remedy construction is complete. Visitors entering any site areas are required to be badged and escorted at all times. See Figure 7 of the 221-U Facility ROD (EPA 2005) for a site map showing the extent of the 221-U Facility site and the boundaries of the land-use controls. A more detailed map will be developed and included in the remedial design/remedial action work plan to be approved by EPA and Ecology.	No findings, access controls still in place.
Land-Use Management	No intrusive work shall be allowed at the 221-U Facility site unless the EPA and Ecology have approved the plan for such work and that plan is followed.	No findings, work plans are being/have been submitted for approval.
Land-Use Management	DOE shall prohibit well drilling at the 221-U Facility site except for monitoring, characterization, or remediation wells authorized in	No findings, no unauthorized wells

Table C-15. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 OU Superfund Site Benton County, Washington.

Institutional Controls Category	Institutional Controls Requirement	2012 Status
Groundwater-Use Management	Groundwater use in the 200-ZP-1 OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in EPA-approved documents. The <i>Sitewide Institutional Controls Plan</i> will contain the institutional controls and implementing details prohibiting well drilling and groundwater use in the 200-ZP-1 OU, as defined in the decision document for the 200-ZP-1 OU.	No findings, no unauthorized groundwater use has occurred.
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-ZP-1 Groundwater OU.	No findings, signs have been/will be installed along pipelines.
Miscellaneous Provision	In the event of any unauthorized access to the site (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access to the site has occurred.
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat, MNA (Monitored Natural Attenuation), and flow-path control components of the remedy are to be prohibited.	No findings, no activities have been implemented that would disrupt/lessen performance of remedy.
Land-Use Management	DOE shall prohibit activities that would damage the pump-and-treat, MNA, and flow-path control components (e.g., extraction wells, injection wells, piping, treatment plant, or monitoring wells).	No findings, no activities have been implemented that would damage the remedy components.
Miscellaneous Provision	DOE shall report on the effectiveness of ICs for the 200-ZP-1 OU remedy in an annual report, or on an alternative reporting frequency specified by EPA. Such reporting may be for this OU alone or may be part of a Hanford Sitewide report.	No findings.
DOE = U.S. Department of Energy. MNA = Monitored Natural Attenuation. EPA = U.S. Environmental Protection Agency. OU = operable unit.		

Table C-16. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 Superfund Site Benton County, Washington (2 sheets).

Institutional Controls Category	Institutional Controls Requirement	2012 Status
Land-Use Management	DOE will provide notice to EPA at least 6 months prior to any transfer or sale of the any land above the 200-ZP-1 OU so EPA can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective ICs. If it is not possible for DOE to notify EPA at least 6 months prior to any transfer or sale, then the DOE will notify EPA as soon as possible but no later than 60 days prior to the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions above, the DOE further agrees to provide EPA with similar	No findings, no transfer/sale of land has taken place.

Table C-16. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 Superfund Site Benton County, Washington (2 sheets).

Institutional Controls Category	Institutional Controls Requirement	2012 Status
	notice, within the same time frames, as to federal-to-federal transfer of property. DOE shall provide a copy of executed deed or transfer assembly to EPA.	
Land-Use Management	DOE will prevent the development and use of property above the 200-ZP-1 Groundwater OU for residential housing, elementary and secondary schools, childcare facilities and playgrounds.	No findings, no property development has taken place.
Land-Use Management	Land-use controls will be maintained until cleanup levels are achieved and the concentrations of hazardous substances in groundwater are at such levels to allow for unrestricted use and exposure and EPA authorizes the removal of restrictions.	No findings, land use controls are still in place.
DOE = U.S. Department of Energy. IC = institutional control. EPA = U.S. Environmental Protection Agency. OU = operable unit.		

Table C-17. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200- UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington.

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to 200-UP-1 Groundwater OU to prevent unacceptable exposure of humans to contaminants, except as otherwise authorized in Ecology approved documents.	No findings, access controls are in place.
Entry Restrictions	Visitors entering any site areas of the 200-UP-1 Groundwater OU will be required to be badged and escorted at all times.	No findings.
Land-Use Management	No intrusive work shall be allowed in the 200-UP-1 Groundwater OU unless Ecology has approved the plan for such work and that plan is followed.	No findings, no intrusive work has occurred without prior approval.
Land-Use Management	DOE shall prohibit well drilling in the 200-UP-1 Groundwater OU, except for monitoring, characterization or remediation wells authorized in Ecology approved documents.	No findings, no unauthorized wells have been drilled.
Groundwater-Use Management	Groundwater use in the 200-UP-1 Groundwater OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in Ecology approved documents.	No findings, no unauthorized use of groundwater has occurred.
Warning Notices	DOE shall post and maintain warning signs along pipelines conveying untreated groundwater that caution site visitors and workers of potential hazards from the 200-UP-1 Groundwater OU.	No findings, signs have been/will be installed along pipelines.
Miscellaneous Provision	In the event of any unauthorized access (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access to the site has occurred.
DOE = U.S. Department of Energy. OU = operable unit. Ecology = Washington State Department of Ecology.		

Table C-18. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200- UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington.

