

Mission Support Alliance  
P.O. Box 650  
Richland, Washington 99352



November 10, 2020

MSA-1105355.9  
CONTRACT NO. DE-AC06-09RL14728

Mr. Timothy E. Corbett, Contracting Officer  
U.S. Department of Energy  
Richland Operations Office  
Procurement Division  
Post Office Box 550  
Richland, Washington 99352

Dear Mr. Corbett:

**CONTRACT DELIVERABLE CD0182, "SITEWIDE ASSESSMENT OF  
INSTITUTIONAL CONTROLS FOR FISCAL YEAR 2020"**

In accordance with MSC Section J.11–Deliverables, attached is contract deliverable CD0182, Sitewide Assessment of Institutional Controls. Today’s submittal constitutes completion of the referenced deliverable.

As required by MSC Section C, Paragraph C.2.3.1.2, “Long Term Stewardship,” MSA has coordinated with CH2M HILL Plateau Remediation Company (CHPRC) and Pacific Northwest National Laboratory (PNNL) to compile the results of the annual assessment of institutional controls.

In 2020, the annual institutional control assessments were conducted by MSA, CHPRC, and PNNL. The MSA report on the assessment of institutional controls on Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) sites is presented in Attachment 1. The CHPRC report on the assessment of institutional controls on CERCLA sites is presented in Attachment 2. The PNNL report on the assessment of institutional controls on CERCLA sites is presented in Attachment 3.

MSA performed the assessment of institutional controls for the land managed by the MSA Long Term Stewardship program. Sitewide, there were nine trespassing incidents reportable to Benton County Sheriff’s office. The incidents are reflected in Attachment 1.

Mr. Timothy E. Corbett  
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Technical questions should be directed to T. Synoground at 376-6790, and contractual questions should be directed to me at 376-0381.

Sincerely,

Robert H. Miller, Director  
Prime Contracts and Program Controls

tat:dlj

Attachments 3

RL –	K. C. Barott-Wolff	CHPRC -	J. E. Bramson	PNNL -	D. L. Edwards
	P. K. Call		R. E. Fox		K. M. McDonald
	M. J. Elsen		J. A. Lerch		S. K. Sanan
	K. E. Lutz		M. T. Schanke		M .J. Stephenson
	S. T. Melling		D. E. Snyder		

**Electronically Approved by:**



UserName: SKELTON MARY (h0096083)

Title:

Date: Tuesday, 10 November 2020, 04:50 PM Pacific Daylight Time

Meaning: Signed per Direction of the MSC President's Office

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# FY 2020 SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT

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**

# FY 2020 SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT

Document Type: RPT

Program/Project: LTS

D. B. Rohlfing  
Mission Support Alliance

Date Published  
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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**  
*By Julia Raymer at 3:45 pm, Dec 22, 2020*

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Release Approval

Date

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**CONTRACT NO. DE-AC06-09RL14728**

**ATTACHMENT 1**

**Contract Deliverable CD0182**

**FY 2020 SITEWIDE INSTITUTIONAL CONTROL  
ASSESSMENT MISSION SUPPORT ALLIANCE**

**HNF-65616, Rev. 0**

Consisting of 152 pages,  
including this cover page

## EXECUTIVE SUMMARY

This annual institutional controls (IC) assessment was conducted by the Mission Support Alliance, LLC (MSA) Long-Term Stewardship (LTS) Program in fiscal year (FY) 2020 as required by DE-AC06-09RL14728, *Mission Support Contract*<sup>1</sup>, and as described in HNF-54166, *Long-Term Stewardship Surveillance and Maintenance Plan*, and DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*. The MSA LTS Program is responsible for assessing the ICs assigned to MSA within the Hanford Site (Site) River Corridor. ICs are designed to be protective of human health and the environment, and are used to protect the integrity of a response action and minimize the potential for exposure to residual contamination. The various types of ICs are outlined in Figure ES-1 and further discussed in Sections 2.0 and 4.0.

MSA currently has 1,764 assigned sites that are documented in the Waste Information Data System. Of these sites, 1,715 are assigned to the MSA LTS Program, 217 of which are waste sites that have ICs; the remaining WIDS sites are assigned to other organizations within MSA. CH2M Hill Plateau Remediation Company (CHPRC) and the Pacific Northwest National Laboratory (PNNL) assess the waste sites and areas for which they are responsible.

The FY2020 IC assessment conclusions can be summarized as follows:

- ICs defined in CERCLA Decision Documents listed in Section 2.0 (which may affect one or more geographic decision areas [GDA]) were found to be in place as required.
- ICs mentioned in decision documents and related to existing Site processes, as described in Section 3.0, were evaluated and observed to be maintained and in compliance.
- ICs at all 217 waste sites assigned to the LTS Program were observed to be in place.



Figure ES-1. Categories and Types of ICs Assessed by the LTS Program.

<sup>1</sup> The *Mission Support Contract*, Attachment J-11, Contract Deliverables, requires CD0182, Site-Wide Assessment of Institutional Controls, which is due annually by November 15.

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- The following repairs to fences and signage were completed within FY 2020 (all other signage and fencing were observed to be in place):
  - Repaired damaged Warning Notices signs in five locations.
  - Approximately 100 “No Trespassing” signs have been fabricated to replace along roads bordering the Hanford site; however, due to COVID-19 pandemic and associated Site limitations they will be replaced along as soon as the team is able to do so.
  - Repaired fencing in seven locations along Route 240.
- Nine trespassing incidents were reported to the Benton County Sheriff’s Office.

The FY 2020 assessment includes results from a Management Assessment completed earlier this year in order to assess signage around the 300 Area Industrial Complex perimeter fence. During the field portion of the assessment, 143 signs were identified, and categorized into 30 different sign types, such as No Trespassing, prohibited articles, worn out signs with old phone numbers, etcetera. The LTS program worked with other contractors in the 300 Area and with MSA’s Physical Security to determine the disposition for each sign. Of the 143 signs, 81 signs (57%) were determined to be relevant and in good condition, 52 (36%) were removed, and 10 (7%) were replaced.

Within the 300 Industrial Area Complex, the LTS Program continues to evaluate stormwater drainage, and inspect temporary surface barriers on and around waste sites that have an IC regarding enhanced recharge. This year, the MSA LTS Program worked with facility owners to improve surface barriers and drainage as necessary by resurfacing deteriorating asphalt around the 325 Building.

The assessments conducted this year also benefited from several process improvements. These included supplementing walk downs with additional vehicular surveys and conducting additional spatial analyses using high-resolution aerial imagery at a majority of the waste sites with ICs. Another process improvement added this year was using software to rectify aerial imagery. This year’s aerial imagery used for spatial analysis was rectified using the Pix4Dmapper<sup>2</sup> photogrammetry software. The software allows for an increase of accuracy and efficiency in turnaround time for spatial analysis.

The LTS Program is continuously looking for ways to improve methods and processes used to assess ICs and waste sites. The LTS Program continues to collaborate with other Hanford Site contractors to support the implementation of ICs. As CERCLA and RCRA decision documents are published, any updates made to ICs are incorporated into the annual assessment program and evaluated to determine if they are maintained and in place as required.

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<sup>2</sup> Pix4Dmapper is a product developed and owned by Pix4D.

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**TERMS**

TERM	Definition
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CHPRC	CH2M Hill Plateau Remediation Company
CLUP	Comprehensive Land Use Plan
CUL	clean up level
DOE	U.S. Department of Energy
ECO	environmental compliance officer
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESSP	East Side Storage Pad
FY	fiscal year
GDA	geographic decision area
GIS	Geographic Information System
HCP	DOE/EIS-0222-F, Final Hanford Comprehensive Land-Use Plan
HGIS	Hanford Geographic Information System
HRD	Horn Rapids Landfill
IC	institutional control
LTS	long-term stewardship
MSA	Mission Support Alliance, LLC
NPL	National Priorities List
OU	operable unit
PNNL	Pacific Northwest National Laboratory
RCRA	Resource Conservation and Recovery Act
RDR/RAWP	remedial design report/remedial action work plan
RI/FS	remedial investigation/feasibility study
ROD	record of decision
RTD	remove, treat, and dispose
SAP	sampling and analysis plan
SIS	Stewardship Information System
SME	subject matter expert
TCE	Trichloroethylene
TPA	Tri-Party Agreement
Tri-Party Agreement	Hanford Federal Facility Agreement and Consent Order
UIC	underground injection control (well)
UMM	unit managers meeting
UPR	unplanned release
UU/UE	unrestricted use/unrestricted exposure
WIDS	Waste Information Data System
WSRF	waste site reclassification form

## 1.0 INTRODUCTION

This document presents the results of the institutional control (IC) assessment conducted by the Mission Support Alliance, LLC (MSA) Long-Term Stewardship (LTS) Program in the Hanford Site (Site) River Corridor during fiscal year (FY) 2020 as required by DE-AC06-09RL14728, *Mission Support Contract*<sup>3</sup>, and as described in HNF-54166, *Long-Term Stewardship Surveillance and Maintenance Plan*, and DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*. ICs may be applicable to individual waste sites, for operable units (OU), or for the entire Site. These ICs are listed in Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) decision documents, as described and consolidated in DOE/RL-2001-41. Specific ICs for some of the individual waste sites also may be defined in their respective waste site reclassification forms (WSRF).

