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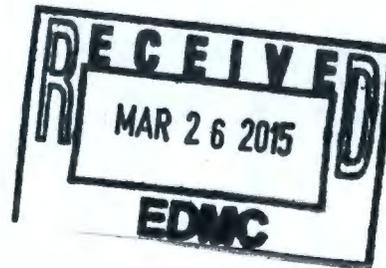
Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions

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

Contractor for the U.S. Department of Energy
under Contract DE-AC06-09RL14728



P.O. Box 650
Richland, Washington 99352



Approved for Public Release;
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169

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D. G. Ranade
Mission Support Alliance

Date Published
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APPROVED

By Julia Raymer at 3:26 pm, Mar 17, 2015

Release Approval

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APPROVAL

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

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Revision History DOE/RL-2001-41, Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions		
Revision Number	Publication Date	Description
8	TBD	<p>Revision 8 includes following changes:</p> <ul style="list-style-type: none"> • Editorial and minor text changes made. • Added two new terms – Deed Restrictions and Notice in Deed in the “Definitions” Section. • Deleted Explanation of Significant Difference document for 100-IU-6 Operable Unit from Table 3-1. • Added 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1, and 100-IU-6 Operable Units Record of Decision in Table 3-1 • Added Section 3.5.2.5, <i>Notice in Deed</i> • Added new table 3-5 listing institutional controls associated with operable units. • Added new Table 3-7 to list Notices in Deed registered with Benton County Auditor. • Added a paragraph in Section 3.7 addressing 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1, and 100-IU-6 Operable Units Record of Decision. • Added Tables A1-23 and A1-24 to list Area - specific and waste site - specific institutional controls. • Deleted tables listing institutional controls specific to 100-FR-1 Operable Unit waste sites. • Added figures A1-1, A1-2, and A1-3 to show land use control boundaries for the 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 operable units. • Added Figure A3-2 to show land use control area for 300-FF-5 Operable Unit. • Added Table B1-3, Table B1-4, and Table B1-5 to list institutional controls for 1301-N, 1324-N and 1325-N Treatment, Storage, and Disposal Units. • Replaced the 2013 Annual Institutional Control Assessments report in Appendix C with 2014 Annual Institutional Control Assessments report.
7	May 21, 2014	Revision 7 includes the following changes:

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Revision Number	Publication Date	Description
		<ul style="list-style-type: none"> • Document number changed from DOE/RL-2001-41, Rev. 6 to DOE/RL-2001-41, Rev. 7. • Added Revision History Table - Rev. 7. • Removed references and text related to - Interim ROD, Explanation of Significant Difference, and ROD Amendment documents for 300-FF-2 and 300-FF-5 Operable Units. • Editorial and minor text changes made. • Updated documents listed in the Executive Summary. • Added two new terms - TPA Change Notice (TPA-CN), and Cleanup Verification Packages (CVP) to the Definitions section. • Added interim and final RODs, TPA-CN forms, cleanup verification packages (CVPs), and work plans to CERCLA document listing in Section 3.1. • Added new Section 3.3 - Describing waste sites with institutional controls. • Table 3-1 - Added five new rows to table. One row for Interim Remedial Action ROD Amendment and four rows for TPA-CN forms. • Table 3-3, added a new row to the table listing 2013 ROD for 300-FF-2 and 300-FF-5 and ROD Amendment for 300-FF-1. Deleted five rows - that listed 300-FF-2 and 300-FF-5 CERCLA documents. • Table 3-5, Deleted a row listing 216-A-10 crib and added a row addressing 331-C Storage Unit. • Revised Table 3-6 - to address access controls. • Added Section 3.5.1 describing access controls, Section 3.5.1.2 describing entry restrictions and rearranged Section 3.5. • Section 3.5.1, added a paragraph describing warning signs addressed in the Hanford Site RCRA Permit and WAC 173-303-310, "Security." • Added new Section 3.5.2.4 - "Industrial Use Institutional Controls". • Updated Table 3-7, added Remedial Design/Remedial Action Work Plans.

Revision History DOE/RL-2001-41, Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions		
Revision Number	Publication Date	Description
		<ul style="list-style-type: none"> • Made changes to Section 3.7 to address ICs listed the 300 Area ROD. • Added new Tables - A1-13 to A1-27, and Figure A3-1 to Appendix A. • Deleted Tables – A3-2 through A3-5 and added new Tables A3-2 and A3-3 in Appendix A. • Added new Table B-2 - Listed ICs for waste site 600-235 and new Figure B-1 to Appendix B. • Appendix C, deleted 2006-2012 annual IC assessments. • Appendix C, added the 2013 Annual Sitewide IC tables and figures.
6	January 31, 2013	<p>Revision 6 includes the following changes:</p> <ul style="list-style-type: none"> • Document number 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 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 (IC) at the U.S. Department of Energy (DOE) sites. Some regulatory drivers directly authorize or require the use of ICs, while others do not. DOE also uses ICs 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. For over 50 years, DOE has conducted activities 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.

Requirements for a *Sitewide Institutional Control Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions* (Plan) are 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 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 the required ICs.

This Plan describes how ICs are implemented, maintained and serves as a reference for selecting ICs in the future.

The ICs 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. ICs 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 ICs 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 U.S. Environmental Protection Agency (EPA) guidance documents regarding the implementation of ICs:

- “Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites” OSWER 9355.0-89 EPA-540-R-09-001 December 2012
- “Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites” OSWER 9200.0-77 EPA-540-R-09-002 December 2012

This Plan will be updated when a new CERCLA decision document and/or RCRA decision document listing ICs 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>
CVP	Cleanup Verification Package
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>
RCW	<i>Revised Code of Washington</i>
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RI/FS	remedial investigation/feasibility study
ROD	record of decision
TPA-CN	Tri-Party Agreement-Change Notice
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 (equivalent to 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 developing 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 amended remedial action for a site differs from the record of decision.

Cleanup Verification Package. Cleanup verification packages (CVPs) document verification of interim remedial actions at a waste site. CVPs are prepared for individual remediated waste sites, or a group of remediated waste sites, as needed. Each package includes a description of the waste site history, the current waste site condition, the basis for reclassifying a site as "closed" or "interim closed," and verification sampling results. A description of the remediation activities, the logic for determining the contaminants of concern for verification sampling, and supporting calculations also are included in the CVPs. Regulatory agency review and approval of each CVP is part of reclassifying the waste site from "accepted" to "interim closed out."

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

Deed Restrictions. Real estate deed restrictions are restrictions on the deed that place limitations on the use of the property. Deed restrictions "bind" land. Most deed restrictions are permanent and "run with the land;" that is, they generally bind all current and future owners of the lot or parcels involved.

Disposal (of real property). Permanent or temporary transfer of U.S. Department of Energy control and custody of real property to a third party that 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 Difference. 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 on the National Priorities List (40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Appendix B, "National Priorities List"). The final closeout report describes how 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). The Tri-party Agreement is an agreement for achieving compliance with CERCLA remedial action provisions and with RCRA treatment, storage, and disposal unit regulations and corrective action provisions. More specifically, the Tri-Party Agreement 1) defines and ranks CERCLA and RCRA cleanup commitments, 2) establishes responsibilities, 3) provides a basis for budgeting, and 4) reflects a concerted goal of achieving full regulatory compliance and remediation, with enforceable milestones in an aggressive manner.

Institutional Controls. Institutional controls 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, pollutants or contaminants to minimize the potential for human and environmental exposure. 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 Hanford 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 in Deed. It is a notice to convey deed restrictions. The Notice in Deed is recorded with the county register of deeds records where the property is located.

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 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 criterion for placing a site into an operable unit includes 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 also may 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. U.S. Environmental Protection Agency, Washington State Department of Ecology and U.S. Department of Energy are the parties to the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement).

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

Tri-Party Agreement-Change Notice (TPA-CN). A TPA-CN is used to make minor changes to the TPA primary document or other regulator approved document as described in the TPA Action Plan, Section 9.3, "Document Revisions." Section 9.0, "Documentation and Records," of the TPA Action Plan identifies what documents are considered primary documents.

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). This system is maintained by the U.S. Department of Energy, Richland Operations Office, in accordance with the Waste Information Data System change control system that documents and traces additions, deletions, and/or other changes dealing with the status of waste management units.

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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 corrective actions selected under RCRA. These documents are 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 RCRA decision documents and ICs specific to the remediated waste sites. 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.

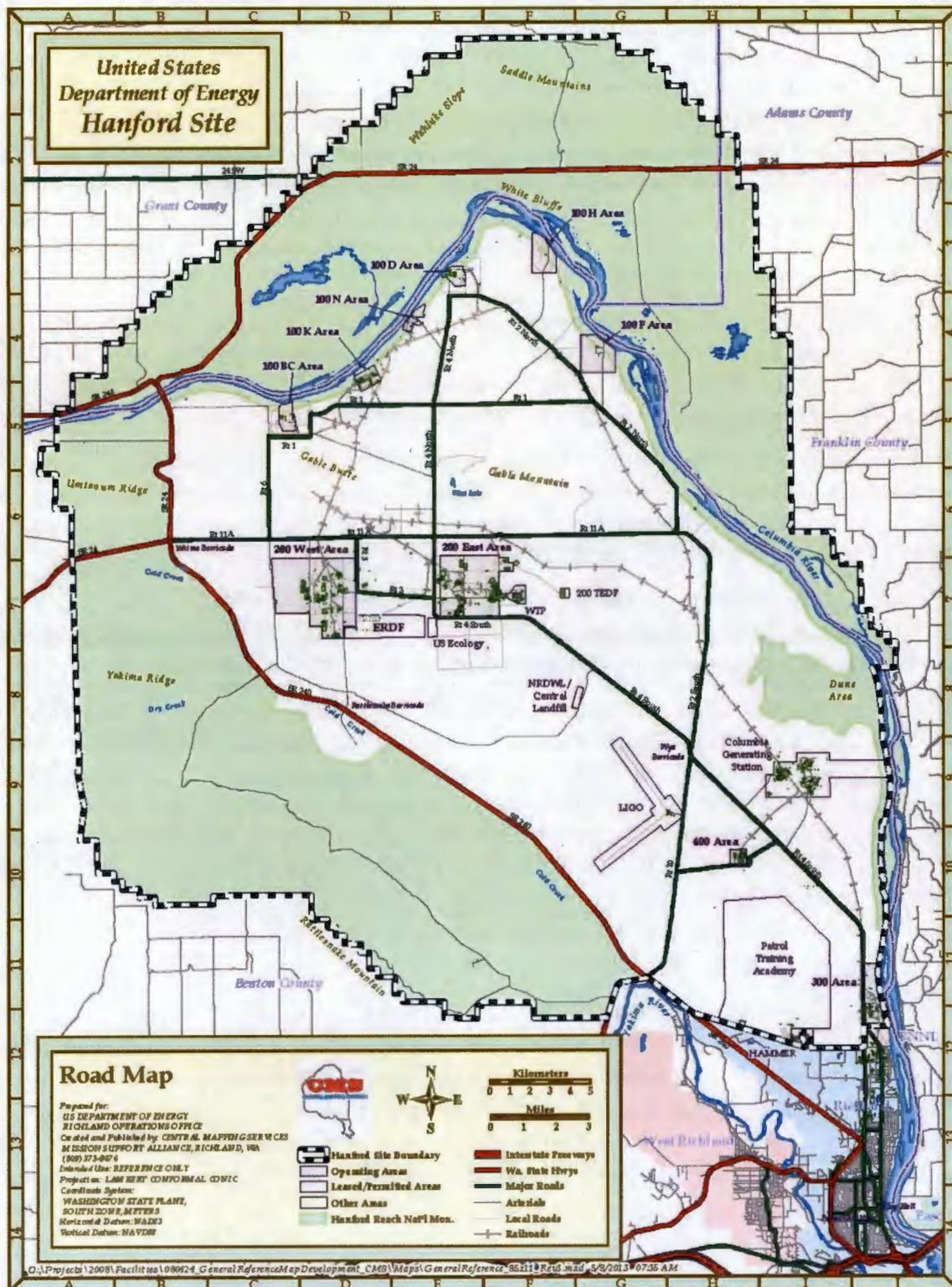
The focus of ICs may change as cleanup is completed. Active ICs, such as controlling access to the site or controlling activities that may affect remedial action, generally are required during remediation. After cleanup is completed, passive ICs such as permanent markers, public records and archives, or regulations regarding land or resource use are required. Some active ICs such as monitoring and controlling access to the site also may be required 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 a free-flowing stretch of the Columbia River. This stretch is known as the Hanford Reach.

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

Figure 1-1. Hanford Site.



The Hanford Site was acquired by the federal government in 1943 and was dedicated primarily to the production of plutonium for national defense and the management of the resulting waste until 1989. With the shutdown of the production facilities in the 1970s and 1980s, the U.S. Department of Energy (DOE) ended the production of nuclear materials for weapons at the Hanford Site and since then cleanup has been the primary mission.

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

Hanford Site facilities 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 Hanford Site activities focus on waste management, environmental restoration, facility stabilization, and research and technology development.

DOE manages operations on the Hanford Site through their prime 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 included in 40 CFR 300, Appendix B, "National Priorities List" (NPL). In anticipation of the NPL listing, DOE 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. Waste management units at Hanford are grouped into operable units (OU). The Tri-Party Agreement generally designates EPA or Ecology as the lead regulatory agency for cleanup of each OU.

1.2.1 Integration of RCRA and CERCLA

RCRA (as implemented by the State of Washington through the "Hazardous Waste Management" [RCW 70.105] and its implementing "Dangerous Waste Regulations" [WAC 173-303]) and CERCLA overlap in many areas. RCRA and CERCLA require cleanup actions for releases regardless of time of release. Many of the RCRA treatment, storage, and disposal (TSD) units on the Hanford Site are closed and require post-closure care, are awaiting closure, and located in close proximity to past-practice units. These TSD unit activities generally are coordinated with the appropriate OU past-practice units so that integrated investigation and cleanup actions result. These TSD units, closed under the authority of RCRA, are 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 in an OU are designated CERCLA units or as RCRA units.

For the CERCLA sites, ICs are 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 Resource Conservation and Recovery Act Permit, Dangerous Waste Portion*,

Revision 8C, for the Treatment, Storage, and Disposal of Dangerous Waste (Hanford Site RCRA Permit). This is the only RCRA permit 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 will continue to provide the TSD of hazardous and mixed wastes. Over 50 TSD groups are being closed and/or permitted in accordance with RCRA and *Washington Administrative Code* (WAC) 173-303. 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 containing hazardous constituents and hazardous substances is designated a RCRA corrective action and/or CERCLA response action. Based on Tri-Party Agreement designations, some past-practice units in certain OUs will be designated RCRA-CERCLA Past-Practice Units. The purpose of this category is to address releases of RCRA hazardous constituents from sources other than TSD units, 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 will be addressed using 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 primarily guides the EPA in determining sites that warrant further investigation.

EPA designated four Hanford Site areas as separate NPL sites; e.g., 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.

EPA, Region 10, deleted the 1100 Area from the NPL on September 30, 1996, and 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 unrestricted use and unrestricted exposure 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 requirements for maintaining ICs are initiated after the remedy is constructed and 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 in 40 CFR 300.425(e), "Establishing Remedial Priorities." A site may be deleted from the NPL and still have residual contamination. Any ICs that are required following the deletion are identified in the ROD and 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.

Source contamination in the 100 Area is grouped geographically into 17 OUs. These OUs contain about 400 waste sites and each waste site can be categorized as one of four different types: contaminated soil, structures, debris, or burial grounds. For the 100 Area, 18 CERCLA decision documents have been approved and one Notice of Partial Deletion, 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) has been published. Remediation of the 100 Area is achieved in the source waste sites by reducing concentrations or limiting exposure pathways of contaminants to meet the remedial action goals as described in the CERCLA RODs. If contamination is still in place that is above an unrestricted use standard, ICs that limit access to the site and restrict use of groundwater will be in place until remedial action objectives are attained.

1.3.2 200 Area National Priorities List Site

The 200 Area NPL site includes 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 and 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 in the 200 Area include active TSD facilities, the Environmental Restoration Disposal Facility and high-level nuclear waste tank farm operations.

The 200 Area NPL site comprises 18 source OUs that contain over 900 soil waste sites and associated structures. The OUs are organized by discharge type (e.g., solid waste, cooling water, process water, uranium-rich waste) and waste site type (e.g., ponds, cribs, ditches, tanks, 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 (2005a), *Record of Decision, 221-U Facility (Canyon Disposition Initiative), Hanford Site, Washington*, requires ICs during cleanup activities and after cleanup activities.

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. Activities in the 300 Area began in 1943, and the 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 contains 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 and the 300-FF-5 Groundwater OU addresses groundwater contamination resulting from the burial grounds and soil waste sites. A ROD for 300-FF-2 and 300-FF-5 and ROD Amendment for 300-FF-1 was issued in November 2013.

1.3.4 1100 Area National Priorities List Site

The 1100 Area was deleted from the NPL on September 30, 1996. Although the site was 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 as described in Appendix A, Table A4-3.

Ownership of a portion of the property in the 1100 Area NPL site (former 1100 Area and 3000 Area) was transferred to the Port of Benton. The (Fitzner-Eberhardt) Arid Lands Ecology Reserve (ALE) and the Wahluke Slope are included in the Hanford Reach National Monument. The Hanford Reach National Monument is jointly managed by DOE and the U.S. Fish and Wildlife Service, under a memorandum of understanding (*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*) (RL 2001).

2.0 INSTITUTIONAL CONTROLS

This chapter defines the different ICs and describes the regulatory basis for the 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.

2.2 REGULATORY BASIS FOR INSTITUTIONAL CONTROLS

Remediation at the Hanford Site 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 times. 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 constituents.

In addition to the use of ICs for corrective action, RCRA closure regulations, such as 40 CFR 264.119(b)(1), "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," 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 19432), 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’s 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 173-303. Ecology’s implementing regulations for RCRA corrective action (WAC 173-303-64620) use Ecology’s cleanup regulations in 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, “Terrestrial ecological evaluation procedures,” through 173-340-7494, “Priority contaminants of ecological concern”; 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. Specifically, 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, which 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. 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 CATEGORIES 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 categories 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 -Active and passive controls 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 types:

- 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. Information is provided for IC requirements specific to the four NPL sites.

3.1 INSTITUTIONAL CONTROLS AND CERCLA DOCUMENTS

IC requirements are described in the following CERCLA documents:

- Interim and final RODs
- ROD amendment (AMD)
- ESD
- TPA-Change Notices
- Cleanup Verification Packages (CVP).
- Work plans

When a ROD is published, it supersedes the associated interim ROD(s) and ESDs and AMDs. The superseded documents are not in this Plan. Action memorandums are a type of decision document used for removal actions. However, because removal actions generally are temporary measures and not intended to fulfill NPL cleanup requirements, ICs typically are not in the action memorandums. To date, action memorandums issued to the Hanford Site do not include ICs. Therefore, action memorandums are not in this Plan.