Institutional Controls Categories	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat component of the remedy are to be prohibited.	No findings, no activities have been implemented that would disrupt/lessen performance of the interim remedy.
Land-Use Management	DOE shall prohibit activities that would damage the remedy components (e.g., extraction wells, piping, treatment plant, monitoring wells).	No findings, no activities have been implemented that would damage the remedy components.
Land-Use Management	DOE will prevent the development and use of property above the 200-UP-1 Groundwater OU for residential housing, elementary and secondary schools, childcare facilities, and playgrounds.	No findings, no property development has taken place.
Miscellaneous Provision	DOE shall report on the effectiveness of institutional controls for the 200-UP-1 Groundwater OU interim remedy in an annual report, or on an alternative reporting frequency specified by Ecology. Such reporting may be for the 200-UP-1 Groundwater OU alone or may be part of a Hanford Sitewide report.	No findings.
DOE = U.S. Department of Energy. OU = operable unit. Ecology = Washington State Department of Ecology.		

Table C-19. Explanation of Significant Differences (ESD) for the Interim Action Record of Decision for the 200- UP-1 Groundwater Operable Unit, Hanford Site, Benton County Washington (2 sheets).

Institutional Controls Category	Institutional Controls Requirement	Sections of the Plan Where Institutional Controls are Addressed
Land-Use Management	Measures that are necessary to ensure continuation of institutional controls shall be taken before any lease or transfer of any land above the 200-UP-1 Groundwater OU. DOE will provide notice to Ecology and EPA at least 6 months prior to any transfer or sale of 200-UP-1 Groundwater OU or any land above the 200-UP-1 Groundwater OU so that Ecology can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective ICs. If it is not possible for DOE to notify Ecology and EPA at least 6 months prior to any transfer or sale, then the DOE will notify Ecology and EPA as soon as possible but no later than 60 days prior to the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions above, DOE further agrees to provide Ecology and EPA with similar notice, within the same time frames, as to federal-to-federal transfer of property. DOE shall provide a copy of executed deed or transfer assembly to Ecology and EPA.	No findings, no transfer/sale of land has taken place.

2012 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT – RIVER CORRIDOR CONTRACTOR ANNUAL IC REVIEW

Basis

- Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, Rev. 5)
 - Requires annual IC effectiveness review
 - Results to be reported in September UMM

Scope of Review

This portion of review addressed only river corridor source waste sites, and included evaluation of:

- Trespass events during CY 2011
- Access control/entry restrictions
- Excavation control
- Field inspection of ICs
 - Required roadway signage on entrances to 300 Area Main Complex, 618-10, 100-B/C, 100-D, 100-F, 100-H, 100-N Areas
 - Required shoreline signage at 300 Area, 100-B/C, 100-D, 100-F, 100-H, 100-K, 100-N Areas

Results:

- No public trespass events on WCH managed projects during CY 2011
- Badging system (access controls) in place and active
- Approved Excavation Permits in place and up to date
- Warning signs in place at roadway entrances; additional sign installed at new entrance on west side of 300 Area main complex (Figures C-31 and C-32)
- Shoreline signs in place (Figures C-33, C-34, and C-35)

Figure C-31. Roadway Signage at West Entrance to 300 Area Main Complex –Before the Installation of Warning Sign.



Figure C-32. Roadway Signage at West Entrance to 300 Area Main Complex –Warning Sign Installed.



Figure C-33. Shoreline Signage – 100-B/C.



Figure C-34. Shoreline Signage 100-H.



Figure C-35. Shoreline Signage – 100-F.



**2012 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT – MISSION
SUPPORT ALLIANCE**

Hanford Patrol reported one incident of trespassing in December 2011 and another incident in July 2011 to Benton County Sherriff's Office. MSA did not manage waste sites which required institutional controls in the reporting period.

APPENDIX D

**FIVE-YEAR EVALUATION OF ANNUAL INSTITUTIONAL CONTROL
ASSESSMENTS FROM 2006-2010**

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**FIVE-YEAR EVALUATION OF ANNUAL INSTITUTIONAL CONTROL
ASSESSMENTS FROM 2006-2010**

This appendix includes evaluation of annual institutional control (IC) assessments conducted between 2006 and 2010. The Section 4.2 of this document states that the Sitewide IC assessment, in conjunction with the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) five-year review, will be a “roll up” of these reviews and will serve as a means to evaluate effectiveness of the ICs. The U.S. Department of Energy, Richland Operations Office (DOE-RL), conducted the CERCLA five-year review for the years 2006-2010 in 2011. This roll up of five-year reviews (2006-2010) presented in this appendix coincides with the CERCLA five-year review.

Table D-1. Institutional Control Assessment Five-Year Summary for 2006-2010.

Institutional Controls	2006	2007	2008	2009	2010
Warning Notices	No deficiencies noted	A Spanish language sign replace in 100-F Area	Signs reflecting remedial design report (RDR)/ remedial action work plan (RAWP) language at 618-10 and 618-11 were installed.	Correction of signage to 618-7 waste site complete. Required 100-D Area signage installed	The northern and southern entrances to 100-IU-6 waste sites were installed as required by 100 Area RDR/RAWP. A blown over English language sign at 100-F was reinstalled.
Entry Restrictions	Installed a fence with a locking gate in the northwest corner of the 300 Area	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted
Land-Use Management	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted
Groundwater-Use Management	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted
Waste Site Information	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted	No deficiencies noted

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