### 1.1 BACKGROUND

The Hanford River Corridor includes approximately 50 miles along the length of the Columbia River, and occupies approximately 220 square miles of the Hanford Site. It includes nine former plutonium production reactors and former fuel fabrication facilities. In 2007, the River Corridor was divided into six geographic areas (see Figure 1-1), commonly referred to herein as geographic decision areas (GDA), to organize the CERCLA remedial investigation/feasibility study (RI/FS) process and support the development of six records of decision (ROD) to define the final remedial actions. Figure 1-2 shows the outlined GDAs of the River Corridor.

ICs are designed to be protective of human health and the environment, and are used to maintain the integrity of a response action and minimize the potential for exposure to residual contamination.

#### River Corridor Geographic Decision Areas

- 100-B/C
- 100-D/H
- 100-F/TU-2/TU-6
- 100-K
- 100-N
- 300

Figure 1-1. Geographic Decision Areas in the 100 and 300 Areas.

<sup>3</sup> The *Mission Support Contract*, Attachment J-11, Contract Deliverables, requires CD0182, Site-Wide Assessment of Institutional Controls, which is due annually by November 15.

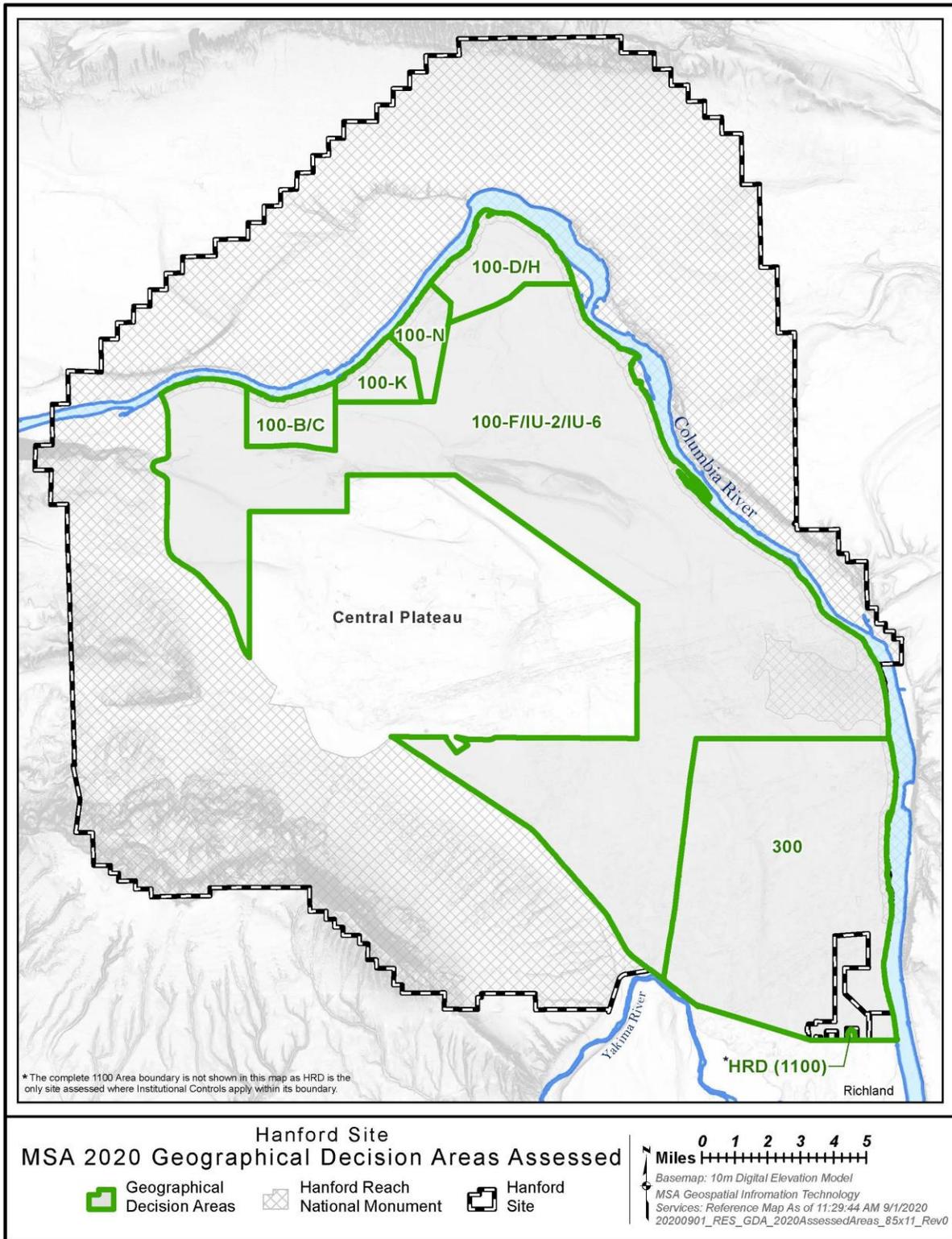


Figure 1-2. Surveillance and Maintenance Geographic Decision Areas.

## 1.2 ORGANIZATION OF THE REPORT

This report is organized into the following sections:

- Section 1.0 presents the purpose and scope of this report. Section 1.0 also discusses the approach and methods used to assess ICs conducted in a manner similar to, and based on the objectives of the assessment conducted in FY 2019, as described in MSA-1105355.8, *2019 Annual Sitewide Institutional Control Assessment Mission Support Alliance*.
- Section 2.0 discusses the ICs that are defined in each CERCLA decision document, along with the observations resulting from the IC assessment. The ICs defined in the decision documents may apply to one or more GDAs and one or more OUs within a GDA.
- Section 3.0 provides an overview of each GDA, including its boundaries, OUs, and associated CERCLA decision documents. It also provides the results and observations regarding waste site-specific ICs and warning notices in each GDA.
- Section 4.0 presents the ICs assigned at a Sitewide-level and the observations made regarding these ICs during the 2020 IC assessment.
- Section 5.0 summarizes the findings and observations of MSA's 2020 IC assessment that are presented in Sections 2.0 through 4.0. Section 5.0 also includes a description of follow-on actions identified during the assessment.

### 1.3 PURPOSE AND SCOPE OF THE REPORT

This report presents the observations and results from the FY 2020 MSA LTS Program IC assessment. There are currently 1,764 WIDS sites assigned to different programs within MSA:

- 1,715 are assigned to the MSA LTS Program:
  - 217 of which are waste sites that have ICs within the 100 and 300 Area GDAs,
  - 1 that is a waste site with ICs in the 1100 Area.
- The remaining 49 WIDS sites are assigned to other organizations within MSA, and do not have ICs.

The MSA LTS Program assesses ICs at waste sites and areas of the Site that have been transitioned into the LTS Program. ICs that apply to other locations are assessed by the responsible Site contractor, such as CHPRC or Pacific Northwest National Laboratory PNNL).

ICs at the Hanford Site are generally divided into categories and then further divided into types (as shown in Figure 1-3) and as described in DOE/RL-2001-41.



Figure 1-3. Categories and Types of Institutional Controls Assessed.

### 1.4 ASSESSMENT APPROACH

The MSA assessment for FY 2020 was conducted in a manner similar to, and based on the objectives of the assessment conducted in FY 2019, as described in MSA-1105355.8, *2019 Annual Sitewide Institutional Control Assessment Mission Support Alliance*. The assessment objectives are designed to align with the IC objectives described in DOE/RL-2001-41. The objectives were used in defining observable methods for assessing the different types of ICs. The objectives also were used to determine which ICs would be evaluated through field verification activities and which would be evaluated through administrative review. The objectives used in this year’s assessment are shown in Table 1-1.