The CERCLA decision documents, excluding action memorandums issued for the 100, 200, 300, and 1100 Area NPL sites, are in Tables 3-1 through 3-4. 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 decision documents listed may not specify the ICs. Table 3-5 lists ICs for each OU. A listing of the ICs identified in the CERCLA decision documents is in Appendix A. A listing of ICs identified in the RCRA closure plans is in Appendix B.

Table 3-1. 100 Area National Priorities List CERCLA Decision Documents. (4 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	09/28/1995	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	02/02/1996	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	03/26/1996	100-HR-3, 100-KR-4	Table A1-2
EPA/AMD/R10-97/044	Record of Decision Amendment for USDOE Hanford 100 Area	04/04/1997	100-BC-1, 100-DR-1 100-HR-1	Table A1-3

Table 3-1. 100 Area National Priorities List CERCLA Decision Documents. (4 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/R10-99/039	Interim Action Record of Decision for U.S. Department of Energy Hanford 100 Area Remaining Sites and 200 Area	07/15/1999	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	09/17/1999	100-KR-2	Table A1-5
EPA/ROD/R10-99/112	Interim Remedial Action Record of Decision for USDOE Hanford 100 Area	09/29/1999	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	10/24/1999	100-HR-3	Table A1-7
EPA/ROD/R10-00/120	Interim Remedial Action Record of Decision for USDOE Hanford 100 Area	01/18/2000	100-NR-1	Table A1-8
EPA/ROD/R10-00/121	Declaration of the Record of Decision for USDOE Hanford 100 Area	09/25/2000	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	03/31/2003	100-HR-3	No ICs identified
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	05/21/2003	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	4/26/2004	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

Table 3-1. 100 Area National Priorities List CERCLA Decision Documents. (4 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/AMD/Not Listed (EPA 2005b)	Interim Remedial Action Record of Decision Amendment, U.S. Department of Energy, 100 K Area K Basins, Hanford Site - 100 Area, Benton County, Washington	6/20/2005	100 K Area K Basins	No ICs identified.
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	Reference 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.
TPA-CN-604	TPA Change Notice Form, Description of Change: Modify the description of the access controls for the K-Basins Interim Remedial Action and Change the annual evaluation and reporting process to be consistent with the Sitewide Institutional Control Plan (Section 2.6, DOE/RL-99-89)	12/13/2013	100-KR-2	A1-13

Table 3-1. 100 Area National Priorities List CERCLA Decision Documents. (4 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
TPA-CN-605	TPA Change Notice Form, Description of Change: Modify the description of the access controls (listed in Section 4.3.1, DOE/RL-2010-53)	12/13/2013	100-KR-2	A1-14
TPA-CN-606	TPA Change Notice Form, Description of Change: Modify the description of the access controls (listed in Section 4.3.1, DOE/RL-2010-63)	12/13/2013	100-KR-2	A1-15
TPA-CN-607	TPA Change Notice Form, Description of Change: Modify the description of the access controls (listed in Section 4.3.1, DOE/RL-2010-52)	12/13/2013	100-KR-2	A1-16
EPA/ROD/Not Listed	Hanford 100 AREA Superfund Site	9/30/2014	100-FR-1,100-FR-2, 100-FR-3,100-IU-2, and 100-IU-6	A1-24
AMD = record of decision amendment.		OU = operable unit.		
EPA = U.S. Environmental Protection Agency.		ROD = record of decision.		
ESD = Explanation of Significant Difference.		TPA-CN= Tri-Party Agreement-Change Notice.		
IC = institutional control.		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	07/30/1996	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

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/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 2005a)	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 2005a)	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.
ROD/Not listed (EPA 2011a)	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. EPA = U.S. Environmental Protection Agency. ERDF = Environmental Restoration Disposal Facility. ESD = Explanation of Significant Difference.		IC = institutional control. ROD = record of decision. USDOE = U.S. Department of Energy.		

Table 3-3. 300 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/R10-96/143	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
ROD/AMD/Not listed (EPA 2013)	Hanford Site 300 Area Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1	11/26/2013	300-FF-2, 300-FF-5, (ROD) and 300-FF-1 (AMD)	Tables A3-2 and A3-3
AMD = ROD amendment.		IC = institutional control.		
EPA = U.S. Environmental Protection Agency.		ROD = record of decision.		
ESD = Explanation of Significant Difference.		USDOE = U.S. Department of Energy.		

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	09/24/1993	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	07/25/1996	1100-EM-1, 1100-EM2, 1100-EM-3, and 1100-IU-1	Table A4-2
ESD/Not Listed (EPA 2011b)	ESD USDOE Hanford 1100 Area	09/27/2010	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. Institutional Controls for CERCLA Operable Units and RCRA TSD Units. (3 sheets)

	Institutional Controls								Tables where ICs are described in the IC Plan
	Access Control			Land-Use Management			Ground water Use Management	Misc. Provision	
	Warning Notices	Entry Restrictions	Fencing	Land-Use	Excavation Permits	Notice in Deed			
Operable Unit									
100-BC-1	x	x		x	x		x	x	A1-1, A1-3, A1-4, A1-9, A1-12, A1-17, A1-18, A1-19, A1-22
100-BC-2	x	x		X	x		x	x	A1-4, A1-9, , A-12, A-19, A1-20
100-DR-1	x	x		x	x		x	x	A1-1, A1-3, A1-4, A1-9, A1-12
100-DR-2	x	x		x	x		x	x	A1-4, A1-9, A1-12
100-FR-1	x	x		x	x		x	x	A1-4, A1-19, A1-23, A1-24
100-FR-2	x	x		x	x		x	x	A1-4, A1-9, A1-12, A1-23, A1-24
100-HR-1	x	x		x	x			x	A1-1, A1-3, A1-4
100-HR-2	x	x		x	x		x	x	A1-4, A1-9, A-12, A-19
100-HR-3		x		x				x	A1-2, A1-7
100-IU-2	x	x			x			x	A1-4, A-19, A1-23
100-IU-6	x	x			x			x	A1-4, A-23
100-KR-1		x			x				A1-4, A1-22
100-KR-2	x	x	x	x	x		x	x	A1-4, A1-5, A1-9, A1-12, A1-15, A1-16, A1-22
100-KR-4		x		x					A1-2

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Table 3-5. Institutional Controls for CERCLA Operable Units and RCRA TSD Units. (3 sheets)

	Institutional Controls							Tables where ICs are described in the IC Plan	
	Access Control			Land-Use Management			Ground water Use Management	Misc. Provision	
	Warning Notices	Entry Restrictions	Fencing	Land-Use	Excavation Permits	Notice in Deed			
100-NR-1	x	x		x				x	A1-6, A1-8, A1-10
100-NR-2	x	x		x				x	A1-6, A1-10
200-CW-3	x	x			x			x	A1-4,
200-CW-5									A2-10
200-UP-1	x	x		x			x	x	A2-2, A2-9, A2-11
200-ZP-1	x	x		x			x	x	A2-8
200-PW-1	x	x		x			x	x	A2-10
200-PW-3	x	x		x			x	x	A2-10
200-PW-6	x	x		x			x	x	A2-10
300-FF-1	x	x		x			x	x	A3-1, A3-2
300-FF-2	x	x		x				x	A3-2
300-FF-5	x	x		x			x	x	A3-2
1100-EM-1		x		x					A4-1
1100-EM-2		x		x					A4-1
1100-EM-3		x							A4-1
1100-IU-1		x							A4-1
ERDF		x							A2-1, A2-3, A2-4, A2-7
221-U Facility	x	x		x			x	x	A2-5
Horn Rapids Landfill		x	x	x				x	A4-3

Table 3-5. Institutional Controls for CERCLA Operable Units and RCRA TSD Units. (3 sheets)

	Institutional Controls								Tables where ICs are described in the IC Plan
	Access Control			Land-Use Management			Ground water Use Management	Misc. Provision	
	Warning Notices	Entry Restrictions	Fencing	Land-Use	Excavation Permits	Notice in Deed			
RCRA TSD Units									
183-H Solar Evaporation Basin	x					x	x		Table B-1
1301-N			x			x	x		Table B-3
1324-N						x	x		Table B-4
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act RCRA = Resource Conservation and Recovery Act of 1976 TSD = Treatment, storage, or disposal									

3.2 INSTITUTIONAL CONTROLS AND RCRA CLOSURE DOCUMENTS

When a TSD unit is no longer required 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 Site RCRA 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 lists the TSD units. Some TSDs are still operating (actively managing wastes). Some TSD units are clean closed. Some are in post-closure mode while others are waiting for final closure. The closure of the remainder of the units may be integrated with the CERCLA remediation action. The post-closure actions may or may not include ICs. Table 3-6 lists the TSD units closed under the RCRA Permit.

Table 3-6. 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 B-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-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
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 Vitrification 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

Table 3-6. Hanford Site Treatment, Storage, and Disposal Units Closed under Hanford Site RCRA Permit. (2 sheets)

Units	Closure Type	Table Listing Institutional Controls
324 Pilot Plant	Procedurally Closed	No ICs identified
331-C Storage Unit	Clean 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 INSTITUTIONAL CONTROLS AT WASTE SITES

ICs are used at waste sites when residual contamination remains at a level that does not allow for unrestricted use and unlimited exposure after cleanup. ICs for such remediated waste sites are listed in tables in Appendix A.

One Waste Information Data System (WIDS) site 600-235 has not been remediated but requires ICs. This site contains underground lead-sheathed telephone cable that runs all over the Site and is classified as a "No Action" waste site. The WIDS summary report for this waste site identifies that ICs are required. The IC for this waste site is in Table B-2 in Appendix B. The waste sites also have the applicable Sitewide ICs described in Section 3.5 in addition to waste-site specific ICs.

3.4 SITEWIDE INSTITUTIONAL CONTROLS REQUIREMENTS

Requirements for a Sitewide IC plan are 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*

- 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 periodically by DOE 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 also must 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 making any 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 3-7 identifies categories, types and objectives for the ICs implemented at the Hanford Site.

Table 3-7. Categories, Objectives, and Types for Sitewide Institutional Controls.

Category	Types	Objectives
Access Controls	Warning Notices	<ul style="list-style-type: none"> • Provide visual identification and warning of hazardous or sensitive areas
	Entry Restrictions Procedural requirements for access	<ul style="list-style-type: none"> • Control human access to hazardous or sensitive areas • Ensure adequate training for those who enter hazardous or sensitive areas • Avoid disturbance and exposure to remedies such as engineered barriers or an effective vegetative soil layer • Provide a basis for the enforcement of access restrictions
	Fencing	<ul style="list-style-type: none"> • Prevent unauthorized human access to hazardous or sensitive areas • Provide protective barriers to standard industrial hazards • Provide visual warnings • Avoid disturbance and exposure to remedies such as engineered barriers or an effective vegetative soil layer
Land-Use Management	Land-use and real property controls	<ul style="list-style-type: none"> • Ensure that use of the land is compatible with any hazards that exist • Ensure that any changes in use of the land are adequately assessed before being allowed • Ensure that the ICs are maintained beyond change of ownership, as appropriate
	Excavation permits Site Evaluation	<ul style="list-style-type: none"> • Avoid unplanned disturbance or infiltration • Inform and protect workers regarding potential exposure to hazardous waste • Avoid the creation of potential pathways for the migration of hazardous waste
	Notice in Deed	<ul style="list-style-type: none"> • Ensure that the land use is limited to the designated land use.
Groundwater-Use Management	Land-use and real property controls, Excavation permits	<ul style="list-style-type: none"> • Ensure proper use of groundwater
Waste Site Information Management	Administrative	<ul style="list-style-type: none"> • Maintain and provide access to information on the location and nature of contamination
IC = institutional control.		

The ICs help protect:

- DOE employees
- DOE contractors
- 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.

3.5 DESCRIPTION OF THE SITEWIDE INSTITUTIONAL CONTROLS

A description of the four categories of ICs on the Hanford Site is in the following sections.

3.5.1 Access Controls

Access control is the selective restriction of access to a place or other resources. The term access control refers to the practice of permitting authorized access or denying unauthorized access to facilities. At the Hanford Site, access controls include warning notices, entry restrictions, and fences. The access controls are further described in the following sections.

3.5.1.1 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.

Figure 3-1. No Trespassing Sign.



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



Signs located along the Hanford Site's perimeter and public road corridors are designed and maintained in accordance with DOE order 473.3. 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.
- WAC 173-303-310, "Security" has specific requirements for warning signs. The Hanford Site RCRA Permit, Condition II M, requires compliance with WAC 173-303-310. The permit also specifies signage requirements for TSDs, some operating units and post-closure units. Warning signs for operating units and post-closure units are described in unit-specific sections of the permit. Section 3.1.1, Attachment 3 of the permit describes Hanford Facility signs for non-operating unit as follows:

Signs are posted at area boundaries within the Hanford Site stating:

- "No Trespassing, Security Badges Required Beyond This Point"
- "Authorized Vehicles Only, Public Access Prohibited" (or an equivalent legend)

In addition, warning signs stating *Danger Unauthorized Personnel Keep Out* (or an equivalent legend) are posted at operating TSD units or unit groups or at active portions of operating TSD units or unit groups within the Hanford Facility. These signs are written in English, legible from a distance of 7.6 meters, and visible from all angles of approach.

- 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.

3.5.1.2 Entry Restrictions

DOE strives to prevent entry into waste sites in accordance with the Hanford Site RCRA Permit, Condition II M, the IC requirements of the CERCLA decision documents and as described in applicable work plans. Entry restrictions are ICs that prevent or limit access to particular geographical areas. Procedural requirements are in place at Hanford to restrict entry to the waste sites.

3.5.1.2.1 Procedural Requirements for Access

Procedural requirements for access and fencing are the two main types of access controls. 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 subject to criminal prosecution under state and federal laws. The badging program controls access to restricted areas. These controls comply with DOE directives and 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 located at the Rattlesnake, Yakima, and Wye barricades to prevent unauthorized access.

The procedural requirements for access address the following items:

- Badges
 - Wearing and displaying badges at all times while on the Hanford Site and presenting 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 of proper badges at entry points where necessary to check identity and to control unauthorized entry
 - Employee responsibility 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 trespassing incidents to regulators and local authorities that is in accordance with DOE policy, contracts, and as required by regulatory decision documents.

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

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

100 and 200 Area NPL 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 NPL Site

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

1100 Area Site (Deleted from NPL 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 RCRA 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.

3.5.1.2.3 Fencing

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.

Different types of fences used depend on the level of security required. Security fences serve as effective access control by limiting access to 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 is determined by the residual risk of the final remedy.

Signs and fences required by the Hanford Site RCRA Permit, Condition II M; CERCLA decision documents; and described in applicable work plans are maintained through regular surveillance activities in accordance with contractor procedures. Deficiencies (e.g., signs missing, fences down) are identified and corrective actions taken through the approved work control procedures.

3.5.2 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 are 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 that are required prior to any major land disturbance or land-use activity
- Excavation permits required for excavations on the Site to prevent unplanned disturbance or infiltration as prohibited by CERCLA decision documents.

3.5.2.1 Land-Use and Real Property Controls

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

- Ensure the use of the land is compatible with any hazards that exist, and limit access to hazardous materials

- Ensure that any changes in the land are adequately assessed before being allowed, thereby avoiding unplanned or prohibited use
- Ensure that controls associated with real estate are in 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 real property management process are integrated and managed together and are in compliance 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 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, 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 and RCRA TSD units.

100 Area, 200 Area, and 300 Area NPL 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.

3.5.2.2 Site Evaluation

The formal site evaluation process identifies possible sites for a proposed project and compares their relative merits based on environmental protection, technical, safety, and health protection, infrastructure availability, efficiency of operations, and lifecycle cost requirements. The informal site evaluation process 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
- Identifying possible site/s
- Submitting the land-use request to a multi-contractor team and subject matter experts to evaluate the request
- Resolving any land-use concerns that may come out of the evaluation
- 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 new fixed structure or building, a parking lot, roadway, a material/equipment staging area, or a new 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.

3.5.2.3 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 WIDS database is required to identify the proximity of existing waste sites (more information regarding WIDS is provided in Section 3.5.4)
- 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.

3.5.2.4 Industrial Use Institutional Control

Land use designations for different portions of the Hanford Site include Conservation/Mining and Industrial Exclusive. Cleanup of some waste sites in designated Industrial Use areas achieve unrestricted use cleanup standards and can be closed with no requirement for ICs. Other waste sites meet industrial cleanup levels (or TSD closure) and remedies for sites that meet industrial cleanup levels have ICs that limit land uses and achieve a level of protectiveness consistent with sites achieving unrestricted cleanup levels. Some waste sites in the 300 Area have been cleaned to industrial use levels; cleanup levels for some 200 Area RODs are based on industrial land use.

3.5.2.5 Notice in Deed

Real estate deed restrictions, recorded using notice in deed, place limitations on the use of the property. The regulatory agencies use terms "Deed Restrictions" and "Notice in Deed" to describe restrictions. Deed restrictions "bind" land. Typically, a deed restriction is created in a document (Notice in Deed) that is recorded with the county register of deeds records where the property is located. Most deed restrictions are permanent and "run with the land;" that is, they generally bind all current and future owners of the lot or parcels involved. Table 3-8 lists the deed restrictions on the Hanford Site and a survey plat for 1325- N registered with the Benton County Auditor's Office.