Table 1-1. Objectives for Institutional Controls Assigned to Specific Waste Sites. (3 sheets)

Institutional Control	Performance Objectives
Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m/15 feet)	<ul style="list-style-type: none"> <li>• A sitewide excavation permit process is in place to control excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>

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Table 1-1. Objectives for Institutional Controls Assigned to Specific Waste Sites. (3 sheets)

Institutional Control	Performance Objectives
Prevent uncontrolled drilling or excavations into the shallow zone (above 4.6 m/15 ft)	<ul style="list-style-type: none"> <li>• A sitewide excavation permit process is in place to control excavations.</li> <li>• No unauthorized excavation is observed in the shallow zone.</li> </ul>
Prevent uncontrolled drilling or excavations	<ul style="list-style-type: none"> <li>• A sitewide excavation permit process is in place to control excavations.</li> <li>• No unauthorized excavation is observed.</li> </ul>
Access Controls	<ul style="list-style-type: none"> <li>• Entry to the site is restricted.</li> </ul>
Prohibit irrigation	<ul style="list-style-type: none"> <li>• No periodic or repetitive water or other liquid discharges were requested.</li> <li>• No inadvertent long-term releases were made in the vicinity of the site.</li> <li>• No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation.</li> <li>• No constructed drainage systems that would discharge to the site are observed.</li> <li>• No unauthorized irrigation is observed.</li> </ul>
Prevent an inhalation exposure pathway	<ul style="list-style-type: none"> <li>• No breaching of underground structures (e.g., pipes) is observed.</li> <li>• Access to the system entrances for the underground structures is controlled.</li> </ul>
Prevent mobilization of residual contamination	<ul style="list-style-type: none"> <li>• A sitewide excavation permit process is in place to control excavations.</li> <li>• No unauthorized excavation is observed in the shallow zone</li> <li>• No periodic or repetitive water or other liquid discharges were requested.</li> <li>• No inadvertent long-term releases were made in the vicinity of the site.</li> <li>• No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation.</li> <li>• No constructed drainage systems that would discharge to the site are observed.</li> <li>• No unauthorized irrigation is observed.</li> </ul>
Control access to the Horn Rapids Landfill and maintain the integrity of the cap	<ul style="list-style-type: none"> <li>• Land use and the land use designation for the HRD remains unchanged.</li> <li>• Access is controlled with a perimeter fence for the HRD per <i>Explanation of Significant Differences for the USDOE 1100 Area</i>.<sup>a</sup></li> <li>• Any gates are locked when unattended.</li> <li>• Warning signs are displayed at all entrances and at intervals of 330 feet or less along the property line.</li> <li>• Warning signs include the statement, “Asbestos Waste Disposal Site Breathing Asbestos Dust May Cause Lung Disease and Cancer.”</li> <li>• The integrity of the landfill cap, as described in the 1100 Area Final Closeout Report<sup>b</sup>, is maintained at the HRD.</li> </ul>
Limited to industrial use only	<ul style="list-style-type: none"> <li>• All land use requests in this area are limited to industrial uses only.</li> <li>• No non-industrial uses are observed.</li> </ul>
Notice in Deed	<ul style="list-style-type: none"> <li>• Notices in deed are in place, as required.</li> </ul>
Prevent enhanced recharge control	<ul style="list-style-type: none"> <li>• Potential sources of enhanced recharge (e.g., irrigation, landscape watering) are limited.</li> <li>• Drainage is limited (e.g., stormwater, ground cover).</li> </ul>
Prohibit residential land use	<ul style="list-style-type: none"> <li>• No approved site evaluation and excavation permit requests in this area include residential land uses.</li> <li>• No residential land uses are observed.</li> </ul>

Table 1-1. Objectives for Institutional Controls Assigned to Specific Waste Sites. (3 sheets)

Institutional Control	Performance Objectives
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<sup>a</sup>EPA, 2010a, *Explanation of Significant Differences for the USDOE 1100 Area, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.

<sup>b</sup>DOE, 1996, *Superfund Site Final Closeout Report U.S. Department of Energy Hanford 1100 Area, Richland, Washington*.

HRD = Horn Rapids Landfill.

### 1.4.1 General Assessment Methods

The methods used to complete the assessment were designed to support a consistent, comprehensive and efficient assessment, and include the following elements:

- Reviewed the results of the previous (FY 2019) assessment before commencing the assessment for this fiscal year.
- Used the results of the previous assessment as a baseline to observe changes in conditions to the waste sites. This included gathering geo-tagged photographs, maps of the sites assessed, and other observational elements.
- Identified opportunities to conduct assessments of multiple waste sites at the same time. Two different methods are used to achieve this (Figure 1-4 provides additional details):
  1. Assess waste sites with final RODs that have IC boundaries,
  2. Group waste sites that are co-located with the same IC that do not have IC boundaries defined in interim or final RODs.

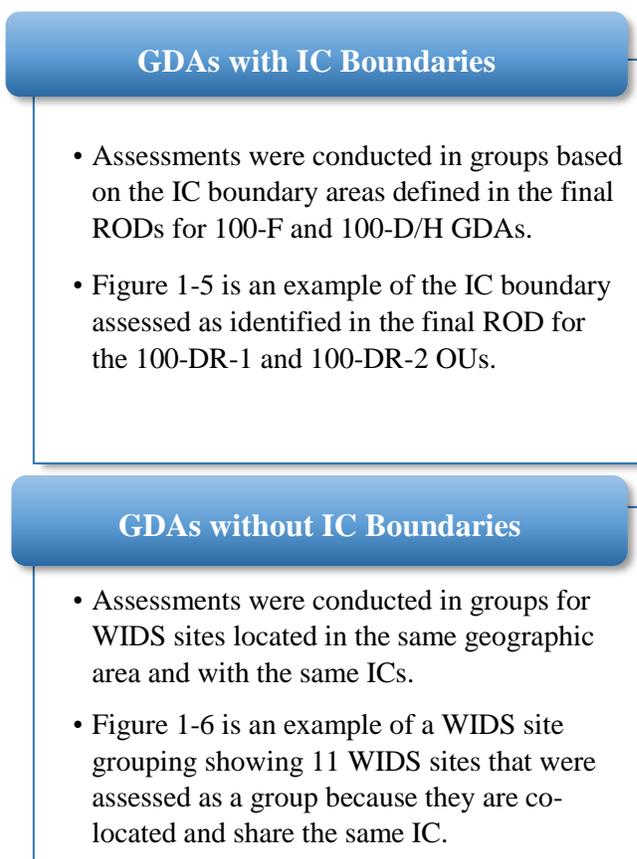


Figure 1-4. Grouping of Waste Sites for Assessments.

- Employed a systematic and graded approach for field verification activities. Field walk downs were conducted in 20 to 30 meter intervals throughout each site. A shorter interval (e.g., 10 to 15 meters) was employed if the terrain differed significantly throughout a waste site. However, depending on the size of the site, the type of topography, and the weather, field walk downs were sometimes supplemented with and/or replaced by vehicular surveys and/or spatial analyses using high-resolution, low-

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altitude aerial imagery. The imagery was used to conduct spatial analyses of waste sites to supplement field verification to identify any major changes in the landscape (e.g., general ground cover gravel, asphalt, vegetation land-use changes, and excavation).

- Assessed signage and access control requirements for ICs at a Sitewide-level and GDAs while conducting site-specific IC assessments. Activities included inspecting the locations and conditions of warning notices at the entrances and river's edge of GDAs, Sitewide fencing, and "No Trespassing" signs.
- For locations with waste site ICs, the LTS Program acquired low-altitude vertical aerial imagery, which was subsequently processed using the Pix4Dmapper software. This imagery was then used to supplement field verification activities (e.g., observations for general ground cover gravel, asphalt, vegetation land-use changes, and excavation).
- Conducted an administrative review for ICs related to existing land-use designations, real estate agreements, and other related Site processes. Sitewide Evaluation Application (SEA) requests issued throughout the FY were used to identify and evaluate permitted land-uses.
- Conducted reviews for Hanford Site excavation permits for FY 2020. Hanford Site excavation permits issued throughout the FY are used to identify any interferences and evaluate permitted excavation and drilling for IC compliance. This process includes a spatial analysis to compare the boundaries of the waste sites with ICs within the boundaries of the excavation permits.
- Worked with other MSA subject matter experts (SME) and contractors on Site to confirm if any activities or occurrences at waste sites with ICs compromised required post-closure clean-up requirements in place in FY 2020. For example, environmental compliance officers (ECO) were queried to report whether any irrigation or discharges took place on waste sites with the no irrigation IC. Similarly, to support the ICs related to land-use management, MSA SMEs were contacted to confirm any land use requests and change in land-use designation at waste sites with land-use restrictions.
- The LTS Program developed a snow pile staging plan in 2017, which is reviewed and communicated each year to 300 Area contractors and facility owners, including MSA's Roads and Maintenance crew where snow piles could be staged to control the drainage of snowmelt. If significant snowfall occurs, the LTS Program personnel opportunistically observe locations of staged snow piles (as a result of plowing roads and parking lots) to confirm the locations are within the parameter of the snow pile staging plan.
- Recorded housekeeping and maintenance issues and responded to imminent safety hazards if needed. Field walk downs provide the opportunity to identify new and track ongoing housekeeping-related issues, such as the presence of invasive and noxious weeds; evidence of burrowing insects and animals that could hinder the effectiveness of the IC; ground subsidence or erosion; maintenance issues regarding site-specific signage; and potential safety hazards. Immediate responses are executed to address any imminent safety hazards. Although these observations typically are not directly related to ICs, they are photographed, mapped, logged, and tracked to support overall land management. These results are communicated to appropriate subject matter experts as necessary.