Table 3-8. Filings with Benton County Auditor. (2 sheets)

Title	Certificate of Recording	Area/Location	Deed Restriction Description
100-D Ponds	Benton Co. Auditor: File No. 1999-025478 08/06/1999	100-D Area Located in Section 15, T14N, R26E	The 100-D Ponds were used to manage dangerous waste pursuant to WAC 173-303. The DOE-RL closed this facility by removal of dangerous waste constituents from the site during closure activities, meeting "clean closure Standards under WAC 173-303-610 (2)(b). Groundwater contamination attributable to sources upgradient of the 100-D Ponds, remains beneath the 100-D Ponds above cleanup standards at the time of preparation of this record of survey. Therefore, use of this groundwater is restricted until such time as cleanup standards are met or it has been determined that cleanup is not necessary.
183-H Solar Evaporation Basins	Benton Co. Auditor: File No. 1996-29990 12/04/1996	100-H Area Located in Section 18, T14N, R27E	DOE-RL has disposed of hazardous and/or dangerous waste under the terms of regulations promulgated by the U.S. Environmental Protection Agency (EPA) and the State of Washington Department of Ecology (Ecology) at the location known as the 183-H Solar Evaporation Basins. Future use of this described land is restricted under the terms of 40 CFR 264.117 (c) and WAC 173-303-610 (7) (d).
1324-NA Percolation Pond; 1324-N Surface Impoundment	Benton Co. Auditor: File No. 2003-013391 03/24/2003	100-N Area Located in Section 28, T14N, R26E	The 1324-NA Percolation Pond and the 1324-N Surface Impoundment were used to manage dangerous waste pursuant to WAC 173-303. The DOE-RL closed these units in December of 2002 by removing wastes from the site during closure activities meeting soil "clean closure" standards under WAC 173-303-610 (2)(b). Groundwater contamination attributable to these facilities remains above the secondary drinking water standard for sulfate. Therefore, use of this groundwater is restricted until such time as cleanup standards are met.
1325-N Liquid Waste Disposal Facility. Certification of Closure & Survey Plat	Benton Co. Auditor: Survey Vol. #1, Pg 3445, File No. 2005-006314 03/01/2005	100-N Area Located in portions of Sections 22, 27 and 28 of T14N, R26E	The 1325-N unit received radiologically contaminated liquid effluent from the 100-N Reactor from 1985 to 1991. Closure of this unit commenced pursuant to WAC 173-303-610. The soil closure activities for 1325-N meet the cleanup levels and performance standards of the closure plan (DOE-RL 2002) -as a result, there is no requirement to file a "notice in deed", however, the survey plat for 1325-N has been recorded with the County

Table 3-8. Filings with Benton County Auditor. (2 sheets)

			and a "Certification of Closure" has been submitted to the State of Washington Department of Ecology in accordance with WAC 173-303-610(6).
300 Area Process Trenches (APT)	Benton Co. Auditor: File No. 1998-025988 09/03/ 1998	300 Area Located in Section 2, T10N, R28E	The 300 APT was used to manage dangerous waste pursuant to WAC 173-303. The DOE-RL closed this facility in May 1998 by removal of dangerous waste constituents from the site meeting "clean closure" standards under WAC 173-303-620 (2)(b). Radioactive contamination remains in the unit above unrestricted use limits. Groundwater contamination attributable to the 300 Area Process Trenches remains above cleanup standards at the time of preparation of this record of survey. Therefore, use of this groundwater is restricted until such time as cleanup standards are met.
Solid Waste Landfill	Benton Co. Auditor: File No. 1997-006444 03/25/1997	600 Area Located in Sections 20 and 29, T12N, R27E	DOE-RL has disposed of asbestos-containing material under the terms of regulations promulgated by the U.S. Environmental Protection (EPA) and the State of Washington Department of Ecology (Ecology) at a location known as the Solid Waste Landfill. The future use of the Solid Waste Landfill is restricted under the terms of 40 CFR 61.151 as an asbestos-containing landfill.
Horn Rapids Landfill	Benton Co. Auditor: File No. 1997-008784 04/ 18/1997	1100 Area Located in Section 15, T10N, R28E	DOE-RL has disposed of hazardous and/or dangerous waste under the terms of regulations promulgated by the U.S. Environmental Protection (EPA) and the State of Washington Department of Ecology (Ecology) at a location known as the Horn Rapids Landfill. The future use of the Horn Rapids Landfill is restricted under the terms of 40 CFR 61.151 as an asbestos-containing landfill.

3.5.3 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. Groundwater use 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)
- Energy Northwest (formerly Washington Public Power Supply System) (two wells for drinking water and two wells for backup fire protection)
- B Plant (282B is used as emergency back-up water for the WESF Pool Cells.)
- Pacific National Northwest Laboratory, 300 Area (one well for aquatic studies).

Wells also provide dust suppression water for waste site cleanups.

Drinking water systems are operated in accordance with the Washington State Department of Health regulations; all new wells must be registered with Ecology. Control measures that protect groundwater for drinking water systems are described in HNF-35051, Revision 7, *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 are 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). Data from the report are considered in evaluating 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 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 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.

3.5.4 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 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 decision for remedial action or hazardous waste management at a particular OU, is publicly available on the Internet at <http://pdw.hanford.gov/arpir/>.

3.5.5 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 Sheriff'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.

3.6 IMPLEMENTATION OF INSTITUTIONAL CONTROLS AT THE HANFORD SITE

The CERCLA Record of 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 remedial design/remedial action work plan, surveillance and maintenance plan or O&M plan. Table 3-9

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 3-9. Documents Implementing Institutional Controls and Maintenance Actions.

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-2008-78, <i>200 West Area 200-ZP-1 Pump-and-Treat Remedial Design/Remedial Action Work Plan</i> Surveillance and Maintenance Plan (not published) DOE/RL-2009-124, <i>200 West Area Groundwater Pump-and-Treat Facility Operations and Maintenance Plan</i>
200-UP-1	DOE/RL-97-36, <i>200-UP-1 Remedial Design/Remedial Action Work Plan</i> Surveillance and Maintenance Plan (not published) Project Operation and Maintenance Manual (not published)
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-NR-1, 100-NR-2, 100-IU-2, 100-IU-6, 200-C W-3	DOE/RL-96-17, <i>Remedial Design Report/Remedial Action Work Plan for the 100 Area</i>
100-KR-2	DOE/RL-99-89, <i>Remedial Design Report/Remedial Action Work Plan for the K Basins Interim Remedial Action</i> DOE/RL-2010-52, <i>Remedial Design and Remedial Action Work Plan for the K Basins Interim Remedial Action: 105-K West Basin Deactivation</i> DOE/RL-2010-63, <i>Remedial Design/Remedial Action Work Plan for Interim Remedial Action: Removal of K Basins Sludge from the River Corridor to the Central Plateau; and Removal of Knock Out Pot Contents from K Basins</i> DOE/RL-2011-15, <i>Remedial Design/Remedial Action Work Plan for the K Basins Interim Remedial Action: Treatment and Packaging of K Basins Sludge</i>

3.7 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 as discussed in DOE/RL-2010-35, *Hanford Long-Term Stewardship Program Plan*. ICs imposed in

CERCLA decision documents are not predicated on DOE ownership, but DOE maintains responsibility for their implementation regardless of ownership.

Institutional Controls Following Cleanup

As discussed in Chapter 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.

In November 2013, the ROD for 300-FF-2 and 300-FF-5 OUs, and ROD Amendment for 300-FF-1 OU was published. The ICs for 300 Area Industrial Complex limit the use of the sites to industrial use only (Figure A3-1). Administrative controls are required for access and use of the groundwater in the 300-FF-5 OU (Figure A3-2). Specific ICs for 300 Area are addressed in Table 3-3.

In September 2014, the ROD for 100-F-1, 100-F-2, 100-F-3, 100-IU-2 and 100-IU-6 OUs was published. The ICs include preventing access or use of ground water in 100-FF-3 OU. The ROD also lists several waste sites, which require ICs. The land use control boundary for the 100-IU-2 and 100-IU-6 OUs are shown in Figure A1-1. The land use control boundary for the 100-FR-1 and 100-FR-2 OUs are shown in Figure A1-2 and the land use control boundary for 100-FR-3 is shown in Figure A1-3. The ICs for the area covered by this ROD are listed in Table A1-23. Waste site Specific ICs are listed in Table A1-24.

The final decision documents for the other OUs at the Hanford Site are yet to be developed. The scope and duration of ICs at the other OU locations 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 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 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.

4.0 MANAGEMENT AND OVERSIGHT

This chapter describes the management and oversight of ICs, including 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 responsible party in implementing ICs at the Hanford Site. DOE and EPA select 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 responsible for RCRA closure decisions and associated ICs in the tank farms. Most other final RCRA closure documents are prepared by DOE-RL and questions regarding ICs should be directed to DOE-RL. DOE-RL is the interface with the regulatory agencies and 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 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 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 any deficiencies found during the review and identifies recommendations to address those deficiencies.

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

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.

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. 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. The annual IC evaluation performed by MSA, CHPRC, and WCH for 2014 is included in Appendix C. 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. The five-year summary for 2006-2010 is included in Appendix D.

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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5.0 REFERENCES

- 05-AMR-0078, 2005, "Data Revisions in Institutional Controls (IC) Field of Waste Information Data System (WIDS)," Letter, Leif Erickson, U.S. Department of Energy-Richland Operations Office to N. Ceto, U.S. Environmental Protection Agency, Region 10 and M. Wilson, Washington State Department of Ecology, dated January 04.
- 10 CFR 835, "Occupational Radiation Protection," Title 10, *Code of Federal Regulations*, Part 835, as amended.
- 10 CFR 860, "Trespassing on Department of Energy Property," Title 10, *Code of Federal Regulations*, Part 860, as amended.
- 40 CFR 61, "National Emission Standards for Hazardous Air Pollutants," Title 40, *Code of Federal Regulations*, Part 61, as amended.
- 40 CFR 61.151, "National Emission Standards for Hazardous Air Pollutants," Title 40, *Code of Federal Regulations*, Part 61.151, as amended.
- 40 CFR 264.119, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," Title 40, *Code of Federal Regulations*, Part 264.119, as amended.
- 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," Title 40, *Code of Federal Regulations*, Part 300, as amended.
- 40 CFR 300, Appendix B, "National Priorities List," Title 40, *Code of Federal Regulations*, Part 300, Appendix B, as amended.
- 40 CFR 300.425(e), "Establishing Remedial Priorities," Title 40, *Code of Federal Regulations*, Part 300.425(e), as amended.
- 40 CFR 300.430, "Remedial Investigation/Feasibility Study and Selection of Remedy," Title 40, *Code of Federal Regulations*, Part 300.432, as amended.
- 55 FR 8706-7, "Preamble to National Oil and Hazardous Substances Pollution Contingency Plan; Final Rule," *Federal Register*, Vol. 55, pp. 8706-7.
- 61 FR 19432, "Corrective Action for Releases from Solid Waste Management Units at Hazardous Waste Management Facilities," *Federal Register*, Vol. 61, No. 85, pp. 19432-19464, May 1, 1996.
- Atomic Energy Act of 1954*, 42 USC 2011, et seq.
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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.

This appendix includes the figures showing 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 which include several records of decision (ROD), explanation of significant differences (ESD) from previously issued RODs for the specific OUs, and the ROD amendments. The ICs required by decision documents are presented in Tables A1-1 through A1-24. The tables include the text of the individual IC requirements contained in the decision documents and waste site specific ICs.

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.	3.5.1.2 3.5.2 3.5.3

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.	3.5.1.2 3.5.2

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
Miscellaneous Provision	Institutional controls and long-term monitoring will be required for sites where wastes are left in place.	3.5.4

Table A1-4. Institutional Requirements Listed in EPA/ROD/R10-99/039, *Record of Decision for (100 Area Remaining Sites) 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. (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.	3.5.1.2
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.	3.5.2

Table A1-8. Institutional Controls Requirements Listed in EPA/ROD/R10-00/120, *Record of Decision for 100-NR-1 Operable Unit.*

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 sites associated with this ROD for the duration of the interim action. Visitors entering any of the sites associated with the Interim Action ROD are required to be escorted at all times.	3.5.1.2
Land-Use Management	DOE will use the onsite excavation permit process to control land use (e.g., well drilling and excavation of soil) within the 100 Area OUs to prohibit any drilling or excavation except as approved by Ecology.	3.5.2
Warning Notices	DOE will maintain existing signs prohibiting public access.	3.5.1.1
Miscellaneous Provision	DOE will provide notification to Ecology upon discovery of any trespass incidents.	3.5.5
Miscellaneous Provision	Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	3.5.5
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, and Ecology will have to approve any access restrictions before transfer, sale, or lease.	3.5.2
Miscellaneous Provision	Until final remedy selection, DOE shall not delete or terminate any IC requirement established in this Interim Action ROD unless Ecology has provided written concurrence on the deletion or termination and appropriate documentation has been placed in the Administrative Record.	3.5.5
Miscellaneous Provision	DOE will evaluate the implementation and effectiveness of ICs for the 100-NR-1 Operable Units on an annual basis. DOE will submit a report to Ecology by July 31 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the IC requirements continue to be met, a description of any deficiencies discovered, and measures taken to correct problems.	3.5.5
DOE = U.S. Department of Energy. IC = institutional control. Ecology = Washington State Department of Ecology. ROD = record of decision.		

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.	3.5.1.2
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.	3.5.3
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.	3.5.2
Warning Notices	DOE shall maintain signs that warn river users of potential hazards along the shoreline from 100 Area waste sites.	3.5.1.1
Warning Notices	DOE shall post and maintain in good condition "No Trespassing" signs along the 100 Area shoreline.	3.5.1.1
Warning Notices	DOE shall maintain signs along access roads that warn Site visitors and workers of potential hazards from 100 Area waste sites.	3.5.1.1
Miscellaneous Provision	DOE shall report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	3.5.5
Sitewide Institutional Controls Requirements		
Land-Use Management Groundwater-Use Management Waste Site Information Management Miscellaneous Provision	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: 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. 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. 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,	3.5.2 3.5.3 3.5.4 3.5.5

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
	<p>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>	
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>	3.5.2 3.5.5
Miscellaneous Provision	<p>DOE will identify a point of contact for implementing, maintaining, and monitoring ICs for the 100 Area, as well as for the Hanford Site.</p>	3.5.5
Miscellaneous Provision	<p>DOE will comply with TPA requirements to request and obtain funding to institute and maintain ICs as a compliance requirement under the TPA.</p> <p>NOTE: This is an existing TPA requirement.</p>	3.5.5
Land-Use Management	<p>DOE will notify EPA and Ecology at least 6 months before any transfer, sale, or lease of any property subject to ICs 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 ICs. 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 ICs.</p>	3.5.2
Miscellaneous Provision	<p>DOE will not delete or terminate any ICs unless EPA and Ecology have concurred in the deletion or termination.</p>	3.5.5

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.	3.5.2
Miscellaneous Provision	<p>Revised the reporting date for the annual institutional controls assessment report from March 30 to September 30.</p> <p>(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.)</p>	3.5.5

Table A1-11. Institutional Controls Requirements 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	<p>Revised the reporting date for the annual institutional controls assessment report from March 30 to September 30.</p> <p>(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.)</p>	3.5.5

Table A1-12. Institutional Controls Requirements 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.	3.5.5
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 (DOE/RL-2001-41, as amended)</i> .	3.5.5
Land-Use Management	Irrigation of 118-B-1 burial ground is prohibited. The duration of institutional controls required is 140 years (Year 2147).	3.5.2
Land-Use Management	Institutional Controls to prevent drilling or excavation into the deep zone are required (CVP-2007-00006)	3.5.2

Table A1-13. Institutional Controls Requirements Listed in TPA-CN-604 [Changes to Section 2.6, DOE/RL-99-89, *Remedial Action Work Plan for the K-Basins Interim Remedial Action Prepared in Response to Interim Action Record of Decision Amendment, U.S. Department of Energy, 100-K Area K Basins, Hanford Site – 100 Area*].

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Access controls include signs along the river, non-continuous fencing, locked access to the buildings containing the primary hazards and routine security patrols.	3.5.1.2
Miscellaneous Provision	The implementation and effectiveness of institutional controls will be evaluated and reported in accordance with DOE/RL-2001041, <i>Sitewide Institutional Control Plan</i> .	3.5.5

Table A1-14. Institutional Controls Requirements Listed in TPA-CN-605, [Changes to Section 4.3.1, DOE/RL-2010-53, *Remedial Design/Remedial Action Work Plan for the K Basins Interim Remedial Action: 105-K Basin Demolition and Removal*, Rev. 0 Prepared to Implement Decisions Based in 100 Area Remaining Sites Record of Decision (ROD) (EPA/ROD/R10-99/039)].

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Access controls for the K Basins interim Action are described in DOE/RL-99-89 and include signs along the river, non-continuous fencing, locked access to buildings with primary hazards and routine security patrols.	3.5.1.2

Table A1-15. Institutional Controls Requirements Listed in TPA-CN-606 [Changes to Section 4.3.1, DOE/RL-2010-63, *Remedial Design/Remedial Action Work Plan for the K Basins Interim Remedial Action: Removal of K Basins sludge from the River Corridor to the Central Plateau; and Removal of Knock Out Pot Contents from the K Basins, Revision 0 Prepared to Implement Decisions Established in Response to Interim Remedial Action Record of Decision for the 100-KR-2 Operable Unit K Basins, Hanford Site, Benton County, Washington* (EPA/ROD/R10-99/059) and *Amendment to the Record of Decision for the U.S. Department of Energy Hanford Site 100 K Area K Basins Interim Remedial Action*, U.S. Environmental Protection Agency, Washington State Department of Ecology, and U.S. Department of Energy]

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Access controls for the K Basins interim Action are described in DOE/RL-99-89 and include signs along the river, non-continuous fencing, locked access to buildings with primary hazards and routine security patrols.	3.5.1.2

Table A1-16. – Institutional Controls Requirements Listed in TPA-CN-607 [(Changes to Section 4.3.1, DOE/RL-2010-52, *Remedial Design and Remedial Action Work Plan for the K Basins Interim Remedial Action: 105-K West Basin Deactivation, Revision 0 Prepared to Implement Decisions established in Interim Remedial Action Record of Decision for the 100-KR-2 Operable Unit K Basins, Hanford Site, Benton County, Washington* (EPA/ROD/R10-99/059) (K Basins Interim Action Record of Decision [ROD]) and the *Amendment to the Record of Decision for the U.S. Department of Energy Hanford Site 100 K Area K Basins Interim Remedial Action* (EPA et al, 2005). (2 sheets)]

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	Access controls for the K Basins interim Action are described in DOE/RL-99-89 and include signs along the river, non-continuous fencing, locked access to buildings with primary hazards and routine security patrols.	3.5.1.2

Table A1-16. – Institutional Controls Requirements Listed in TPA-CN-607 [(Changes to Section 4.3.1, DOE/RL-2010-52, *Remedial Design and Remedial Action Work Plan for the K Basins Interim Remedial Action: 105-K West Basin Deactivation, Revision 0 Prepared to Implement Decisions established in Interim Remedial Action Record of Decision for the 100-KR-2 Operable Unit K Basins, Hanford Site, Benton County, Washington* (EPA/ROD/R10-99/059) (K Basins Interim Action Record of Decision [ROD]) and the *Amendment to the Record of Decision for the U.S. Department of Energy Hanford Site 100 K Area K Basins Interim Remedial Action* (EPA et al, 2005). (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	The 105-W access controls to the building used during the operations will be modified during the remedial action. Temporary access controls to the building during operations will be used to restrict access into the work areas as necessary.	3.5.1.2

Table A1-17. Institutional Controls Requirements for Waste Sites in 100-BC-1 Operable Unit Listed In *Interim Action Record of Decision for the 100-BC-1, 100-DR-1 and 100-HR-1 Operable Units* (EPA 1995). (2 sheets)

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
116-B-1	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
116-B-2	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
116-B-4	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
116-B-6A	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems

Table A1-17. Institutional Controls Requirements for Waste Sites in 100-BC-1 Operable Unit Listed In *Interim Action Record of Decision for the 100-BC-1, 100-DR-1 and 100-HR-1 Operable Units* (EPA 1995). (2 sheets)

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
		(WIDS)," 05-AMR-0078, dated January 04, 2005
116-B-11	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft])	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
116-B-12	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
116-C-1	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
116-C-5	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005

Table A1-18. Institutional Controls Requirements for Waste Site in 100-BC-1 Operable Unit Listed In *Amendment to the interim Action Record of Decision for the 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units, U.S. Environmental Protection Agency, Region 10, Seattle, Washington (EPA 1997).*

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
116-B-3	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005

Table A1-19. Institutional Controls Requirements for Waste Sites in 100-BC-1 Operable Unit

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
116-B-7	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
132-B-6	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005
132-C-2	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005

Table A1-20. Institutional Controls Requirements for Waste Site in 100-BC-2 Operable Unit Listed in *Interim Action Record of Decision for the 100-B/C-1, 100-DR-1, and 100-HR-1 Operable Units* (EPA 1995), and the *Approved Action Memorandum for the 100 B/C Area Ancillary Facilities and the 108-F Building Removal Action* (EPA 1997a).

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
118-C-3	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005

Table A1-21. Institutional Controls Requirements for Waste Site in 100-DR-1 Operable Unit Listed In *Interim Action Record of Decision for the 100-B/C-1, 100-DR-1, and 100-HR-1 Operable Units* (EPA 1995).

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
116-DR-9 (100-D-25)	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	Letter, Leif Erickson, RL to N. Ceto, EPA and M. Wilson, Ecology, "Data Revisions In Institutional Controls (IC) Field of Waste Information Data Systems (WIDS)," 05-AMR-0078, dated January 04, 2005

Table A1-22. Institutional Controls Requirements for Waste Sites in the 100-KR-1 and 100-KR-2 Operable Units Listed In *Amendment to the Interim Action Record of Decision for the 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units* (EPA 1997).

Waste Site	Institutional Controls Requirement	Source of Institutional Controls
100-K-55	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	CVP-2005-00006
100-K-56	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	CVP-2005-00006
116-K-1	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	CVP-2003-00024
116-K-2	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	CVP-2006-00001
118-K-1	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	CVP-2013-00002

CVP = Closure Verification Package. WIDS = Waste Information Data System.

Land-use controls listed in Tables A1-24 and A1-25 will be maintained until cleanup levels are achieved and the concentrations of hazardous substances are at such levels to allow for unlimited use and unrestricted exposure and EPA authorizes the removal of restrictions.

Table A1-23. Institutional Controls Requirements Listed in Record of Decision for Institutional Controls Common to 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 (EPA 2014). (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Institutional Controls Common to 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6		
Miscellaneous Provision	ICs are required before, during and after the active phase of remedial action implementation where ICs are needed to protect human health and the environment. ICs are used to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure.	3.5.5
Miscellaneous Provision	No later than 180 days after the ROD is signed, DOE shall update the Sitewide Institutional Controls Plan to include the ICs required by this ROD and specify the implementation and maintenance actions that will be taken, including periodic inspections. The revised Sitewide Institutional Controls Plan shall be submitted to EPA and the Washington State Department of Ecology (Ecology) for review and approval as a Tri-Party Agreement primary document. The DOE shall comply with the Sitewide Institutional Controls Plan as updated and approved by EPA and Ecology.	3.5.5
Land-Use Management	In the event that land is transferred out of federal ownership, deed restrictions (proprietary controls such as easements and covenants) are required that are legally enforceable against subsequent property owners.	3.5.2
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.	3.5.5
Land-Use Management	Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.	3.5.2
Access Control	Signage and access control to waste sites with contamination above cleanup levels will be provided.	3.5.1
Land-Use Management	Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells.	3.5.2
Land-Use Management	Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds until cleanup levels are met.	3.5.2
Land-Use Management	DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.	3.5.2
Miscellaneous Provision	The DOE shall report on the effectiveness of ICs for all OUs that are the subject of this ROD in an annual report, or on an alternative reporting frequency specified by the lead regulatory agency. Such reporting may be for OUs individually or may be part of the Hanford Sitewide ICs report.	3.5.5

Table A1-23. Institutional Controls Requirements Listed in Record of Decision for Institutional Controls Common to 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 (EPA 2014). (2 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section 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 subject to ICs. DOE will provide notice to Ecology and EPA at least 6 months before any transfer or sale of land subject to ICs 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 EPA as soon as possible, but no later than 60 days before the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions, DOE further agrees to provide Ecology and EPA with similar notice, within the same time frame, as to federal-to-federal transfer of property. DOE shall provide a copy of the executed deed or transfer assembly to Ecology and EPA.	3.5.2
Miscellaneous Provision	DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.	3.5.5
Institutional Controls Component Unique to 100-FR-1 and 100-FR-2		
Land-Use Management	Exposure to contamination deeper than 4.6 m (15 ft) bgs is not anticipated. Where contamination at depth exceeds the residential or industrial use CULs, ICs are required to ensure future activities do not bring this contamination to the surface or otherwise result in exposure to contaminant concentrations that exceed the CULs.	3.5.2
Land-Use Management	Prohibit irrigation over or near waste site 116-F-14 that represents an unacceptable surface water protection risk.	3.5.2
Institutional Controls Component Unique to 100-FR-3		
Land-Use Management	DOE shall employ and maintain an excavation permit program limiting 100-FR-3 groundwater access and use to research purposes and for monitoring and treatment in areas where groundwater is above cleanup levels (Figure A1-3).	3.5.2
Access Control Groundwater-Use Management	Prevent access or use of the groundwater for drinking water purposes until cleanup levels are met.	3.5.1 3.5.3
bgs = below ground surface EPA = U.S. Environmental Protection Agency. CUL = Clean up levels ROD = record of decision. DOE = U.S. Department of Energy.		

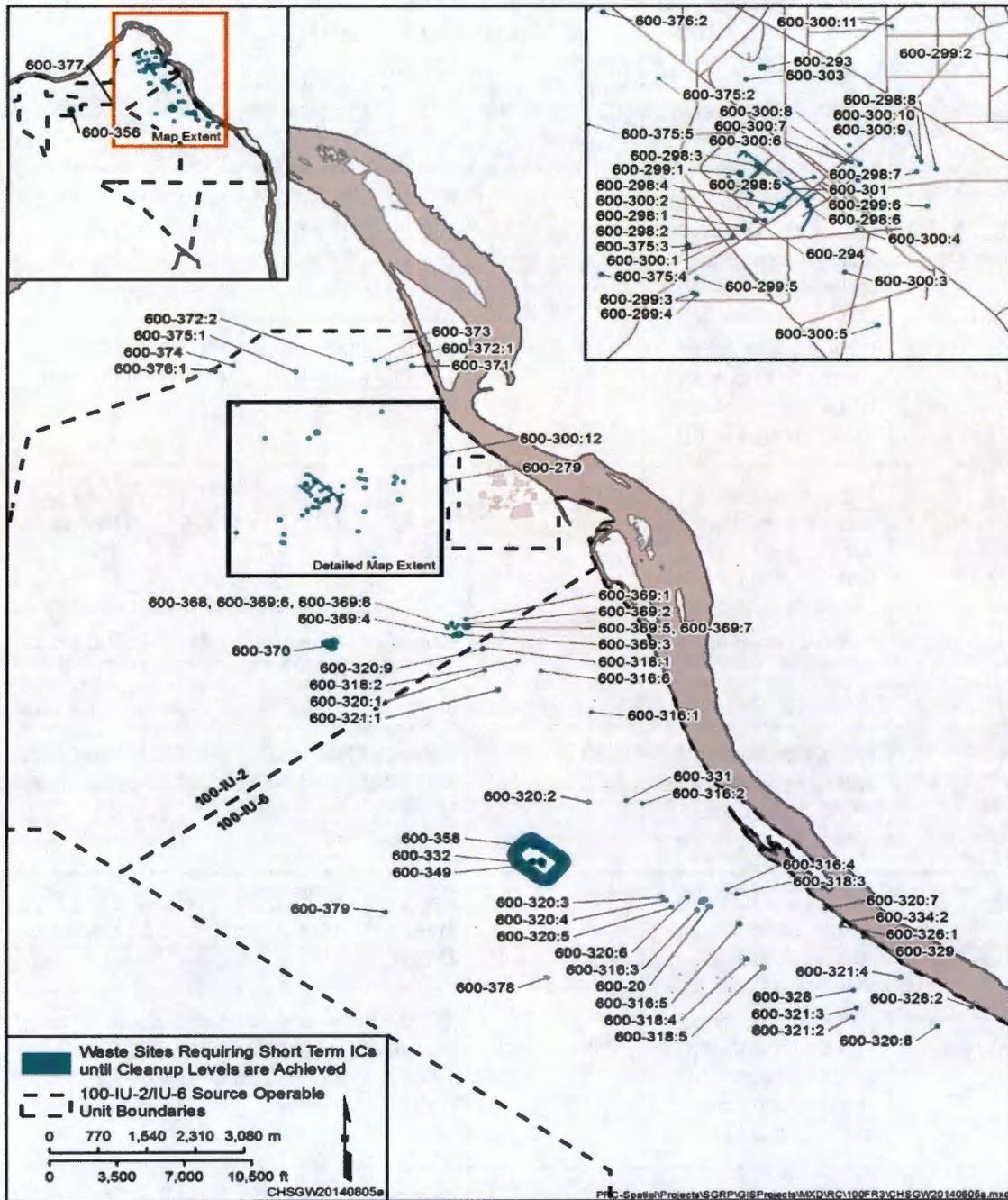
Table A1-24. Institutional Control Requirements for Waste Sites in the 100-FR-1, 100-FR-2 Operable Units Addressed in 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2 and 100-IU-6. (2 Sheets)

Waste Site Code	Institutional Controls	Expected year the ICs can be removed	Requirement Source
100-F-10	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2057	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
100-F-19:1	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2113	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
100-F-19:2	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2057	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
100-F-19:3	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2113	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
100-F-29	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2057	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
100-F-34	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2113	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
116-F-2	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2108	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
116-F-6	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2112	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units

Table A1-24. Institutional Control Requirements for Waste Sites in the 100-FR-1, 100-FR-2 Operable Units Addressed in 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2 and 100-IU-6. (2 Sheets)

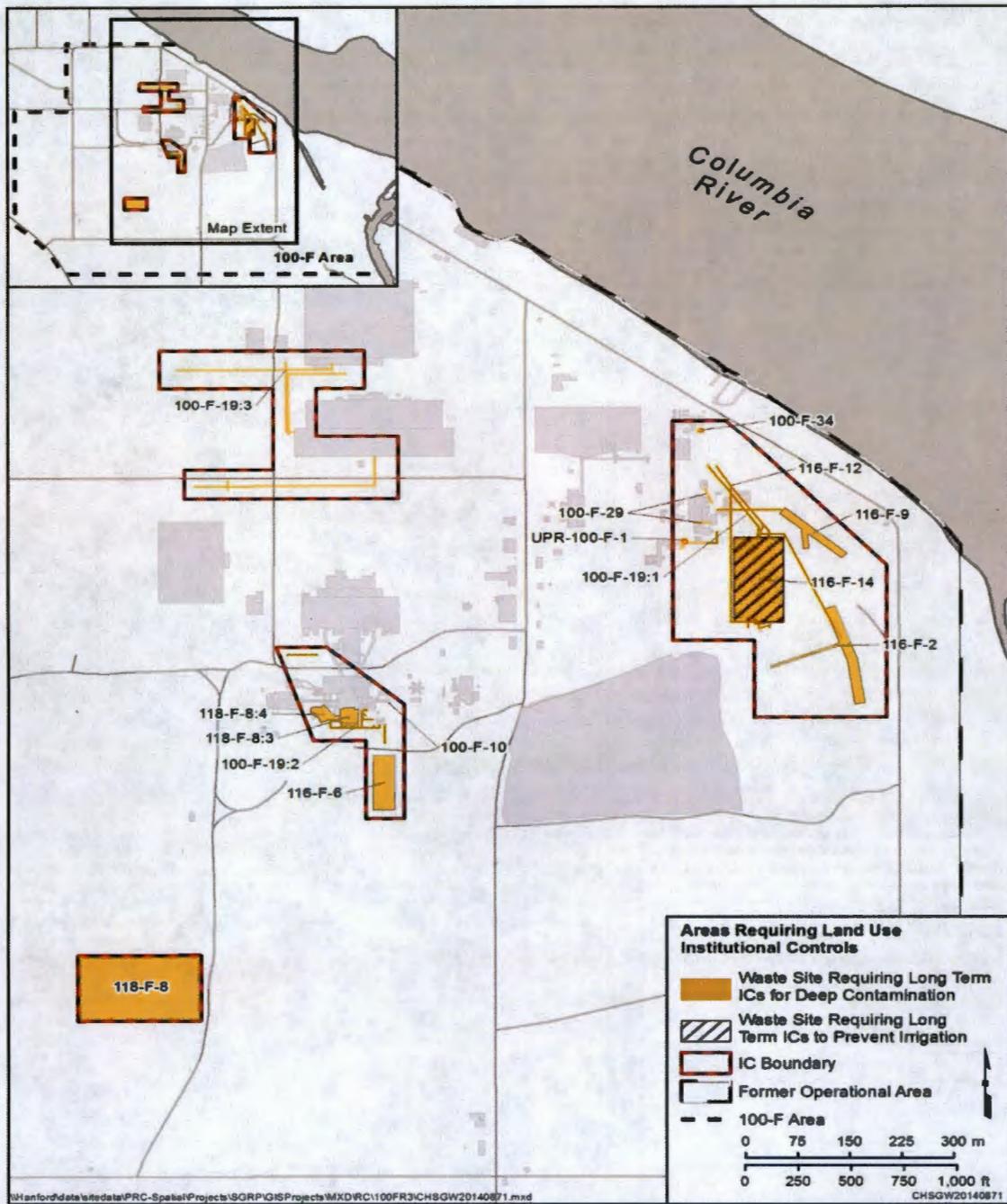
Waste Site Code	Institutional Controls	Expected year the ICs can be removed	Requirement Source
116-F-9	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2074	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
116-F-12	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2113	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
116-F-14	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2110	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
116-F-14	Prohibit Irrigation		Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
118-F-6	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2033	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
118-F-8:3	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2278	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
118-F-8:4	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2059	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units
UPR-100-F-1	Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m [15 ft]).	2057	Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-1 and 100-IU-6 Operable Units

Figure A-1. Land Use Control Boundary for the 100-IU-2 and 100-IU-6 Operable Units



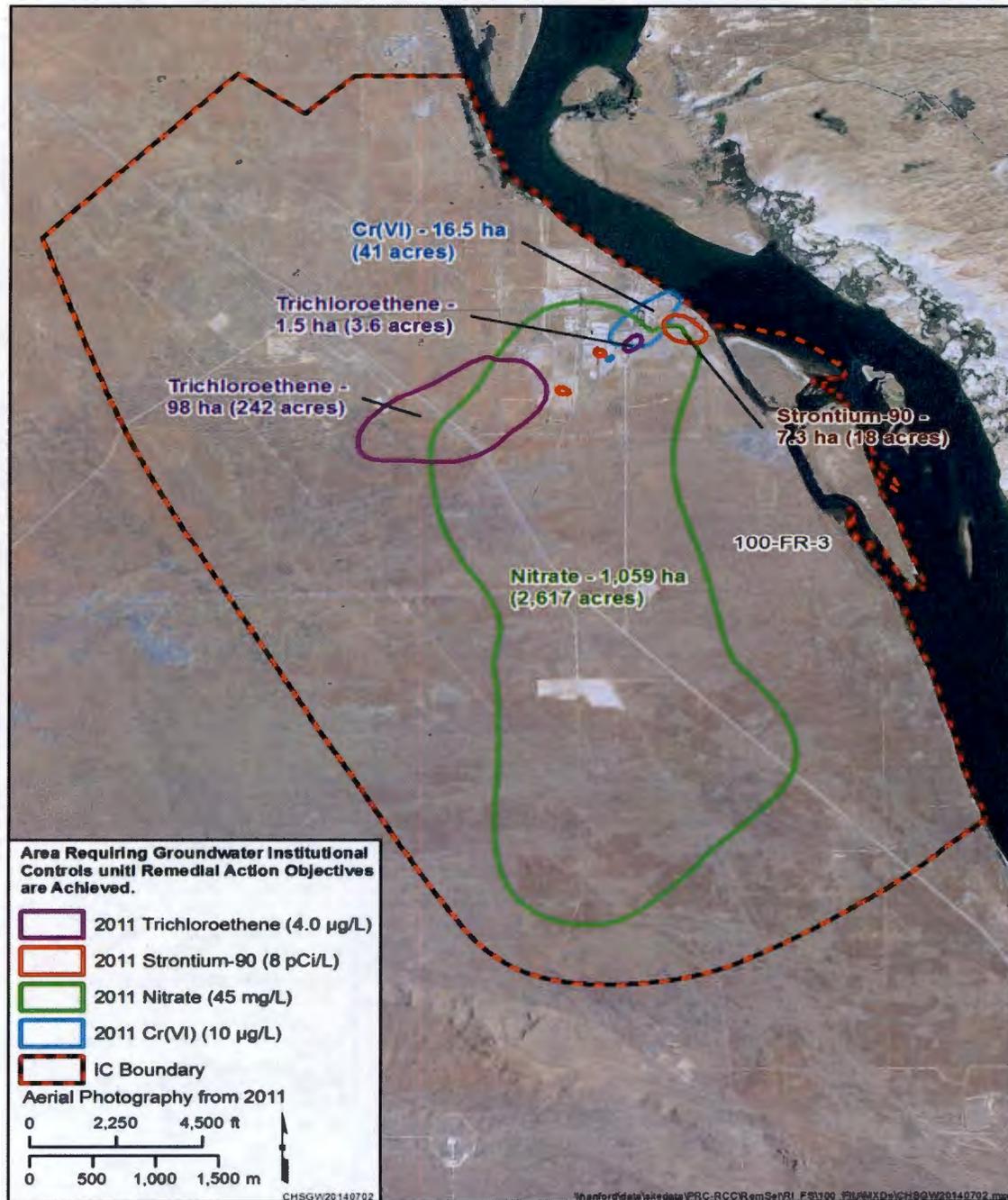
Source: Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 operable Units

Figure A-2. Land Use Control Boundary for the 100-FR-2 and 100-FR-2 Operable Units



Source: Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 operable Units

Figure A-3. Land Use Control Boundary for the 100-FR-3 Operable Unit



Source: Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 operable Units

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

This section presents the ICs required by each of the 200 Area CERCLA decision documents which include several records of decision (ROD), explanation of significant differences (ESD) from previously issued RODs for the specific OUs, and the ROD amendments. The ICs required by decision documents are presented in Tables A2-1 through A2-11. The tables include the text of the individual IC requirements contained in the decision documents and waste site specific ICs. Figures A2-1 through A2-5 show the IC control areas.