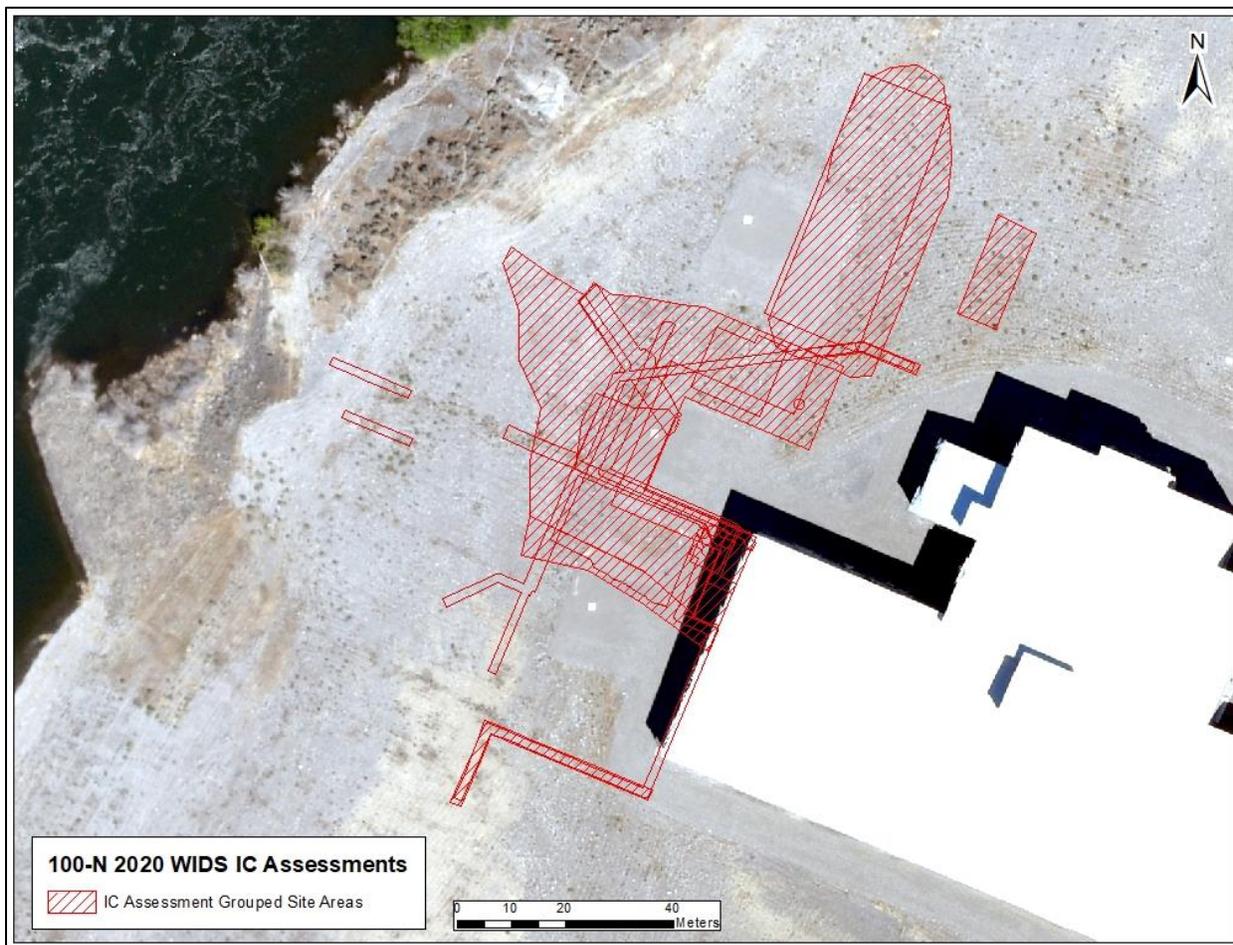


Figure 1-6. Waste sites with similar ICs were grouped together for a single field assessment in the 100-N Geographic Decision Area.

### 1.4.2 Updates Since 2019 Assessment

As described in Section 1.3, the assessment for FY 2020 was conducted in a manner similar to the assessment conducted in FY 2019. FY 2017 was the first year MSA assessed the entire River Corridor.<sup>4</sup> Therefore, the 2020 assessment was the fourth year for MSA to complete the River Corridor IC assessment, and the previous 3 years were used as a baseline to observe changes in waste site conditions. The MSA LTS Program made the following updates and refinements to the assessment process during FY 2020:

- This year's report organization was changed to include discussion on the IC requirements from the decision documents prior to the discussion of the assessment of ICs specific to waste sites and GDAs. While Section 3.0 discusses ICs specific to waste sites and GDAs, Section 2.0 (previously Section 4.0) discusses the ICs defined

<sup>4</sup>The MSA LTS Program does not manage waste sites in areas of the River Corridor areas that were excluded from transition to the MSA LTS Program (such as the areas of ongoing cleanup activities in proximity to the 100K reactors). Any ICs associated with those waste sites are assessed by their responsible contractor.

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in the decision documents that may apply to one or more GDAs and one or more OUs within a GDA.

- With the limited field schedule this year (primarily due to the COVID-19 pandemic and associated Site limitations), a larger percentage of field walk downs were supplemented and/or replaced by vehicular surveys or spatial analyses using high-resolution aerial imagery depending on the size of the site, the type of topography, and the weather.
- Every year, the LTS program collects aerial imagery of the GDAs to support the IC assessment. However, this year's aerial imagery used for spatial analysis was rectified using software called Pix4Dmapper. This software allows for an increase of accuracy and efficiency in turnaround time for spatial analysis. In previous years, aerial imagery has been rectified by hand one photo at a time, with an average of 25-30% overlap. Using this software, the individual photos collected have 60% overlap for added accuracy, and geographic and altitude coordinates associated with them. Once the imagery has been received, it is processed using the Pix4Dmapper software that stitches together the individual images of the specific area so that a mosaic of the GDA can be viewed using mapping software that is available to the end user. Figure 1-7 shows an example of flight pattern displayed during the processing phase using the Pix4Dmapper software. The final mosaic (vertical, high-resolution image) will be seen in a geographically correct manner in relation to other site areas and features.
- The assessment for signage around the 300 Area Industrial perimeter fence incorporated the results of a previously completed management assessment of the signs. Earlier this fiscal year, a management assessment identified outdated, unnecessary, or worn-out signs in the 300 Area and had already removed and/or replaced a number of them. A more detailed discussion can be found in Section 3.6.3.



## 2.0 ASSESSMENT OF INSTITUTIONAL CONTROLS INCLUDED IN DECISION DOCUMENTS

Listed in ascending order by effective date, this section details IC requirements from the decision documents that are mentioned in subsequent sections and includes assessment results from FY 2020. Each decision document listed in this section contains one or more ICs. While Section 3.0 discusses ICs specific to waste sites and GDAs, this section discusses the ICs defined in the decision documents that may apply to one or more GDAs and one or more OUs within a GDA. Each IC was assessed by evaluating current Hanford Site procedures and processes and performing field verification, where applicable.

### 2.1 INTERIM ACTION RECORD OF DECISION FOR 100-BC-1, 100-DR-1, AND 100-HR-1 OPERABLE UNITS

Table 2-1 lists the ICs identified in *Interim Action Record of Decision for 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington* (EPA 1995). These ICs apply to locations in the 100-B/C GDA, which is shown in green in the inset map in the table. The ICs were not evaluated for the 100-DR-1 and 100-HR-1 OUs because this interim action ROD has been superseded by a final ROD for these operable units (see sections 2.10 and 3.2.1); therefore, those operable units are not shown in the inset map.

<p>Table 2-1. Assessment of Institutional Controls Listed in <i>Interim Action Record of Decision for 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units Hanford Site, Benton County, Washington</i> (EPA 1995).</p> 	
Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>Access to the Hanford Site is controlled through barricades and warning notices (see Section 4.1).          Use of the Hanford Site is controlled through the site evaluation and excavation permitting processes.          Construction of new groundwater wells is controlled through the regulatory approval and excavation permitting processes.          The ICs are assessed and reported annually to ensure that they continue to be enforced.</p>

IC = institutional control.

**2.2 INTERIM ACTION RECORD OF DECISION FOR 100-HR-3 AND 100-KR-4 OPERABLE UNITS**

Table 2-2 lists the ICs identified in *Interim Action Record of Decision Hanford 100-HR-3 and 100-KR-4 Operable Units, Hanford Site, Benton County, Washington* (EPA 1996a). These ICs apply to locations in the 100-K GDA, which is shown in green in the inset map in the table. The ICs were not evaluated for the 100-HR-3 OU because this interim action ROD has been superseded by a final ROD for this operable unit (see sections 2.10 and 3.2.1); therefore, the 100-HR-3 operable unit is not shown in the inset map.