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.	3.5.1.2

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
Entry Restrictions Land-Use Management	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.	3.5.1.2 3.5.2
Miscellaneous Provision	ICs include placing written notification of the remedial action in the facility land-use master plan.	3.5.5
Land-Use Management	DOE will prohibit any activities that would interfere with the remedial activity without the lead agency's concurrence.	3.5.2
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.	3.5.2
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.	3.5.1.2

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.	3.5.1.2

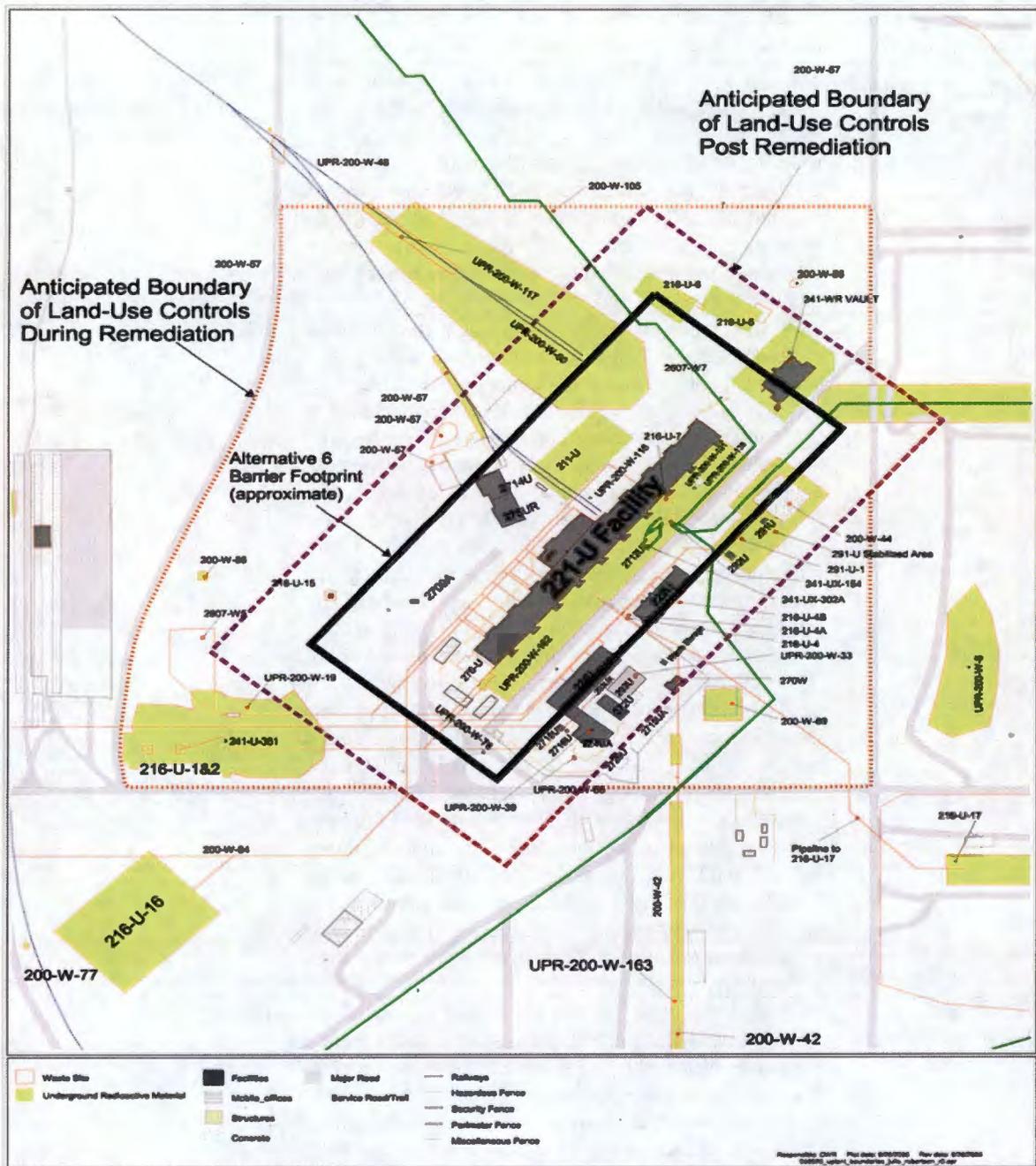
Table A2-5. Institutional Controls Requirements (Required through the Time of Completion of Remedy Construction) Listed in Record of Decision for 221-U Facility (Canyon Disposition Initiative) (EPA 2005a). (2 sheets)

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 A2-1 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.	3.5.1.2
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.	3.5.2
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.	3.5.2
Groundwater-Use Management	Groundwater use at the 221-U Facility site is prohibited, except for limited research purposes and monitoring and treatment authorized in EPA- and Ecology-approved documents. This prohibition applies until drinking water standards are achieved 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 institutional controls plan will contain the institutional controls 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.	3.5.3
Warning Notices	DOE shall post and maintain warning signs along access roads to caution site visitors and workers of potential hazards from the 221-U Facility site.	3.5.1.1

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

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
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.	3.5.2
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.	3.5.2
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. 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.	3.5.2
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.	3.5.2
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.	3.5.3
Land-Use Management*	DOE shall prohibit activities that would damage the monitoring system and its components (e.g., monitoring wells). 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.	3.5.2

Figure A2-1. Anticipated Boundaries of Land-Use Controls During and Post Remediation,



Source: Record of Decision 221-U Facility (Canyon Disposition Initiative) (EPA 2005a).

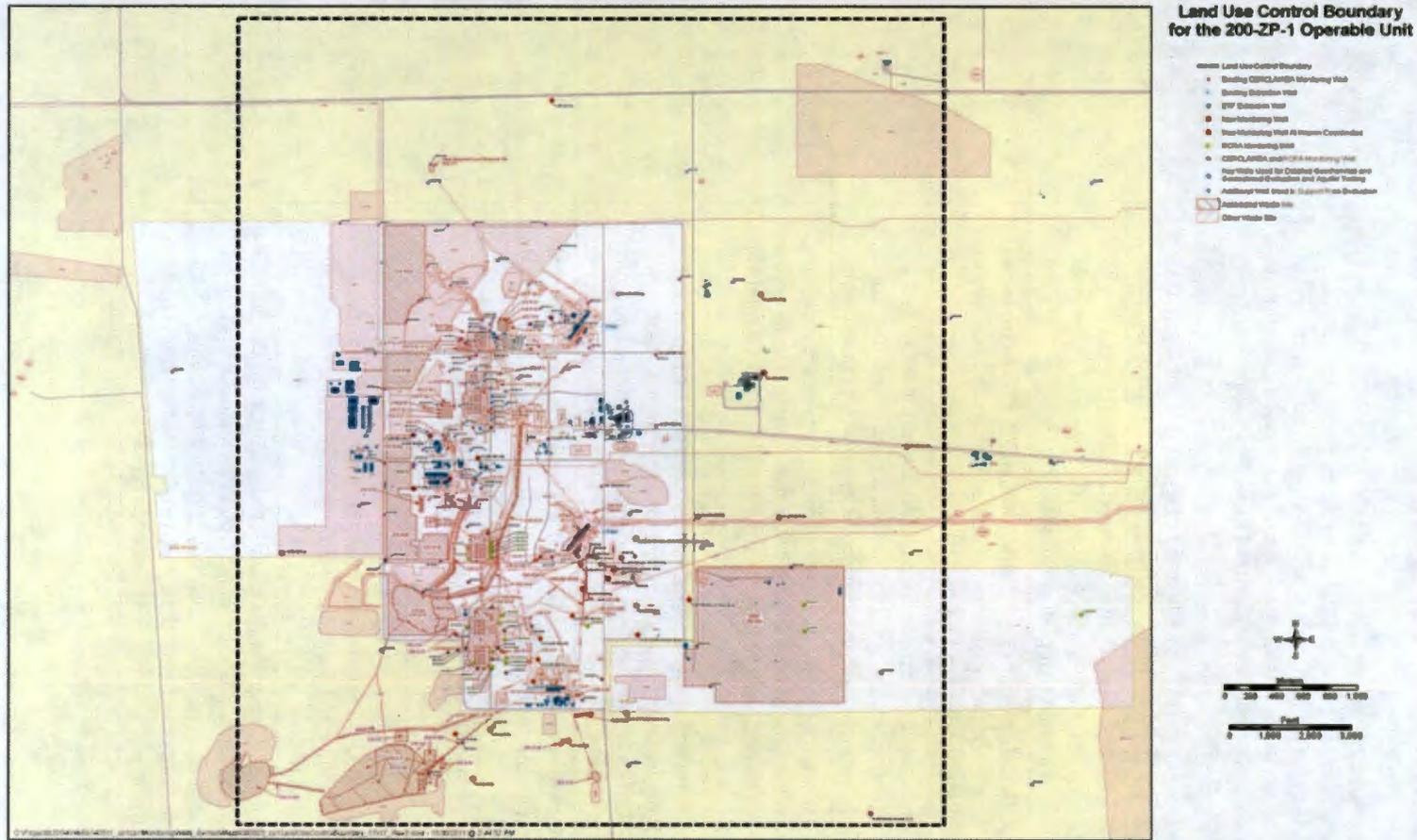
Table A2-7. Institutional Controls Requirements Listed in Record of Decision Amendment for Environmental Restoration Disposal Facility, Dated 5/24/2007.

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.	3.5.1.2

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

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 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.	3.5.1.2
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.	3.5.2
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.	3.5.2
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.	3.5.3
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.	3.5.1.1
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.	3.5.5
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.	3.5.2
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).	3.5.2
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.	3.5.5
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	3.5.2

Figure A2-2. Land Use Control Boundary for the 200-ZP-1 Operable Unit.

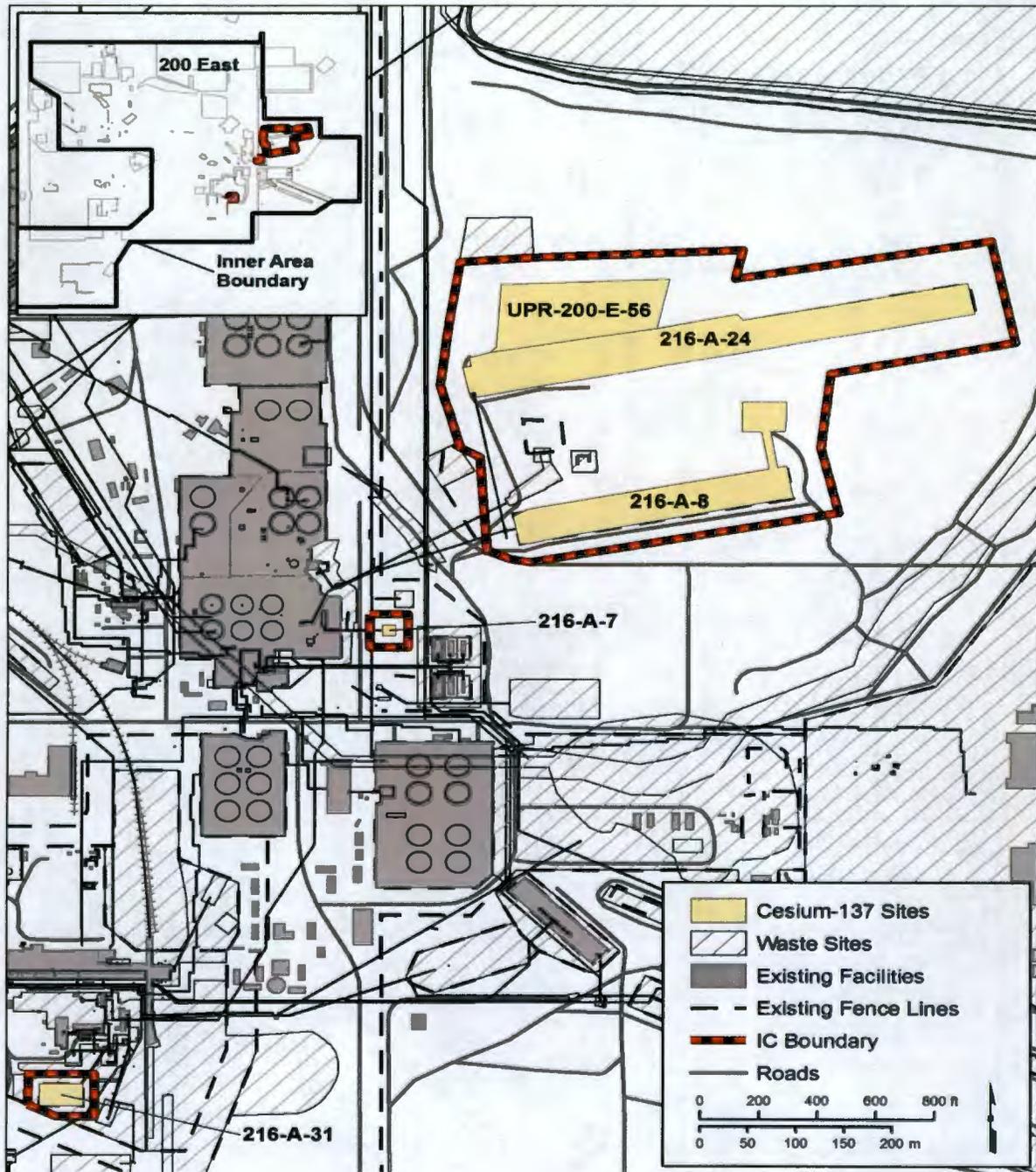


Source: Record of Decision Hanford 200 Area 200-ZP-1 Operable Unit (EPA 2008).

Table A2-9. Institutional Controls Requirements Listed in *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* (EPA 2009d). (2 sheets)

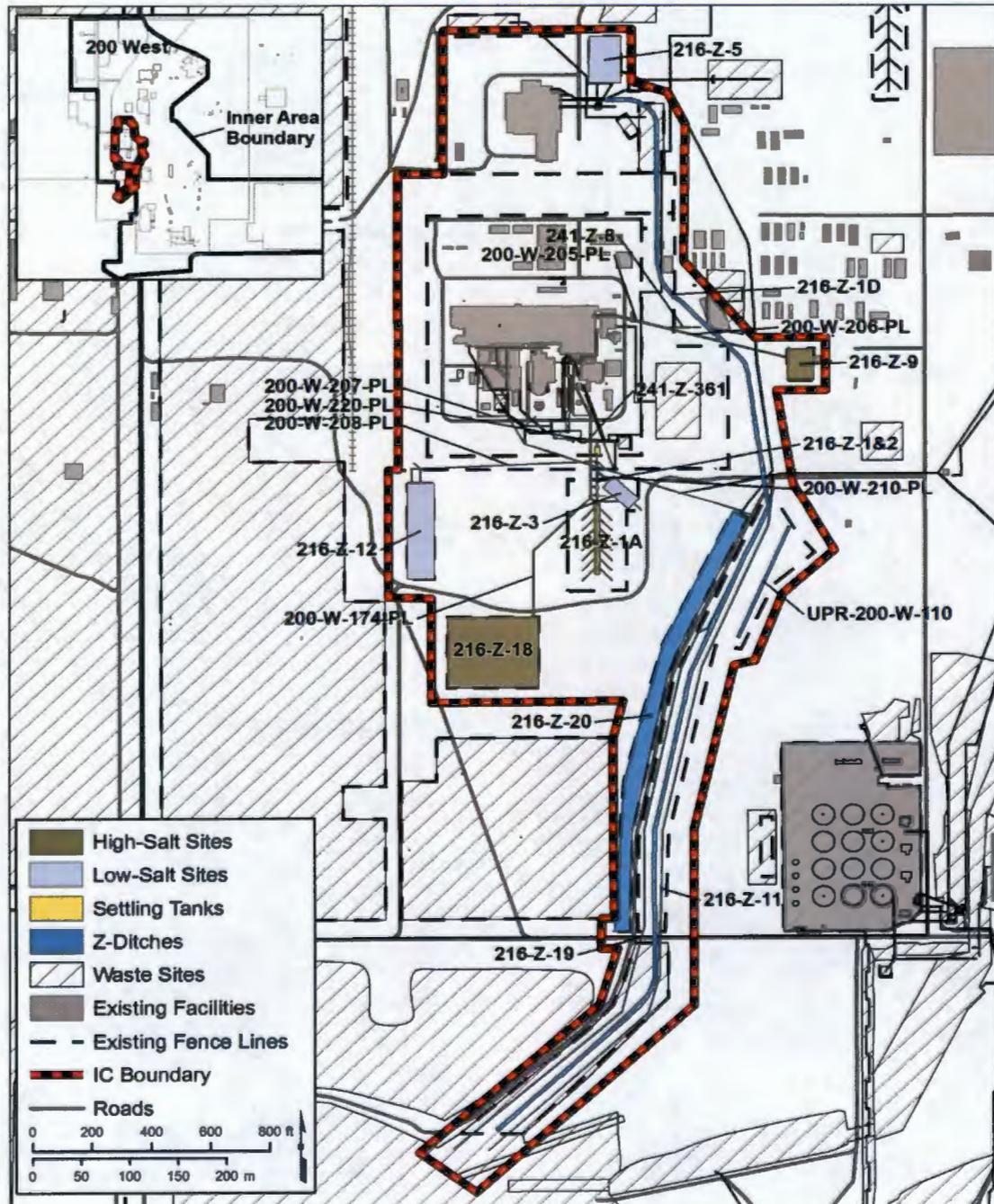
Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Entry Restrictions	DOE shall control access to 200-UP-1 Groundwater OU to prevent unacceptable exposure of humans to contaminants, except as otherwise authorized in Ecology-approved documents.	3.5.1.2
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.	3.5.1.2
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.	3.5.2
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.	3.5.2
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.	3.5.3
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.	3.5.1.1
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.	3.5.5
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat component of the remedy are to be prohibited.	3.5.2
Land-Use Management	DOE shall prohibit activities that would damage the remedy components (e.g., extraction wells, piping, treatment plant, monitoring wells).	3.5.2
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.	3.5.2
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.	3.5.5

Figure A2-3. 200-PW-3 Operable Unit Waste Sites Institutional Control Boundaries.



Source: Record of Decision Hanford 200 Area 200-CW-5, 200-PW-3, and 200-PW-6 Operable Units (EPA 2011a).

Figure A2-4. 200-CW-5, 200-PW-1, and 200-PW-6 Operable Units Institutional Control Boundaries.



Source: Record of Decision Hanford 200 Area 200-CW-5, 200-PW-3, and 200-PW-6 Operable Units (EPA 2011a).

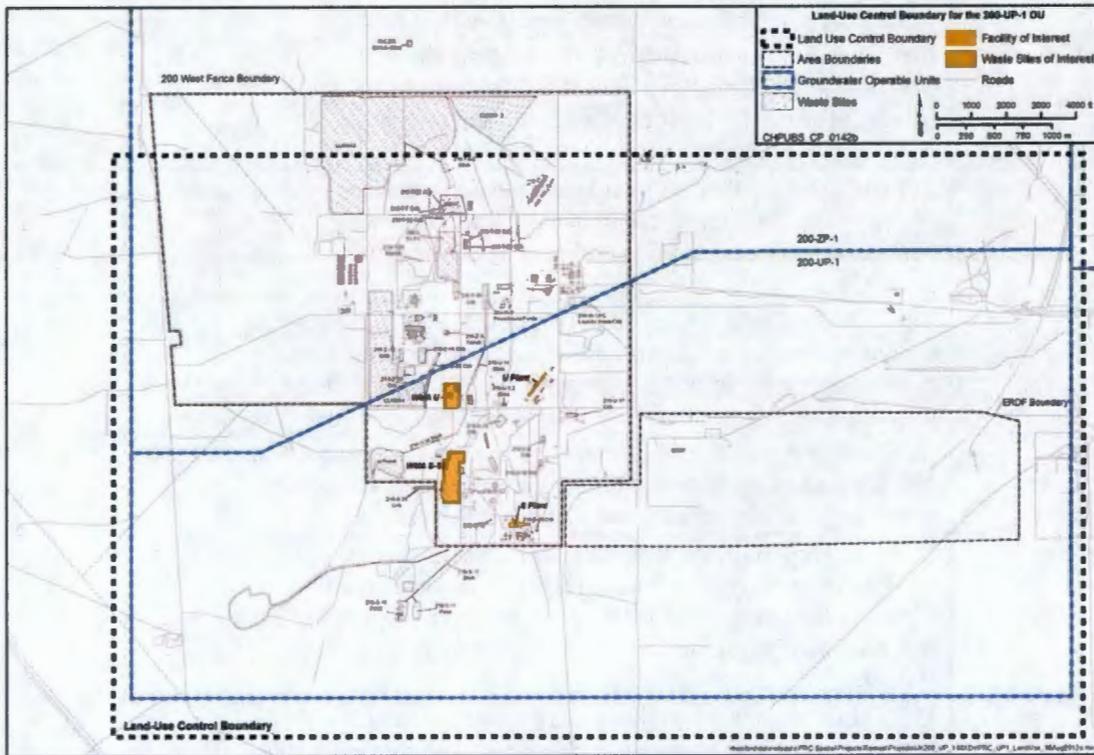
Table A2-11. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area Superfund Site 200-UP-1 Operable Unit. (EPA, 2012) (2 sheets)*

Institutional Controls Category	Institutional Controls Requirement	Section 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.	3.5.1.2
Entry Restrictions	Visitors entering any site areas of the 200-UP-1 OU will be required to be badged and escorted at all times.	3.5.1.2
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.	3.5.2
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.	3.5.2
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.	3.5.3
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.	3.5.1.1
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.	3.5.5
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.	3.5.2
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.	3.5.2
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.	3.5.2
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.	3.5.5
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 EPA as soon as possible, but no later than 60 days before the transfer or sale of any property	3.5.2

Table A2-11. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area Superfund Site 200-UP-1 Operable Unit. (EPA, 2012) (2 sheets)*

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
	subject to ICs. In addition to the land transfer notice and discussion provisions, 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 the executed deed or transfer assembly to Ecology and EPA.	
Miscellaneous Provision	DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the OU-specific IC objectives for the Site. The ICs specified above will be maintained until 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.	3.5.5
<p>DOE = U.S. Department of Energy. IC = institutional control. Ecology = Washington State Department of Ecology. OU = operable unit. EPA = U.S. Environmental Protection Agency. * The IC boundaries are shown in Figure A2-5.</p>		

Figure A2-5. 200-UP-1 Operable Unit Institutional Control Boundaries.



Source: Record of Decision Hanford 200 Area Superfund Site 200-UP-1 Operable Unit (EPA 2012).

A3.0 INSTITUTIONAL CONTROLS REQUIRED BY 300 AREA CERCLA DECISION DOCUMENTS

This section presents the ICs required by the 300 Area CERCLA decision documents. The ICs required by the decision documents are presented in Tables A3-1 and A3-2. The tables include the text of the individual IC requirements contained in the decision documents. The 300 Area final ROD listed waste sites that require ICs, which are presented in Table A3-3. Figure A3-1 shows Industrial Use Areas Subject to Industrial Use Institutional Control. Figure A3-2 lists the waste sites requiring ICs.

Table A3-1. Institutional Controls Requirements Listed in EPA/ROD/R10-96/143, Record of Decision for 300-FF-1 and 300-FF-5 Operable Units.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Groundwater-Use Management	ICs are required to prevent human exposure to groundwater and to ensure that unanticipated changes in land use do not occur that could result in unacceptable exposure to residual contamination. DOE is responsible for establishing and maintaining land-use and access restrictions until cleanup criteria are met.	3.5.3
Warning Notices	ICs include placing written notification of the remedial action in the facility land-use master plan.	3.5.1.1
Land-Use Management	DOE will prohibit any activities that would interfere with the remedial activity without EPA concurrence.	3.5.2
Land-Use Management	In addition, measures acceptable to EPA that are necessary to ensure the continuation of these restrictions will be taken before any transfer or lease of the property. A copy of the notification will be given to any prospective purchaser / transferee before any transfer or lease. DOE will provide EPA with written verification that these restrictions have been put in place.	3.5.2
DOE = U.S. Department of Energy. IC = institutional control. EPA = U.S. Environmental Protection Agency.		

Table A3-2. Institutional Controls Requirements Listed in Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1 (EPA and DOE 2013).
(3 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Institutional Controls Common to 300-FF-2 OU and 300-FF-5 OU		
Miscellaneous Provision	ICs are required before, during and after the active phase of remedial action implementation where ICs are needed to protect human health and the environment. ICs are used to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure.	3.5.5

Table A3-2. Institutional Controls Requirements Listed in Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1 (EPA and DOE 2013).
(3 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Miscellaneous Provision	No later than 180 days after the ROD is signed, DOE shall update the Sitewide Institutional Controls Plan to include the ICs required by this ROD and specify the implementation and maintenance actions that will be taken, including periodic inspections. The revised Sitewide Institutional Controls Plan shall be submitted to EPA and the Washington State Department of Ecology (Ecology) for review and approval as a Tri-Party Agreement primary document. The DOE shall comply with the Sitewide Institutional Controls Plan as updated and approved by EPA and Ecology.	3.5.5
Land-Use Management	Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.	3.5.2
Land-Use Management	In the event that land is transferred out of federal ownership, deed restrictions (proprietary controls such as easements and covenants) are required that are legally enforceable against subsequent property owners.	3.5.2
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.	3.5.5
Miscellaneous Provision	The DOE shall report on the effectiveness of ICs for 300-FF-2 and 300-FF-5 in an annual report, or on an alternative reporting frequency specified by the lead regulatory agency. Such reporting may be for 300-FF-2 and 300-FF-5 alone or may be part of the Hanford Sitewide ICs report.	3.5.5
Miscellaneous Provision	The IC performance objectives are required to be met as part of this remedial action. Land-use controls will be maintained until CULs are achieved and concentrations of hazardous substances are at such levels to allow for unlimited use and unrestricted exposure and EPA authorizes the removal of restrictions.	3.5.5
Land-Use Management	Measures that are necessary to ensure continuation of ICs shall be taken before any lease or transfer of any land subject to ICs. DOE will provide notice to Ecology and EPA at least 6 months before any transfer or sale of land subject to ICs 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 EPA as soon as possible, but no later than 60 days before the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions, DOE further agrees to provide Ecology and EPA with similar notice, within the same time frame, as to federal-to-federal transfer of property. DOE shall provide a copy of the executed deed or transfer assembly to Ecology and EPA.	3.5.2
Miscellaneous Provision	DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.	3.5.5

Table A3-2. Institutional Controls Requirements Listed in Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1 (EPA and DOE 2013).
(3 sheets)

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Institutional Controls Unique Elements For 300-FF-2		
Land-Use Management	Exposure to contamination deeper than 4.6 m (15 ft) bgs is not anticipated. Where contamination at depth exceeds the residential or industrial use CULs, ICs are required to ensure future activities do not bring this contamination to the surface or otherwise result in exposure to contaminant concentrations that exceed the CULs.	3.5.2
Land-Use Management	The DOE will prevent the development and use of property that does not meet residential CULs at the 300 Area Industrial Complex and 618-11 (figure 10) for other than industrial uses, including use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.	3.5.2
Warning Notice Entry Restrictions	Signage and access control to waste sites with contamination above CULs will be provided.	3.5.1.1 3.5.1.2
Land-Use Management	DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.	3.5.2
Land-Use Management	Prevent enhanced recharge in the 300 Area Industrial Complex and 618-11 over or near waste sites with soil concentration at any depth that exceed residential (irrigation-based) groundwater and surface water protection CULs until the CULs are achieved. Enhanced recharge controls are no irrigation or landscape watering, control drainage from low permeability areas including paved parking lots or buildings, and prevent bare gravel or bare sand covers.	3.5.2
Miscellaneous Provision	No later than 180 days after the ROD is signed, DOE shall update the Sitewide Institutional Controls Plan to include the ICs required by this ROD and specify the implementation and maintenance actions that will be taken, including periodic inspections. The revised Sitewide Institutional Controls Plan shall be submitted to EPA and the Washington State Department of Ecology (Ecology) for review and approval as a Tri-Party Agreement primary document. The DOE shall comply with the Sitewide Institutional Controls Plan as updated and approved by EPA and Ecology.	3.5.5
Institutional Controls Unique Elements for 300-FF-5		
Groundwater – Use Management	Administrative controls limiting 300-FF-5 groundwater access and use in a manner that is protective of human health where groundwater is above CULs.	3.5.3
bgs = below ground surface	EPA = U.S. Environmental Protection Agency.	
CUL = Clean up levels	ROD = record of decision.	
DOE = U.S. Department of Energy.		

Table A3-3. Institutional Controls Requirements for Waste Sites in 300-FF-2 Operable Unit Listed in Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1 (EPA and DOE, 2013).*

Waste Sites	Institutional Controls Requirement	Source of Institutional Controls
<p>300 Radioactive Liquid Waste Sewer (RLWS), 300 RRLWS, 300-11, 300-15, 300-16, 300-121, 300-123, 300-175</p> <p>300-2, 300-22, 300-24, 300-214, 300-218, 300-219, 300-224, 300-249, 300-251, 300-255, 300-257, 300-258, 300-262, 300-263, 300-265, 300-268, 300-269, 300-270, 300-273, 300-274, 300-276, 300-277, 300-279, 300-28, 300-280, 300-281, 300-283, 300-284, 300-286, 300-289, 300-291, 300-293, 300-294, 300-296</p> <p>300-32, 300-34, 300-4, 300-40, 300-43, 300-46, 300-48, 300-5, 300-6, 300-7, 300-80, 300-9, 300-53</p> <p>331 Life Sciences Laboratory Drain Field (LSLDF)</p> <p>331 Life Sciences Laboratory Trench 1 and Trench 2 (LSLT1 and LSLT2)</p> <p>316-3</p> <p>618-11</p> <p>313 East Side Storage Pad (ESSP)</p> <p>333 West Side Tank Farm (WSTF)</p> <p>340 COMPLEX</p> <p>3712 Uranium Scrap Storage Area (USSA)</p> <p>UPR-300-1, UPR-300-10, UPR-300-11, UPR-300-12, UPR-300-2, UPR-300-38, UPR-300-39, UPR-300-4, UPR-300-40, UPR-300-42, UPR-300-45, UPR-300-48 UPR-300-5</p>	<p>Exposure to contamination deeper than 4.6 m (15 ft) bgs is not anticipated. Where contamination at depth exceeds the residential or industrial use CULs, ICs are required to ensure future activities do not bring this contamination to the surface or otherwise result in exposure to contaminant concentrations that exceed the CULs.</p> <p>The DOE will prevent the development and use of property that does not meet residential CULs at the 300 Area Industrial Complex and 618-11 for other than industrial uses, including use of property for residential housing, elementary and secondary schools, childcare facilities and playgrounds.</p> <p>DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.</p> <p>Prevent enhanced recharge in the 300 Area Industrial Complex and 618-11 over or near waste sites with soil concentration at any depth that exceed residential (irrigation-based) groundwater and surface water protection CULs until the CULs are achieved. Enhanced recharge controls are no irrigation or landscape watering, control drainage from low permeability areas including paved parking lots or buildings, and prevent bare gravel or bare sand covers.</p>	<p>Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1</p>
<p>bgs = below ground surface. ROD = record of decision. CUL = clean up levels. UPR = unplanned release. DOE = U.S. Department of Energy. * Industrial Use Areas Subject to Industrial Use Institutional Control are shown in Figure A3-1 and Figure A3-2.</p>		

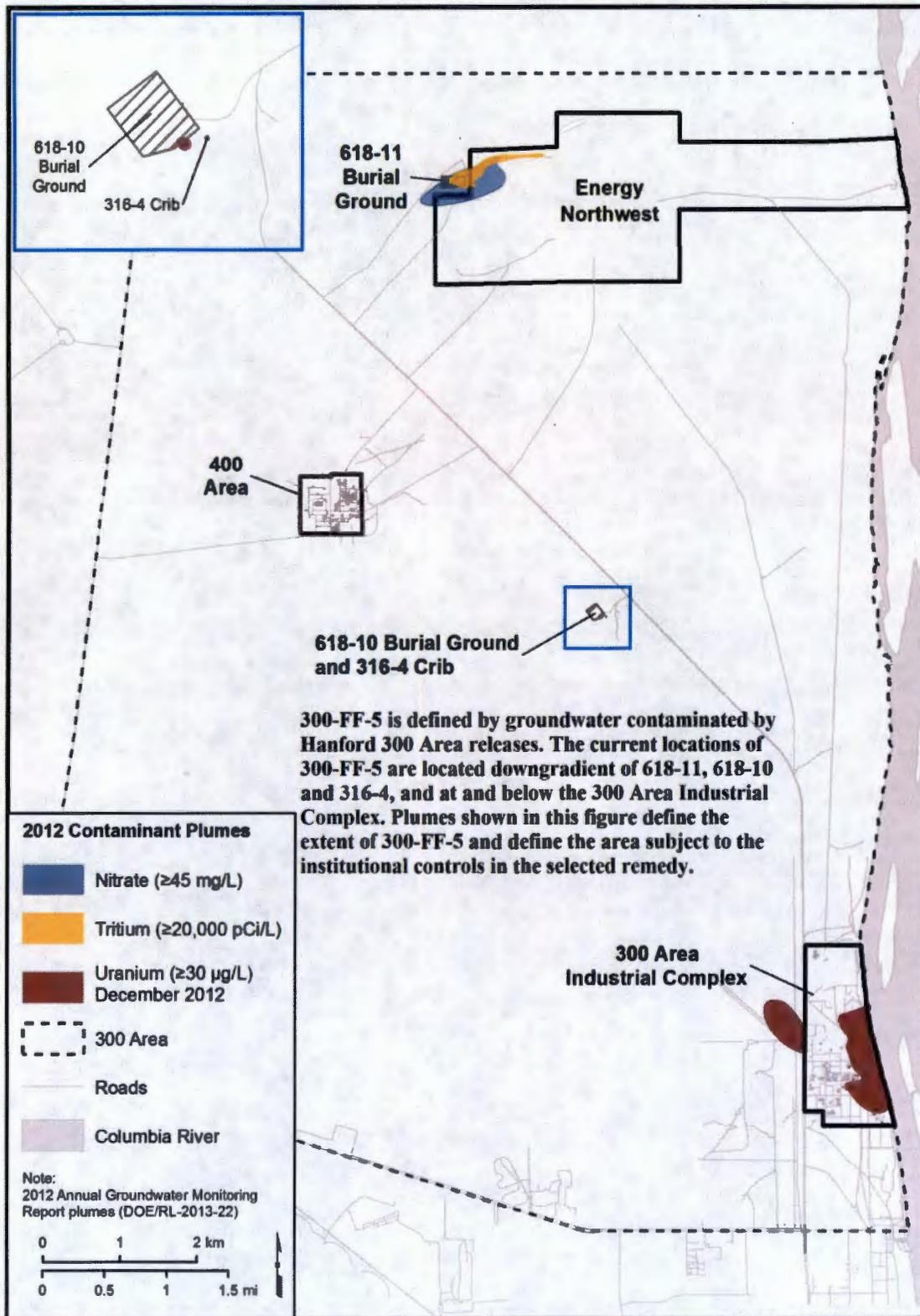
Figure A3-1. 300-FF-2 Industrial Use Areas Subject to Industrial Use Institutional Control.



140116_IC_ROD_Amendment_300FF2_Aerial_11x17_Rev0

Source: Hanford Site 300 Area Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1 (EPA and DOE 2013).

Figure A3-2. Land Use Control Areas for 300-FF-5 Operable Unit.



Source: Record of Decision for 300-FF-2 and 300-FF-5 and Record of Decision Amendment for 300-FF-1

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 individual IC requirements contained in these documents. Figure A4-1 show the fences and cap at the Horn Rapids Landfill. The 1100 Area was deleted from the NPL in 1996.