<p>Table 2-2. Assessment of Institutional Controls Listed in <i>Interim Action Record of Decision Hanford 100-HR-3 and 100-KR-4 Operable Units, Hanford Site, Benton County, Washington</i> (EPA 1996a).</p> 	
Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>Access to the Hanford Site is controlled through barricades, warning notices, and a badging program (see Section 4.1). DOE/EIS-0222, <i>Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement</i> (HCP EIS), identifies the institutional controls plan as an implementing control for the HCP EIS. DOE/RL-2001-41, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions</i>, Rev. 9, lists the CERCLA decision documents for the remedial actions, along with their associated ICs. Access to groundwater is controlled through the excavation permitting process. Access and use of existing groundwater wells is managed by CHPRC. No activities that would interfere with the remedial activities have been identified. No land was transferred or leased in FY 2020 from the area covered by the ROD.</p>

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980.  
 CLUP = Comprehensive Land Use Plan.

RCRA = Resource Conservation and Recovery Act of 1976.  
 ROD = record of decision.

**2.3 AMENDMENT TO THE INTERIM ACTION RECORD OF DECISION FOR 100-BC-1, 100-DR-1, AND 100-HR-1 OPERABLE UNITS**

Table 2-3 lists the ICs identified in *Amendment to the Interim Action Record of Decision for the 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington* (EPA 1997). These ICs apply to locations in the 100-B/C GDA, which is shown in green in the

inset map in the table. The ICs were not evaluated for the 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, and 100-HR-1 OUs because this interim action ROD amendment has been superseded by a final ROD for these operable units (see sections 2.9, 2.10, 3.2.1, and 3.3.1); therefore, those operable units are not shown in the inset map.

<p>Table 2-3. Assessment of Institutional Controls Listed in <i>Amendment to the Interim Action Record of Decision for the 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington (EPA 1997).</i></p> 	
Institutional Controls Requirement	Institutional Control Status
<i>Institutional controls and long-term monitoring will be required for sites where wastes are left in place.</i>	ICs have been applied to the individual WIDS sites with waste left in place. Each WIDS site with an IC was assessed in FY 2020. No excavation into the deep zone occurred during the assessment period at these locations.

FY = fiscal year.

IC = institutional control.

WIDS = Waste Information Data System.

**2.4 INTERIM ACTION RECORD OF DECISION FOR THE 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**

Table 2-4 lists the ICs identified in *Interim Action Record of Decision for the 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 (100 Area Remaining Sites ROD) (EPA 1999a)*. These ICs apply to locations in the 100-B/C and 100-K GDAs, which are shown in green in the inset map in the table. The ICs were not evaluated for the 100-DR-1, 100-DR-2, 100-FR-1, 100-FR-2, 100-HR-1, 100-HR-2, 100-IU-2, and 100-IU-6 OUs because this interim action ROD has been superseded by a final ROD for those operable units (see sections 2.9, 2.10, 3.2.1, and 3.3.1); therefore, those operable units are not shown in the inset map.

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<p>Table 2-4. Assessment of Institutional Controls Listed in <i>Interim Action Record of Decision for the 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, (100 Area Remaining Sites ROD) (EPA 1999a).</i></p>	
Institutional Controls Requirement	Institutional Controls Status
<i>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.</i>	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.
<i>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.</i>	The DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i> .
<i>DOE will maintain existing signs prohibiting public access.</i>	The signage (see sections 3.1.3 and 3.4.3) and the access controls (see Section 4.1) are in place and are being maintained.
<i>DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents.</i>	DOE transmits copies of the annual IC assessment report to EPA and Ecology. The assessment includes a report on the trespassing incidents.
<i>Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.</i>	Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 4.2).
<i>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.</i>	No land was transferred or leased from the area covered by the ROD in FY 2020.
<i>Until final remedy selection, DOE shall not delete or terminate any IC requirement established in this Interim Action ROD unless EPA and Ecology have provided written concurrence on the deletion or termination and appropriate documentation has been placed in the Administrative Record.</i>	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2020.
<i>DOE will evaluate the implementation and effectiveness of ICs for the 100 Area operable units on an annual basis. DOE shall submit a report to EPA and Ecology by March 30 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the IC requirements continue to be met and a description of any deficiencies discovered and measures taken to correct problems.</i>	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the UMM.



DOE = U.S. Department of Energy.  
 Ecology = Washington State Department of Ecology.  
 EPA = U.S. Environmental Protection Agency.  
 FY = fiscal year.  
 IC = institutional control.

LTS = long-term stewardship.  
 MSA = Mission Support Alliance, LLC.  
 ROD = record of decision.  
 UMM = unit managers meeting.

## 2.5 INTERIM ACTION RECORD OF DECISION FOR 100-NR-1 AND 100-NR-2 OPERABLE UNITS

Table 2-5 lists the ICs identified in *Interim Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units, Hanford Site 100 Area, Benton County, Washington* (EPA 1999b). These ICs apply to locations in the 100-N GDA, which is shown in green in the inset map in the table.

<p>Table 2-5. Assessment of Institutional Controls Listed in <i>Interim Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units, Hanford Site 100 Area, Benton County, Washington</i> (EPA 1999b). (2 sheets)</p> 	
Institutional Controls Requirement	Institutional Controls Status
<i>DOE will continue to use a badging program to control access to the sites associated with this ROD for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times.</i>	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.
<i>DOE will use the onsite excavation permit process to control well drilling and excavation of soil within the 100 Area OUs to prohibit any drilling or excavation except as approved by Ecology.</i>	The DOE excavation permit program, as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i> , is in place.
<i>DOE will maintain existing signs prohibiting public access.</i>	The signage (see Section 3.5.3) and the access controls (see Section 4.1) are in place and are being maintained.
<i>DOE will provide notification to Ecology upon discovery of any trespass incidents.</i>	DOE transmits copies of the annual IC assessment report to EPA and Ecology. The assessment includes a report on the trespassing incidents.
<i>Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.</i>	Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 4.2).
<i>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.</i>	No land was transferred or leased from the area covered by the ROD in FY 2020.
<i>Until final remedy selection, DOE shall not delete or terminate any IC requirements 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.</i>	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2020.

<p>Table 2-5. Assessment of Institutional Controls Listed in <i>Interim Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units, Hanford Site 100 Area, Benton County, Washington</i> (EPA 1999b). (2 sheets)</p>	
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Institutional Controls Requirement	Institutional Controls Status
<p><i>DOE will evaluate the implementation and effectiveness of ICs for the 100-NR-1 and 100-NR-2 OUs on an annual basis. DOE shall submit a report to Ecology by July 31 of each year summarizing the results of the evaluation for the preceding calendar year. At a minimum, the report shall contain an evaluation of whether or not the IC requirements continue to be met, a description of any deficiencies discovered, and measures taken to correct problems.</i></p>	<p>DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the UMM.</p>

DOE = U.S. Department of Energy.  
 FY = fiscal year.  
 IC = institutional control.  
 MSA = Mission Support Alliance, LLC.

OU = operable unit.  
 ROD = record of decision.  
 UMM = unit managers meeting.

## 2.6 INTERIM ACTION RECORD OF DECISION FOR 100-NR-1 OPERABLE UNIT (TSD)

Table 2-6 lists the ICs identified in *Interim Action Record of Decision for the DOE Hanford 100-NR-1 Operable Unit (TSD), Hanford Site, Benton County, Washington* (EPA 2000a). These ICs apply to locations in the 100-N GDA, which is shown in green in the inset map in the table.

<p>Table 2-6. Assessment of Institutional Controls Listed in <i>Interim Action Record of Decision for the DOE Hanford 100-NR-1 Operable Unit (TSD), Hanford Site, Benton County, Washington</i> (EPA 2000a). (2 sheets)</p>	
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Institutional Controls Requirement	Institutional Controls Status
<p><i>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.</i></p>	<p>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.</p>
<p><i>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.</i></p>	<p>The DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i>.</p>

Table 2-6. Assessment of Institutional Controls Listed in *Interim Action Record of Decision for the DOE Hanford 100-NR-1 Operable Unit (TSD), Hanford Site, Benton County, Washington (EPA 2000a)*.  
 (2 sheets)



Institutional Controls Requirement	Institutional Controls Status
<i>DOE will maintain existing signs prohibiting public access.</i>	The signage (see Section 3.5.3) and the access controls (see Section 4.1) are in place and are being maintained.
<i>DOE will provide notification to Ecology upon discovery of any trespass incidents.</i>	DOE transmits copies of the annual IC assessment report to EPA and Ecology. The assessment includes a report on the trespassing incidents.
<i>Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.</i>	Trespassing incidents are reported to the Benton County Sherriff's Office (see Section 4.2).
<i>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.</i>	No land was transferred or leased from the area covered by the ROD in FY 2020.
<i>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.</i>	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2020.
<i>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.</i>	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the UMM.

DOE = U.S. Department of Energy.  
 EPA= Environmental Protection Agency.  
 IC = institutional control.

MSA= Mission Support Alliance, LLC.  
 ROD = record of decision.  
 UMM = unit managers meeting.