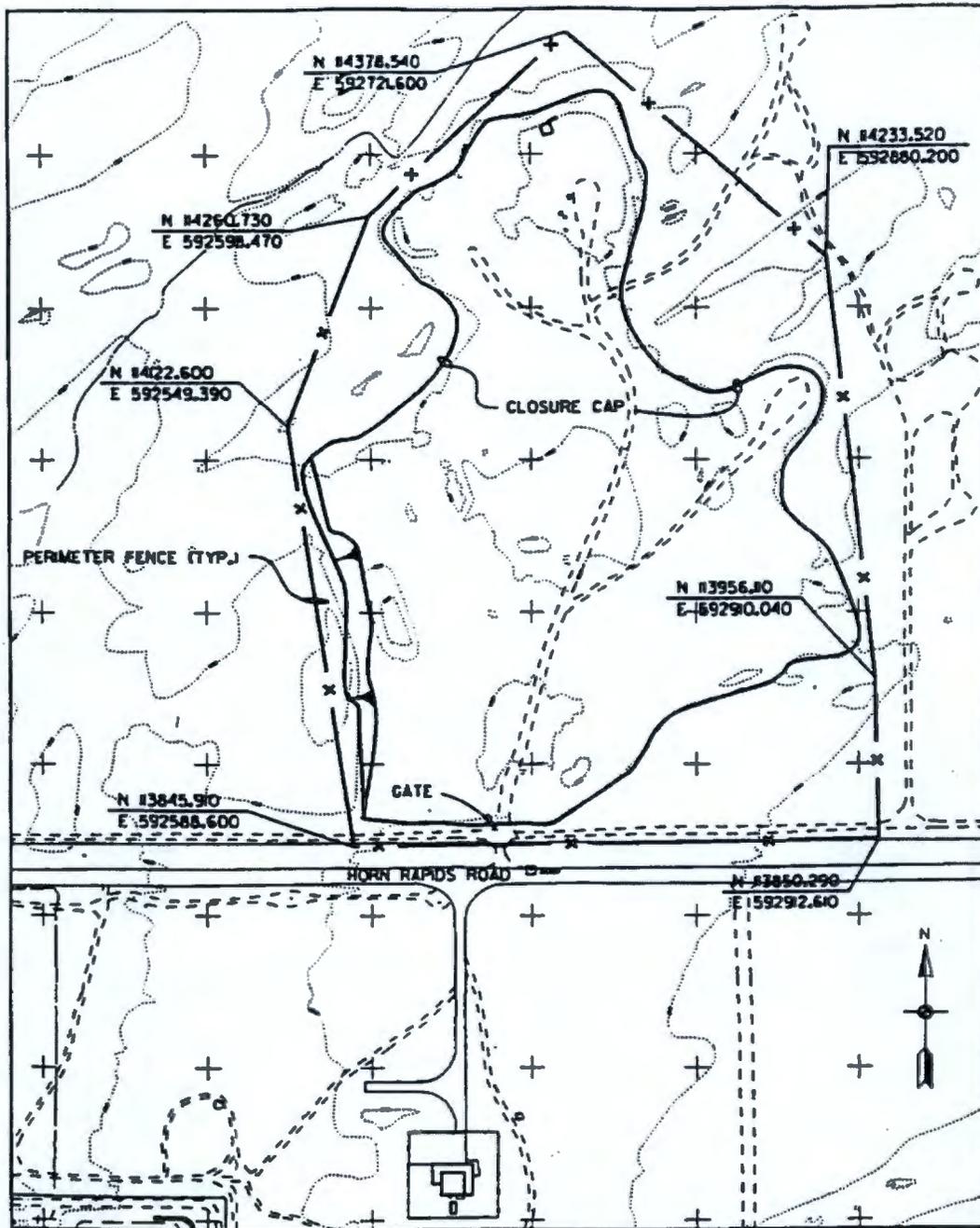
Table A4-1. Institutional Controls Requirements Listed in EPA/ROD/R10-93/063, Record of Decision for the USDOE Hanford 1100 Area Final Remedial Action for 1100-EM-1, 1100-EM-2, 1100-EM-3, and 1100-IU-1.

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.	3.5.1.2
Notice in Deed	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.	3.5.2

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.	3.5.1.2
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.	3.5.3

Figure A4-1. Fence and Cap at the Horn Rapids Landfill.



Source: Explanation of Significant Differences, USDOE Hanford 1100 Area (EPA 2010a).

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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 list of the *Resource Conservation and Recovery Act of 1976* (RCRA) closure unit or post-closure treatment, storage, and disposal (TSD) units that have institutional controls (IC) requirements. The TSD units 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.

B1.0 INSTITUTIONAL CONTROLS REQUIRED BY RCRA TSD CLOSURE PLANS IN 100 AREA

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 presented in Tables B-1, B-3, B-4, and B-5. Table B-2 lists the IC for the waste site 600-235, which is listed in this section because the waste associated with this waste site is required to be handled using dangerous waste regulations. Figure B-1 shows the locations of waste site 600-235.

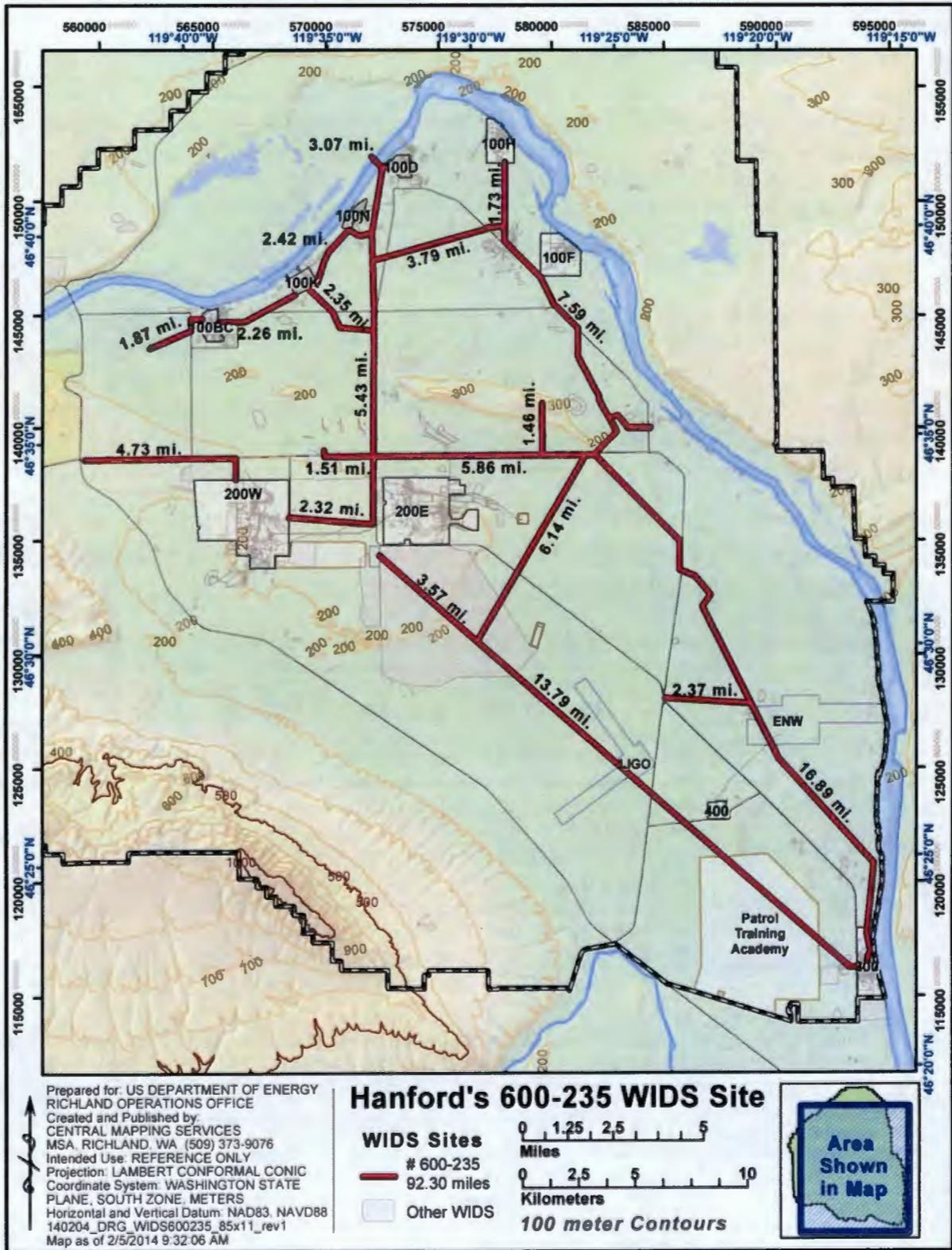
Table B1-1. Institutional Controls Requirements Listed in the Modified Post Closure Institutional Controls and Periodic Assessments for 183-H Solar Evaporation Basin, Hanford Site RCRA Permit, Class 1 Modification, Quarter Ending 6/30/2002.

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.	3.5.3
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.	3.5.2
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.	3.5.1.1 3.5.1.2

Table B1-2. Institutional Control Requirements listed in WIDS General Summary Report for 600-235 Waste Site

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Miscellaneous Provision	The cables contain lead and will be required to be handled as dangerous waste if removed as part of an excavation or construction activity. Figure B-1 provides the locations of the cable.	3.5.5

Figure B-1. Waste Information Data System Site 600-235 Coordinates.



Source: Hanford Geographic Information System.

Table B1-3. Institutional Controls Requirements Listed in the Modified Post Closure Institutional Controls Requirements for 1301-N Liquid Waste Disposal Facility Hanford Site RCRA Permit, March 31, 2005.

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Access Control Land-Use Management Groundwater-Use Management	Institutional controls under a modified closure option will consist of continued restrictions to access and use of groundwater and may consist of access controls to surface soils or deeper soils such as a fence. Institutional controls will be defined after remedial alternative selection. Inspections and maintenance of institutional controls and monitoring will be requirements of postclosure under a modified closure option.	3.5.1 3.5.2 3.5.3
Notice in Deed	A notice in deed will be submitted by RL to the Auditor of the Benton County no later than 60 days after certification of closure of each unit in accordance with WAC 173-303-610(10). After submitting this notice, a certification signed by the Permittees will be submitted to Ecology stating that notification has been recorded along with a copy of the notice in deed. The notice in deed will specify the type, location, and quantity of dangerous wastes remaining after closure actions have been completed.	3.5.2.5

Table B1-4. Institutional Controls Requirements Listed in the Modified Post Closure Institutional Controls Requirements for 1324-N Liquid Waste Disposal Facility Hanford Site RCRA Permit, Class 1 Modification August 2004

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 source. Because DOE-RL will maintain control over this site for the near future, it is not anticipated that additional actions will be required to limit controls over groundwater usage. Should groundwater use restrictions be required after DOE-RL relinquishment of the area, appropriate institutional controls will be established.	3.5.3
Notice in Deed	A notice in deed will be submitted by RL to the Auditor of the Benton County no later than 60 days after certification of closure of each unit in accordance with WAC 173-303-610(10). After submitting this notice, a certification signed by the Permittees will be submitted to Ecology	3.5.2.5

Table B1-4. Institutional Controls Requirements Listed in the Modified Post Closure Institutional Controls Requirements for 1324-N Liquid Waste Disposal Facility Hanford Site RCRA Permit, Class 1 Modification August 2004		
Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
	stating that notification has been recorded along with a copy of the notice in deed. The notice in deed will specify the type, location, and quantity of dangerous wastes remaining after closure actions have been completed.	

Table B1-5. Institutional Controls Requirements Listed in the Modified Post Closure Institutional Controls Requirements for 1325-N Liquid Waste Disposal Facility Hanford Site RCRA Permit, March 31, 2005

Institutional Controls Category	Institutional Controls Requirement	Section of the Plan Where Institutional Controls are Addressed
Access Control Land-Use Management Groundwater-Use Management	Institutional controls under a modified closure option will consist of continued restrictions to access and use of groundwater and may consist of access controls to surface soils or deeper soils such as a fence. Institutional controls will be defined after remedial alternative selection. Inspections and maintenance of institutional controls and monitoring will be requirements of postclosure under a modified closure option.	3.5.1 3.5.2 3.5.3
Notice in Deed	A notice in deed will be submitted by RL to the Auditor of the Benton County no later than 60 days after certification of closure of each unit in accordance with WAC 173-303-610(10). After submitting this notice, a certification signed by the Permittees will be submitted to Ecology stating that notification has been recorded along with a copy of the notice in deed. The notice in deed will specify the type, location, and quantity of dangerous wastes remaining after closure actions have been completed.	3.5.2.5

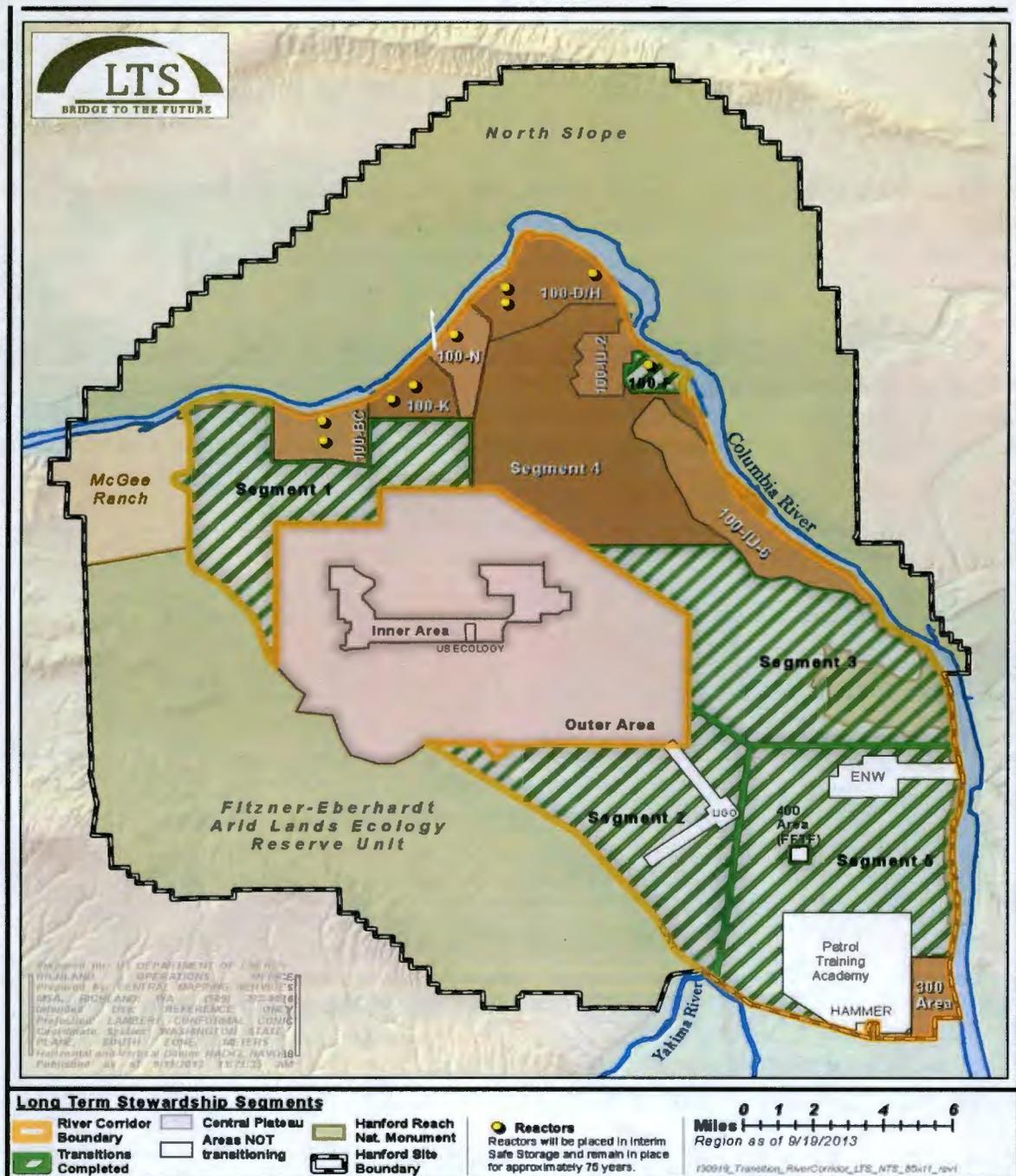
APPENDIX C
2014 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENTS

Section 4.2 of this Plan requires the contractors to provide an annual update on the effectiveness of the ICs at the Area Unit Manager Meetings (UMM) every September.. This appendix includes annual institutional control (IC) assessments conducted at Hanford by Mission Support Alliance, LLC (MSA), CH2M HILL Plateau Remediation Company (CHPRC) and Washington Closure Hanford (WCH).

**C1.1 2014 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT
MISSION SUPPORT ALLIANCE**

The MSA Long-Term Stewardship (LTS) program is responsible for managing the green diagonal line areas shown in Figure C1-1.

Figure C1-1. LTS Managed Areas.



Institutional controls (ICs) listed in decision documents for each segment/area managed by LTS were assessed. DOE/RL-2001-41 lists the ICs associated with decision documents. The results of the assessment are summarized in the tables below.

Segment 1

ICs for Segment 1 waste sites are identified in EPA/ROD/R10-99/039, *Interim Action Record of Decision for (100 Area Remaining Sites) 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, Hanford Site, Benton County, Washington*. Table 1 summarizes the assessment results.

Segment 3

ICs for Segment 3 waste sites are identified in EPA/ROD/R10-99/039, *Interim Action Record of Decision for (100 Area Remaining Sites) 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, Hanford Site, Benton County, Washington*. Table 1 summarizes the assessment results.

Table 1. Assessment of Institutional Controls Listed in EPA/ROD/R10-99/039. (2 Sheets)

Institutional Controls Requirement	Institutional Controls Status
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.	DOE has an active badging program to control access to Hanford Site. Visitors entering the sites associated with the Interim Action ROD are escorted at all times.
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.	The excavation permit program is in place. No waste sites with drilling or excavation restrictions exist in segment 1 and Segment 3.
DOE will maintain existing signs prohibiting public access.	DOE warning signs are in place.
DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents.	DOE transmits copy of the annual ICs assessment to EPA and Ecology. The assessment includes a report on the trespassing incidents. The annual assessment report is also included as an appendix to DOE/RL-2001-41, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions</i> . DOE/RL-2001-41, Rev. 7 was approved by EPA and Ecology in May 2014.

Table 2. Assessment of Institutional Controls in 300 Area ROD and Applicable to Segment 5.
(2 Sheets)

Institutional Controls Requirement	Institutional Controls Status
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.	Trespassing incidents are reported to the Benton County Sheriff's Office.
DOE shall report on the effectiveness of ICs for 300-FF-2 and 300-FF-5 in an annual report, or on an alternative reporting frequency specified by the lead regulatory agency. Such reporting may be for 300-FF-2 and 300-FF-5 alone or may be part of the Hanford Sitewide ICs report.	DOE annually conducts IC assessment and presents the results at the Unit Managers Meeting in September of every year.
DOE = U.S. Department of Energy.	IC = institutional control.

100-F

Remedial actions for 100-F Area waste sites are identified in the decision documents listed below. The assessment of ICs required by the decision documents is summarized in Tables 1 and 3.

- EPA/ROD/R10-99/039, *Interim Action Record of Decision for the 100-B/C-1, 100-B/C-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, Hanford Site, Benton County, Washington.* (Table 1)
- EPA/ROD/R10-00/121, *Interim Action Record of Decision for the 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, and 100-KR-2, Operable Units, Hanford Site, Benton County, Washington (100-Area Burial Grounds)* (Table 3).

Table 3. Assessment of Institutional Controls Listed in EPA/ROD/R10-00/121. (4 Sheets)

Institutional Controls Requirement	Institutional Controls Status
100 Area Burial Ground Institutional Controls Requirements	
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.	DOE has an active badging program to control access to the Hanford Site. Visitors entering the sites associated with the Interim Action ROD are escorted at all times.
Well drilling is prohibited, except for monitoring or remediation wells authorized in documents approved by EPA and/or Ecology. Groundwater use is prohibited, except for monitoring and treatment, as approved by EPA or Ecology.	No non-monitoring wells were drilled in the 100-F Area. The Groundwater Monitoring Program continues to monitor groundwater in the 100-F Area.
No intrusive work is allowed on or near the waste sites covered in this ROD without prior approval of EPA or Ecology.	No intrusive work was performed on or near the waste sites in the 100-F Area.
DOE shall maintain signs that warn river users of potential hazards along the shoreline from 100 Area waste sites.	The warning signs are maintained along the shoreline (see Figure C1-2)

Table 3. Assessment of Institutional Controls Listed in EPA/ROD/R10-00/121. (4 Sheets)

Institutional Controls Requirement	Institutional Controls Status
DOE shall post and maintain in good condition "No Trespassing" signs along the 100 Area shoreline.	No trespassing signs are in place along the shoreline (see Figure C1-3).
DOE shall maintain signs along access roads that warn Site visitors and workers of potential hazards from 100 Area waste sites.	Warning sign is in place at the entrance to the 100-F Area (see Figure C1-4).
DOE shall report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	Trespassing incidents are reported to the Benton County Sheriff's Office.
Sitewide Institutional Controls Requirements	
<p>DOE shall submit a Sitewide IC plan that includes the applicable ICs for the 100 Area operable units. This Sitewide plan will be submitted to EPA and Ecology for approval as a primary document under the TPA 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>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 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. 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 institutional controls required by a decision document.</p>	DOE submitted Revision 7 of this plan to EPA and Ecology for approval. The plan was approved in May 2014.

Table 3. Assessment of Institutional Controls Listed in EPA/ROD/R10-00/121. (4 Sheets)

Institutional Controls Requirement	Institutional Controls Status
DOE will notify EPA and Ecology immediately upon discovery of any activity that is inconsistent with the operable unit-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 ICs process, evaluate how to correct the process to avoid future problems, and implement these changes after consulting with EPA and Ecology.	No activities inconsistent with the operable unit-specific IC objectives have taken place in 100-F Area. In case of emergency situation, DOE will work with EPA and Ecology.
DOE will identify a point of contact for implementing, maintaining, and monitoring ICs for the 100 Area, as well as for the Hanford Site.	DOE has identified a point of contact for implementing, maintaining, and monitoring ICs for the 100-F Area.
DOE will comply with TPA requirements to request and obtain funding to institute and maintain institutional controls as a compliance requirement under the TPA. NOTE: This is an existing TPA requirement.	DOE complies with the TPA requirements.
DOE will notify EPA and Ecology at least 6 months before any transfer, sale, or lease of any property subject to ICs 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 ICs. 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 ICs.	Not applicable. No transfer, sale, or lease of any property in the 100-F Area is planned.
DOE will not delete or terminate any ICs unless EPA and Ecology have concurred in the deletion or termination.	No ICs have been deleted or terminated.

Table 3. Assessment of Institutional Controls Listed in EPA/ROD/R10-00/121. (4 Sheets)

Institutional Controls Requirement	Institutional Controls Status
<p>DOE will evaluate the implementation and effectiveness of ICs for the Hanford Site and the 100 Area operable units on an annual basis. The annual ICs monitoring report shall be written by DOE and submitted to EPA and Ecology as a primary document under the TPA. The report shall be consistent with the requirements established in the Sitewide ICs 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 ICs monitoring report, at a minimum, must contain the following:</p> <p>A description of how DOE is meeting the Sitewide IC requirements.</p> <p>A description of how DOE is meeting the operable unit-specific objectives, including results of visual field inspections of all areas subject to operable unit-specific restrictions.</p>	<p>Washington Closure Hanford made the presentation for 2014 assessment. The presentation covered the River Corridor area.</p>
<p>The EPA and Ecology review of the ICs monitoring report will follow existing procedures for agency review of primary documents.</p>	<p>A review of EPA and Ecology review procedures is not in the scope of this assessment.</p>
<p>DOE = U.S. Department of Energy. Ecology = Washington State Department of Ecology. EPA = U.S. Environmental Protection Agency.</p>	<p>IC = institutional control. ROD = record of decision. TPA = Tri-Party Agreement.</p>

Figure C1-2. Shoreline Warning Signs in the 100-F Area, Looking Northeast.



Figure C1-3. No Trespassing Sign along the 100-F Shoreline.



Figure C1-4. Warning Sign at the 100-F Area Entrance.



100-F Area Waste Sites

The Closure Verification Packages for 16 waste sites in the 100-F Area identified ICs specific to the waste sites. The ICs were to control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]) as shown in Table 4. Compliance with the IC was attained by reviewing all excavation permits issued for the 100-F Area. The review found that no excavation permits were issued for the waste site locations.

Table 4. Institutional Control Assessment for 100-F Area Waste Sites. (2 Sheets)

Waste Site	Institutional Controls	Requirement	Institutional Controls Status
100-F-10	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2003-00017	No excavation permit issued for the waste site.
100-F-19	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00002 (19:1 and 19:3) CVP-2001-00003 (19:2)	No excavation permit issued for the waste site.
100-F-26:5	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	WSRF-2005-007	No excavation permit issued for the waste site.
100-F-29	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00003	No excavation permit issued for the waste site.
100-F-34	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00002	No excavation permit issued for the waste site.
116-F-6	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2002-00010	No excavation permit issued for the waste site.

Table 4. Institutional Control Assessment for 100-F Area Waste Sites. (2 Sheets)

Waste Site	Institutional Controls	Requirement	Institutional Controls Status
116-F-9	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00008	No excavation permit issued for the waste site.
116-F-10	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2003-00017	No excavation permit issued for the waste site.
116-F-11	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2002-00001	No excavation permit issued for the waste site.
116-F-12	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00002	No excavation permit issued for the waste site.
116-F-14	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00009	No excavation permit issued for the waste site.
118-F-8:1	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2003-00017	No excavation permit issued for the waste site.
118-F-8:3	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2003-00017	No excavation permit issued for the waste site.
118-F-8:4	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2007-00004	No excavation permit issued for the waste site.
1607-F2	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2002-00005	No excavation permit issued for the waste site.
UPR-100-F-1	Control drilling or excavation into deep zone (i.e., below 4.6 m [15 ft]).	CVP-2001-00003	No excavation permit issued for the waste site.
CVP = Closure Verification Package. UPR = Unplanned release.			

Sitewide Institutional Controls Assessment

- **Fences and Signage**

The fence along State Route (SR) 240 was inspected. A section of fence was down along SR 240. The fence was fixed.

MSA has installed a remote monitoring camera along the Columbia River in 100-F Area.

The camera showed that the Spanish warning sign along was down. The sign was reinstalled (Figures C1-5 and C1-6).

- **Trespassing Incidents**

MSA is responsible for reporting Sitewide trespassing incidents to Benton County Sherriff's Office and maintaining warning signs along the Site boundary. There were no reportable trespassing incidents from October 2013 to September 2014.

Figure C1-5. Fallen Sign along the Columbia River in the 100-F Area.



Figure C1-6. Reinstalled Sign along the Columbia River in the 100-F Area.



**C2.1 2014 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT
CH2M HILL PLATEAU REMEDIATION COMPANY**

The K Basins Interim Remedial Action Record of Decision calls for institutional controls that will minimize the potential for human exposure to hazardous substances that will be addressed by the remedial action. The specific controls are identified in the work plans that implement the remedial action decision. This assessment checklist identifies the required controls and provides an evaluation of whether the control has been implemented and whether the implementation has been effective in minimizing the potential for human exposure to hazardous substances (Table 1).

Table 1. Institutional Controls Requirements Listed in TPA-CN-604, TPA-CN-605, TPA-CN-606, and TPA-CN-607. (2 Sheets)

Institutional Controls Requirement	Discussion of Implementation and Effectiveness
Continue the current badging program and access controls for the duration of the interim action. Visitors entering the sites associated with this interim action are required to be escorted at all times.	The badging and other entry restrictions remain in place and appear to be effective.
Utilize the onsite excavation permit process to control intrusive activities such as well drilling and excavation of soil.	The excavation permit process remains in place as an effective control.
Maintain existing signs prohibiting public access.	No trespassing signs are in place along the river. Large warning signs are present at the entrance to the 100-K Area and at the former location of the 181-KW and 181-KE Buildings along the river. The signs are effective controls (Figures 1 and 2).
Provide notification to the lead regulator upon discovery of any trespass incidents.	Security forces continue to patrol the area and report trespass. MSA manages this function.
Report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	DOE reports trespass incidents to appropriate authorities.
Take the necessary precautions to add access restriction language to any land transfer, sale, or lease of property that the U.S. Government considers appropriate while institutional controls are compulsory. The lead regulator will have to approve any access restrictions prior to transfer, sale, or lease.	No land transfers have taken place in 100-K Area. The controls remain in place as managed by MSA.
Until final remedy selection, institutional control requirements will not be deleted or terminated unless the lead regulator has provided written concurrence on the deletion or termination and appropriate documentation has been placed in the Administrative Record.	The institutional control requirements were modified by TPA change notices 604, 605, 606, and 607 and have been placed in the Administrative Record.
The implementation and effectiveness of institutional controls will be evaluated and reported in accordance with	An evaluation was completed in August 2014. Results will be included in the next revision of

Table 1. Institutional Controls Requirements Listed in TPA-CN-604, TPA-CN-605, TPA-CN-606, and TPA-CN-607. (2 Sheets)

Institutional Controls Requirement	Discussion of Implementation and Effectiveness
DOE/RL-2001-41, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions.</i>	DOE/RL-2001-41 (Sitewide Institutional Control Plan).
Current access controls include signs along the river, non-continuous fencing, locked access to buildings containing the primary hazards, and routine security patrols.	Signs along the river are in place, buildings are locked, and there are routine security patrols. A non-continuous fence is in place. Fencing and/or signs are present at locations where access is most likely to occur (Figures 3 through 7).
DOE = U.S. Department of Energy. MSA = Mission Support Alliance, LLC.	TPA = Tri-Party Agreement.

Figure 1. Warning Signs at Former 181-KW River Intake Facility at End of Wildwood Drive.



Figure 2. No Trespassing Sign and Fence along River East of Former 181-KW River Intake Facility.



Figure 3. Access Gate at Southeast Corner of Wabash Avenue and Willard Street.



Figure 4. Warning Signs at Former 181-KE River Intake Facility at the end of Wiley Drive.



Figure 5. Fencing Along Eastern Side of 100-K Area (Wabash Avenue).



Figure 6. Warning Sign South of 100-K Area at Intersection of K Avenue and 100-K Remediation Access Road.



Figure 7. Fencing along South Side of 100-K Area (Willard Street).



Institutional control requirements for the Central Plateau operable units and other facilities are provided in Tables 2, 3, 4 and 5.

Table 2. Institutional Controls Requirements Listed in Record of Decision for Interim Remedial Action for Hanford 200 Area, 200-UP-1 Operable Unit (Required through time of completion of the remedy.) (2 sheets)

Institutional Controls Requirement	2014 Status
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.	No findings, access controls still in place.
Visitors entering any site areas of the 200-UP-1 OU will be required to be badged and escorted at all times.	No findings, work plans are being/have been submitted for approval.
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.	No findings, no unauthorized wells have been drilled.
DOE shall prohibit well drilling in the 200-UP-1 OU, except for monitoring, characterization, or remediation wells authorized in EPA approved documents.	No findings, no unauthorized well drilling.
Groundwater use at the 221-U Facility site is prohibited, except for limited research purposes and monitoring and treatment authorized in EPA approved documents.	No findings, no unauthorized groundwater use has occurred.

Table 2. Institutional Controls Requirements Listed in Record of Decision for Interim Remedial Action for Hanford 200 Area, 200-UP-1 Operable Unit (Required through time of completion of the remedy.) (2 sheets)

Institutional Controls Requirement	2014 Status
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.	No findings. The warning signs are shown in Figures 8 and 9.
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 or trespass.
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.	No findings, no activities have been implemented that would disrupt/lessen performance of the interim remedy.
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.	No findings.
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.	No findings.
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 alone or may be part of the Hanford Site wide report.	No findings, included in annual report.
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 EPA as soon as possible, but no later than 60 days before the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions, 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 the executed deed or transfer assembly to Ecology and EPA.	No findings, no transfer/sale of land has taken place.
DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the OU-specific institutional control objectives for the Site.	No findings, no inconsistent activity discovered.
DOE = U.S. Department of Energy. Ecology = Washington State Department of Ecology.	

Table 2. Institutional Controls Requirements Listed in Record of Decision for Interim Remedial Action for Hanford 200 Area, 200-UP-1 Operable Unit (Required through time of completion of the remedy.) (2 sheets)

Institutional Controls Requirement	2014 Status
EPA = U.S. Environmental Protection Agency.	

Figure 8. Warning Sign at Beloit and 23rd.



Figure 9. Warning Sign Southwest of U Plant.



Table 3. 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 Requirement	2014 Status
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 (US 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 RD/RA work plan to be approved by EPA and Ecology.	No findings, access controls still in place.
No intrusive work shall be allowed at the 221-U Facility site unless 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.
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.	No findings, no unauthorized wells have been drilled.

Table 3. 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 Requirement	2014 Status
Groundwater use at the 221-U Facility site is prohibited, except for limited research purposes and monitoring and treatment authorized in EPA- and Ecology-approved documents. This prohibition applies until drinking water standards are achieved 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 institutional controls plan will contain the institutional controls 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.	No findings, no unauthorized groundwater use has occurred.
DOE shall post and maintain warning signs along access roads to caution site visitors and workers of potential hazards from the 221-U Facility site.	No findings, warning signs are in place.
In the event of any unauthorized access to the site, such as trespass, 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. Ecology = Washington State Department of Ecology. EPA = U.S. Environmental Protection Agency.	

Table 4. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 OU Superfund Site Benton County, Washington. (2 Sheets).

Institutional Controls Requirement	2014 Status
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.	No findings, access controls are in place.
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.
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 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	No findings, no unauthorized groundwater use has occurred.

Table 4. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 OU Superfund Site Benton County, Washington. (2 Sheets).

Institutional Controls Requirement	2014 Status
well drilling and groundwater use in the 200-ZP-1 OU, as defined in the decision document for the 200-ZP-1 OU.	
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 OU groundwater.	No findings, signs have been/will be installed along pipelines (Figures 10 and 11).
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.
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.	No findings, no activities have been implemented that would disrupt/lesson performance of remedy.
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.
DOE shall report on the effectiveness of institutional controls 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 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 institutional controls. 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 institutional controls. In addition to the land transfer notice and discussion provisions above, DOE further agrees to provide EPA with similar notice, within the same time frames, as to federal-to-federal transfer of property. The DOE shall provide a copy of executed deed or transfer assembly to EPA.	No findings, no transfer/sale of land has taken place.
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 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.	

Table 4. Institutional Controls Requirements Listed in Record of Decision Hanford 200 Area 200-ZP-1 OU Superfund Site Benton County, Washington. (2 Sheets).

Institutional Controls Requirement	2014 Status
EPA = U.S. Environmental Protection Agency. MNA = Monitored Natural Attenuation.	

Figure 10. Warning Sign East of 200-ZP-1 Pump and Treat.



Figure 11. Warning Sign at Camden and 22nd.

Table 5. Institutional Controls Requirements Listed in EPA/ROD/R10-93/063 1993 Record of Decision 1100-EM-1, 1100-EM-2, 1100-EM-3, and 1100-IU-1 Operable Units, Explanation of Significant Differences, Horn Rapids Landfill.

Institutional Controls Requirement	2014 Status
Institutional controls are required to prevent human exposure to the landfill soil. DOE is responsible for establishing and maintaining land-use and access restrictions through fencing and signs.	No findings, land use access restriction still in place.
Use of the landfill property or residential housing, elementary and secondary schools, or childcare facilities is prohibited the remedial activity without the lead agency's concurrence.	No findings, no activities have occurred.
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 Ecology and EPA notification at least 6 months prior to any transfer, sale or lease of the landfill property.	No findings.

Table 5. Institutional Controls Requirements Listed in EPA/ROD/R10-93/063 1993 Record of Decision 1100-EM-1, 1100-EM-2, 1100-EM-3, and 1100-IU-1 Operable Units, Explanation of Significant Differences, Horn Rapids Landfill.

Institutional Controls Requirement	2014 Status
DOE = U.S. Department of Energy.	
Ecology = Washington State Department of Ecology.	
EPA = U.S. Environmental Protection Agency.	

**C3.1 2014 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT
WASHINGTON CLOSURE HANFORD**

Basis:

- 100 Area Burial Ground Record of Decision (ROD) and 300 Area ROD require Sitewide Institutional Controls Plan
- Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, Rev. 7):
 - Requires annual institutional controls (IC) effectiveness review
 - Results to be reported in the September Unit Manager Meeting.

Scope of Review:

Evaluation of River Corridor source waste sites:

- Trespass events at RCC waste sites
- Access control/entry restrictions
- Excavation control for active waste sites
- Field inspection of ICs
 - Required roadway signage on entrances to 300 Area Main Complex, 618-10, 100-D, 100-H, 100-N Areas, and active IU-2 waste sites
 - Shoreline signage inspected during August 2014 Columbia River RCRA Inspection.

Results:

- No public trespass events on WCH managed projects
- Badging system (access controls) in place and active
- Approved Excavation Permits in place and up to date for waste sites evaluated
- Warning signs in place at roadway entrances (Figures 1 and 2)
- Shoreline signage: Spanish-language sign at 100-H missing, will be replaced.



Figure C3-1. Typical Roadway Signage at 100-IU-2.



Figure C3-2. Typical Roadway Signage at 300 Area.



Figure C3-3. Typical Roadway Signage at 100-IU-2/F Area.



Figure C3-4. Shoreline Signage – 100-F.



Figure C3-5. Shoreline Signage 100-H.



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 (Table D-1). 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 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 replaced 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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