**2.7 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 2-7 lists the ICs identified in *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)* (EPA 2000b). These ICs apply to locations within the 100-B/C and 100-K GDAs, which are shown in green in the inset map in the table. These ICs were not evaluated for the 100-DR-1, 100-DR-2, 100-FR-2, and 100-HR-2 OUs

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because this interim action ROD has been superseded by a final ROD for those OUs (see sections 2.9, 2.10, 3.2.1, and 3.3.1); therefore, these OUs are not shown in the inset map.

<p>Table 2-7. Assessment of Institutional Controls listed in <i>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)</i> (EPA 2000b). (4 sheets)</p>	
Institutional Controls Requirement	Institutional Controls Status
<i>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.</i>	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.
<i>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.</i>	The DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i> . This program prevents unauthorized well drilling. Groundwater use is managed by CHPRC.
<i>No intrusive work is allowed on or near the waste sites covered in this ROD without prior approval of EPA or Ecology.</i>	Interim remedial actions have been completed for the sites covered in this ROD. Intrusive work near waste sites with excavation/drilling ICs is controlled by the excavation permit process.
<i>DOE shall maintain signs that warn river users of potential hazards along the shoreline from 100 Area waste sites.</i>	The signage is in place and being maintained (see sections 3.1.3 and 3.4.3).
<i>DOE shall post and maintain in good condition "No Trespassing" signs along the 100 Area shoreline.</i>	The "No Trespassing" signs are in place and being maintained (see Section 4.1).
<i>DOE shall maintain signs along access roads that warn Site visitors and workers of potential hazards from 100 Area waste sites.</i>	The signage is in place and being maintained (see sections 3.1.3 and 3.4.3).
<i>DOE shall report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.</i>	Trespassing incidents are reported to the Benton County Sheriff's Office, (see Section 4.2).



Table 2-7. Assessment of Institutional Controls listed in *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) (EPA 2000b)*. (4 sheets)



Institutional Controls Requirement	Institutional Controls Status
<p><i>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:</i></p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>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.</i></p> <p><i>Include a tracking mechanism that identifies all land areas under restriction or control.</i></p> <p><i>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.</i></p>	<p><i>DOE/RL-2001-41, Sitewide Institutional Controls Plan For Hanford CERCLA Response Actions, Rev. 0 was published in 2002. It is revised within 180 days of the publication of a decision document that specifies ICs. Rev. 9, the current version of DOE/RL-2001-41, Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions, was published February 6, 2019.</i></p>
<p><i>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.</i></p>	<p><i>No activities inconsistent with the OU-specific ICs have been discovered. There were no changes in land use/designations in the 100 Areas in FY 2020.</i></p>

Table 2-7. Assessment of Institutional Controls listed in *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) (EPA 2000b)*. (4 sheets)



Institutional Controls Requirement	Institutional Controls Status
<i>DOE will identify a point of contact for implementing, maintaining, and monitoring ICs for the 100 Area, as well as for the Hanford Site.</i>	DOE has a person responsible for maintaining and monitoring ICs in the 100 Areas.
<i>DOE will comply with TPA requirements to request and obtain funding to institute and maintain ICs as a compliance requirement under the TPA. NOTE: This is an existing TPA requirement.</i>	Funding is requested for maintaining and monitoring ICs through the DOE Long-Term Stewardship Program.
<i>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.</i>	No land has been transferred or leased from the area covered by the ROD in FY 2020.
<i>DOE will not delete or terminate any ICs unless EPA and Ecology have concurred in the deletion or termination.</i>	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2020.
<i>DOE will evaluate the implementation and effectiveness of ICs for the Hanford Site and the 100 Area OUs on an annual basis. The annual IC 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 IC 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 IC monitoring report, at a minimum, must contain the following: A description of how DOE is meeting the Sitewide IC 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.</i>	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the UMM.

<p>Table 2-7. Assessment of Institutional Controls listed in <i>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)</i> (EPA 2000b). (4 sheets)</p>		
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Institutional Controls Requirement	Institutional Controls Status
<i>EPA and Ecology review of the IC monitoring report will follow existing procedures for agency review of primary documents.</i>	This requirement is the responsibility of the EPA and Ecology.

CHPRC = CH2M HILL Plateau Remediation Company.  
DOE = U.S. Department of Energy.  
Ecology = Washington State Department of Ecology.  
EPA = U.S. Environmental Protection Agency.  
IC = institutional control.

OU = operable unit.  
ROD = record of decision.  
TPA = *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement).  
UMM = unit managers meeting.

## 2.8 EXPLANATION OF SIGNIFICANT DIFFERENCES FOR THE 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)

Table 2-8 lists the ICs identified 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), Hanford Site, Benton County, Washington* (EPA 2007). These ICs apply to locations within the 100-B/C and 100-K GDAs, which are shown in green in the inset map in the table. These ICs were not evaluated for the 100-DR-1, 100-DR-2, 100-FR-2, and 100-HR-2 OUs, because this interim action ROD ESD has been superseded by a final ROD for those OUs (see sections 2.9, 2.10, 3.2.1, and 3.3.1); therefore, these OUs are not shown in the inset map.

<p>Table 2-8. Assessment of Institutional Controls Listed in <i>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), Hanford Site, Benton County, Washington</i> (EPA 2007). (2 sheets).</p>		
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Institutional Controls Requirement	Institutional Controls Status
<i>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.</i>	The effectiveness of the ICs is evaluated every 5 years and published in the CERCLA 5-Year Review Report. The most recent report (2011 – 2015) can be found in DOE/RL-2016-01, <i>Hanford Site Fourth CERCLA Five-Year Review Report</i> .

Table 2-8. Assessment of Institutional Controls Listed in *Explanation of Significant Differences for the 100 Area Interim Action Record of Decision for 100-BC-1, 100-BC-2, 100-DR-1, 100-DR-2, 100-FR-2, 100-HR-2, and 100-KR-2 Operable Units (100 Area Burial Grounds), Hanford Site, Benton County, Washington (EPA 2007).* (2 sheets).



Institutional Controls Requirement	Institutional Controls Status
<i>Institutional controls are required to be maintained in accordance with both the Burial Ground Record of Decision and the Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions (DOE/RL-2001-41, as amended [current version]).</i>	The ICs are maintained as required by DOE/RL-2001-41, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions</i> , Rev. 9.

CERCLA= *Comprehensive Environmental Response, Compensation, and Liability Act of 1980.*  
DOE = U.S. Department of Energy.

IC = institutional control.

## 2.9 RECORD OF DECISION HANFORD 100 AREA SUPERFUND SITE 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2 AND 100-IU-6 OPERABLE UNITS

Table 2-9 lists the ICs identified in *Record of Decision Hanford 100 Area Superfund Site 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2 and 100-IU-6 Operable Units* (EPA 2014). These ICs apply to locations in the 100-F/IU-2/IU-6 GDA, which is shown in green in the inset map in the table.

Table 2-9. Assessment of Institutional Controls Listed in *Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6* (EPA 2014). (4 sheets)



Institutional Controls Requirement	Institutional Control Status
<i>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.</i>	ICs required to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure are in place.

Table 2-9. Assessment of Institutional Controls Listed in Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6 (EPA 2014). (4 sheets)



Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>The Sitewide Institutional Control Plan was revised within 180 days and submitted to EPA and Ecology for review and approval. The approved plan was published as DOE/RL-2001-41, Rev. 8, in March 2015. The current version, Rev. 9, was published in February 2019.</p>
<p><i>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.</i></p>	<p>No land was transferred from the area covered by the ROD in FY 2020.</p>
<p><i>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.</i></p>	<p>Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 4.2).</p>
<p><i>Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.</i></p>	<p>No activities that would disrupt or lessen the performance of any remedy component have taken place.</p>
<p><i>Signage and access control to waste sites with contamination above cleanup levels will be provided.</i></p>	<p>The signage (see Section 3.3.3) and the access controls (see Section 4.1) are in place and are being maintained.</p>
<p><i>Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells.</i></p>	<p>Any potential impacts to remedial or monitoring systems are reviewed through the site evaluation and site excavation permit processes. CHPRC maintains the integrity of the monitoring wells.</p>
<p><i>Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds until cleanup levels are met.</i></p>	<p>No development or use for residential purposes in the area covered by this ROD occurred in FY 2020.</p>
<p><i>DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.</i></p>	<p>The DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i>.</p>
<p><i>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.</i></p>	<p>DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the UMM.</p>

Table 2-9. Assessment of Institutional Controls Listed in *Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6* (EPA 2014). (4 sheets)



Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>No land was transferred from the area covered by the ROD in FY 2020.</p>
<p><i>DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.</i></p>	<p>No activities inconsistent with the ICs have been discovered.</p>
<p><b>Institutional Controls Component Unique to 100-FR-1 and 100-FR-2 Operable Units</b></p>	
<p><i>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.</i></p>	<p>These ICs are assigned to individual WIDS sites with deep zone contamination. The deep zone ICs for these WIDS sites are maintained by DOE. See Section 3.3.2 for more information.</p>
<p><i>Prohibit irrigation over or near waste site 116-F-14 that represents an unacceptable surface water protection risk.</i></p>	<p>The irrigation restriction at the 116-F-14 site remains in place. No irrigation activities occurred at the site in FY 2020. Refer to Section 3.3.2 for more information.</p>
<p><b>Institutional Controls Component Unique to 100-FR-3 Operable Unit</b></p>	
<p><i>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).</i></p>	<p>DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i>. Excavation at the locations with ICs is controlled by the excavation permitting process.</p>

<p>Table 2-9. Assessment of Institutional Controls Listed in <i>Record of Decision for 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2, and 100-IU-6</i> (EPA 2014). (4 sheets)</p> 	
Institutional Controls Requirement	Institutional Control Status
<p><i>Prevent access or use of the groundwater for drinking water purposes until cleanup levels are met.</i></p>	<p>Access to groundwater is controlled through the excavation permitting process. Access and use of existing groundwater wells is managed by CHPRC.</p>

bgs = below ground surface.

CHPRC= CH2M HILL Plateau Remediation Company.

CUL = cleanup level.

DOE = U.S. Department of Energy.

IC = institutional control.

OU = operable unit.

ROD = record of decision.

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

UMM = unit managers meeting.

## 2.10 RECORD OF DECISION HANFORD 100 AREA SUPERFUND SITE 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, AND 100-HR-3 OPERABLE UNITS

Table 2-10 lists the ICs identified in *Record of Decision Hanford 100 Area Superfund Site 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units* (EPA 2018). These ICs apply to locations in the 100-D/H GDA, which is shown in green in the inset map in the table.

<p>Table 2-10. Assessment of Institutional Controls Listed in <i>Record of Decision for 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units</i> (EPA 2018). (4 sheets)</p> 	
Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>ICs required to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure are in place.</p>

Table 2-10. Assessment of Institutional Controls Listed in Record of Decision for 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units (EPA 2018). (4 sheets)



Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>The Sitewide Institutional Control Plan was revised within 180 days and submitted to EPA and Ecology for review and approval. The approved plan was published as DOE/RL-2001-41, Rev. 9, in February 2019.</p>
<p><i>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.</i></p>	<p>No land was transferred from the area covered by the ROD in FY 2020.</p>
<p><i>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.</i></p>	<p>Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 4.2).</p>
<p><i>Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.</i></p>	<p>No activities that would disrupt or lessen the performance of any remedy component have taken place.</p>
<p><i>Signage and access control to waste sites with contamination above cleanup levels will be provided.</i></p>	<p>The signage (see Section 3.2.3) and the access controls (see Section 4.1) are in place and are being maintained.</p>
<p><i>Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells.</i></p>	<p>Any potential impacts to remedial or monitoring systems are reviewed through the site evaluation and site excavation permit processes. CHPRC maintains the integrity of the monitoring wells.</p>
<p><i>Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds until cleanup levels are met.</i></p>	<p>No development or use for residential purposes in the area covered by this ROD occurred in FY 2020.</p>
<p><i>DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.</i></p>	<p>The DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i>.</p>
<p><i>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.</i></p>	<p>DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the UMM.</p>

Table 2-10. Assessment of Institutional Controls Listed in Record of Decision for 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units (EPA 2018). (4 sheets)



Institutional Controls Requirement	Institutional Control Status
<p><i>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.</i></p>	<p>No land was transferred from the area covered by the ROD in FY 2020.</p>
<p><i>DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.</i></p>	<p>No activities inconsistent with the ICs have been discovered.</p>
<b>Institutional Controls Component Unique to 100-HR-3</b>	
<p><i>DOE shall employ and maintain an excavation permit program limiting 100-HR-3 groundwater access and use to research purposes and for monitoring and treatment in areas where groundwater is above cleanup levels.</i></p>	<p>DOE excavation permit program is in place as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i>. Excavation at the locations with ICs is controlled by the excavation permitting process.</p>
<p><i>Prevent access or use of the groundwater for drinking water purposes until cleanup levels are met.</i></p>	<p>Access to groundwater is controlled through the excavation permitting process. Access and use of existing groundwater wells is managed by CHPRC.</p>
<b>Institutional Controls (deep zone) at Waste Sites in 100-DR-1, 100-DR-2, and 100-HR-1</b>	
<p><i>ICs in the form of excavation restrictions are required for the 35 ICs (deep zone) waste sites to control access to residual contamination in soil below 4.6 m (15 ft) bgs that is above standards for UU/UE. Exposure to contamination deeper than 4.6 m (15 ft) bgs is not anticipated, however, ICs restricting excavation are required to ensure future activities do not bring contamination to the surface or otherwise result in exposure to contaminant concentrations that are above standards for UU/UE. These ICs will be maintained until the concentrations of hazardous substances are at such levels to allow for UU/UE and EPA or Ecology authorizes the removal of restrictions.</i></p>	<p>The deep zone ICs for these WIDS sites are maintained by DOE. See Section 3.2.2 for more information.</p>
<b>Institutional Controls (shallow zone) at waste sites in 100-DR-1, 100-DR-2, 100-HR-1, and 100-HR-2</b>	

Table 2-10. Assessment of Institutional Controls Listed in *Record of Decision for 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units (EPA 2018)*. (4 sheets)



Institutional Controls Requirement	Institutional Control Status
<p><i>ICs to control access, use, and to restrict excavation are required for the 8 shallow zone radiologically contaminated waste sites that exceed cleanup levels. The ICs to control access to residual contamination in soil above 4.6 m (15 ft) bgs and restricting excavation are required to ensure future activities do not bring contamination to the surface or otherwise result in exposure to contaminant concentrations that exceed the cleanup levels identified in Table 4 [of the Record of Decision for 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units]. These ICs will be maintained until cleanup levels are achieved and the concentrations of hazardous substances are at such levels to allow for UU/UE and EPA or Ecology authorizes the removal of restrictions.</i></p>	<p>The shallow zone ICs for these WIDS sites are maintained by DOE. See Section 3.2.2 for more information.</p>

bgs = below ground surface.  
 CHPRC= CH2M HILL Plateau Remediation Company.  
 DOE = U.S. Department of Energy.  
 EPA = U.S. Environmental Protection Agency.  
 FY = fiscal year.

IC = institutional control.  
 ROD = record of decision.  
 UMM = unit managers meeting.  
 UU/UE= unrestricted use/unrestricted exposure.  
 WIDS =Waste Information Data System.

**2.11 RECORD OF DECISION FOR THE 300-FF-1 AND 300-FF-5 OPERABLE UNITS**

Table 2-11 lists the ICs identified in *Record of Decision for the 300-FF-1 and 300-FF-5 Operable Units, Hanford Site, Benton County, Washington, (EPA 1996b)*. These ICs apply to locations within the 300 GDA, which is shown in green in the inset map in the table.

Table 2-11. Assessment of Institutional Controls Listed in *Record of Decision for the 300-FF-1 and 300-FF-5 Operable Units, Hanford Site, Benton County, Washington* (EPA 1996b).



Institutional Controls Requirement	Institutional Controls Status
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.	Access to groundwater is controlled through the excavation permitting process. Access and use of groundwater wells is managed by CHPRC. Land-use requests for the Hanford Site are managed in accordance with the DOE/EIS-0222, <i>Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement (HCP EIS)</i> . Access to the 300 Area is controlled by signage and/or fences (see sections 3.6.3 and 4.1).
<i>ICs include placing written notification of the remedial action in the facility land-use master plan.</i>	The HCP EIS identifies the institutional controls plan as an implementing control for the HCP EIS. The institutional controls plan, DOE/RL-2001-41, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions</i> , Rev. 9, lists the CERCLA decision documents for the remedial actions, along with their associated ICs.
<i>DOE will prohibit any activities that would interfere with the remedial activity without EPA concurrence.</i>	No activities that interfere with the remedial activity have been identified.
<i>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.</i>	No land was transferred or leased from the area covered by the ROD in FY 2020.

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

DOE = U.S. Department of Energy.

EPA = U.S. Environmental Protection Agency.

FY = fiscal year.

IC = institutional control.

HCP EIS = *Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement.*

MSA = Mission Support Alliance, LLC.

ROD = record of decision.

UMM = unit managers meeting.

## 2.12 HANFORD SITE 300 AREA RECORD OF DECISION FOR 300-FF-2 AND 300-FF-5, AND RECORD OF DECISION AMENDMENT FOR 300-FF-1

Table 2-12 lists the ICs identified in *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 2013b). These ICs apply to locations within the 300 GDA, which is shown in green in the inset map in the table.

Table 2-12. Assessment of Institutional Controls Listed in *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 2013b).  
(3 sheets)



Institutional Controls Requirement	Institutional Controls Status
<i>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.</i>	ICs required to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure are in place.
<i>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.</i>	The Sitewide Institutional Control Plan was revised within 180 days and submitted to EPA and Ecology for review and approval. The approved plan was published as DOE/RL-2001-41, Rev. 7, in May 2014. The current version, Rev. 9, was published in February 2019.
<i>Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.</i>	No activities that would disrupt or lessen the performance of any remedy component have taken place.
<i>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.</i>	No land was transferred out of federal ownership from the area covered by the ROD in FY 2020.
<i>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.</i>	Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 4.2).
<i>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.</i>	DOE conducts an annual assessment on the implementation and effectiveness of the ICs, which is reported every September at the UMM.
<i>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.</i>	Land-use requests for the Hanford Site are managed in accordance with DOE/EIS-0222, <i>Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement</i> (HCP EIS). Use of the Hanford Site is controlled through the site evaluation and excavation permitting processes. DOE/RL-2001-41, <i>Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions</i> , Rev. 9, maintains the list of ICs.

Table 2-12. Assessment of Institutional Controls Listed in *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 2013b).  
 (3 sheets)



Institutional Controls Requirement	Institutional Controls Status
<p><i>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.</i></p>	<p>No land was leased or transferred from the area covered by the ROD in FY 2020.</p>
<p><i>DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.</i></p>	<p>No activities inconsistent with the ICs have been discovered.</p>
<p><i>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.</i></p>	<p>Excavation at the locations with deep-zone ICs is controlled by the excavation permitting process. Each WIDS site with this IC was assessed in FY 2020. See Section 3.6.2 for more information.</p>
<p><i>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.</i></p>	<p>Land-use requests for the Hanford Site are managed in accordance with DOE/EIS-0222, <i>Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement</i> (HCP EIS). All site evaluation requests for the 300 Area in FY 2020 were consistent with industrial land uses.</p>
<p><i>Signage and access control to waste sites with contamination above CULs will be provided.</i></p>	<p>The signage (see Section 3.6.3) and the access controls (see Section 4.1) are in place and are being maintained.</p>
<p><i>DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.</i></p>	<p>The DOE excavation permit program, as defined in DOE-0344, <i>Hanford Site Excavating, Trenching and Shoring Procedure</i>, is in place.</p>

Table 2-12. Assessment of Institutional Controls Listed in *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 2013b).  
 (3 sheets)



Institutional Controls Requirement	Institutional Controls Status
<p><i>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.</i></p>	<p>Enhanced recharge has been evaluated for the individual waste sites with soil concentrations above the specified CULs. Drainage and potential sources of enhanced recharge (e.g., irrigation, landscape watering) are controlled.</p>
<p><i>Administrative controls limiting 300-FF-5 groundwater access and use in a manner that is protective of human health where groundwater is above CULs.</i></p>	<p>Access to groundwater is controlled through the excavation permitting process. Access and use of groundwater wells is managed by CHPRC.</p>

CHPRC = CH2M HILL Plateau Remediation Company.  
 CUL = clean up level.  
 DOE = U.S. Department of Energy.

EPA = U.S. Environmental Protection Agency.  
 FY = fiscal year.

IC = institutional control.  
 MSA = Mission Support Alliance, LLC  
 RDR/RAWP = remedial design report/remedial action work  
 SAP = sampling and analysis plan.  
 UMM =unit managers meeting.

**2.13 RECORD OF DECISION FOR THE USDOE HANFORD 1100 AREA**

The ICs identified in *Record of Decision for the USDOE Hanford 1100 Area* (EPA, 1993) are listed in Table 2-13. The only portion of these operable units where ICs still apply is the HRD site, which is shown in green in the inset map in Table 2-13.

Table 2-13. Assessment of Institutional Controls Listed in <i>Record of Decision for the USDOE Hanford 1100 Area</i> (EPA 1993). 	
Institutional Controls Requirement	Institutional Controls Status
<p><i>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.</i></p>	<p>The groundwater remedial action objectives have been attained. TCE concentrations have met cleanup goals in all three 1100-EM-1 compliance wells since 2001. Data from 13 years of subsequent sampling confirm that concentrations are stable at levels well below the cleanup goal. No further groundwater monitoring is needed for 1100-EM-1 (TPA-CN-679, “TPA Change Notice for PNNL-12220, Sampling and Analysis Plan Update for Groundwater Monitoring 1100-EM-1”).</p>
<p><i>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.</i></p>	<p>The Notice in Deed was recorded by the Benton County Auditor in April 1997 (Benton County Notice in Deed for Horn Rapids Landfill-Notice in Deed recorded date by Benton County Auditor April 18, 1997; File No. 1997-008784).</p>

TCE = Trichloroethylene.

## 2.14 SUPERFUND SITE FINAL CLOSEOUT REPORT, U.S. DEPARTMENT OF ENERGY HANFORD 1100 AREA

Table 2-14 lists the ICs identified in *Superfund Site Final Closeout Report, U.S. Department of Energy Hanford 1100 Area, Richland, Washington* (DOE 1996). These ICs apply to the HRD site, which is shown in green in the inset map in the table.

Table 2-14. Assessment of Institutional Controls Listed in *Superfund Site Final Closeout Report, U.S. Department of Energy Hanford 1100 Area, Richland, Washington* (DOE 1996).



Institutional Controls Requirement	Institutional Controls Status
<i>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.</i>	The integrity of the cap and fencing at the Horn Rapids Landfill is inspected on an annual basis.
<i>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.</i>	Groundwater monitoring for the Horn Rapids Landfill has been discontinued. TCE concentrations have met cleanup goals in all three 1100-EM-1 compliance wells since 2001. Data from 13 years of subsequent sampling confirm that concentrations are stable at levels well below the cleanup goal. No further groundwater monitoring is needed for 1100-EM-1 (TPA-CN-679, “TPA Change Notice for PNNL-12220, Sampling and Analysis Plan Update for Groundwater Monitoring 1100-EM-1”).

TCE = trichloroethylene.

**2.15 EXPLANATION OF SIGNIFICANT DIFFERENCES, USDOE HANFORD 1100 AREA**

Table 2-15 lists the ICs identified in *Explanation of Significant Differences, USDOE Hanford 1100 Area, Hanford Site, Benton County, Washington* (EPA 2010a). These ICs apply to the HRD site, which is shown in green in the inset map in the table.

Table 2-15. Assessment of Institutional Controls Listed in *Explanation of Significant Differences, USDOE Hanford 1100 Area, Hanford Site, Benton County, Washington (EPA 2010a).*



Institutional Controls Requirement	Institutional Controls Status
<i>DOE is responsible for implementing, maintaining, reporting on, and enforcing the IC and land use control. Although DOE may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, DOE shall retain ultimate responsibility for remedy integrity and ICs in perpetuity.</i>	DOE currently maintains ownership of the Horn Rapids Landfill and all associated responsibilities.
<i>DOE shall comply with the Sitewide Institutional Controls Plan as approved by EPA and Ecology.</i>	The ICs are maintained as required by DOE/RL-2001-41, <i>Sitewide Institutional Control Plan</i> , Rev. 9, approved by EPA and Ecology.
<i>DOE will control access to the landfill property, including maintaining the fencing and signs, to prevent disturbance of the landfill contents. The ICs are required to be maintained at the fenced area, which is shown in Figure A4-1.</i>	Access to the landfill is controlled. The fencing and signs are assessed on an annual basis (see Section 3.7.3). The ICs continue to be maintained at the fenced area.
<i>DOE will prevent the development and use of the landfill property for residential housing, elementary and secondary schools, or childcare facilities.</i>	Land-use requests for the Hanford Site are managed in accordance with DOE/EIS-0222, <i>Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement (HCP EIS)</i> . No development or use for residential purposes in the landfill property occurred in FY 2020.
<i>DOE will provide notice to EPA and Ecology at least 6 months prior to any transfer, sale, or lease of the landfill property so that EPA and Ecology can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective ICs. For example, if the landfill is transferred to a private entity, one such mechanism may be a restrictive covenant under the Washington Uniform Environmental Covenant Act (RCW 64.70). If it is not possible for DOE to notify EPA and Ecology at least 6 months prior to any transfer or sale, then the DOE will notify EPA and Ecology as soon as possible but no later than 60 days prior to the transfer or sale of any property subject to ICs. In addition to the land transfer notice and discussion provisions above, the DOE further agrees to provide EPA and Ecology with similar notice, within the same time frames, as to federal-to-federal transfer of property. DOE shall provide a copy of executed deed or transfer assembly to EPA and Ecology.</i>	No land has been transferred or leased from the landfill property in FY 2020.

CLUP = Comprehensive Land Use Plan.  
 DOE = Department of Energy.  
 Ecology = Washington State Department of Ecology.

EPA = Environmental Protection Agency.  
 FY = fiscal year.  
 IC = institutional control.

### 3.0 ASSESSMENT OF INSTITUTIONAL CONTROLS BY GEOGRAPHIC DECISION AREA

This section presents the assessment results for waste-site-specific ICs by GDA. Figure 3-1 shows the number of waste sites that require ICs in each GDA (note that some waste sites may have more than one IC).

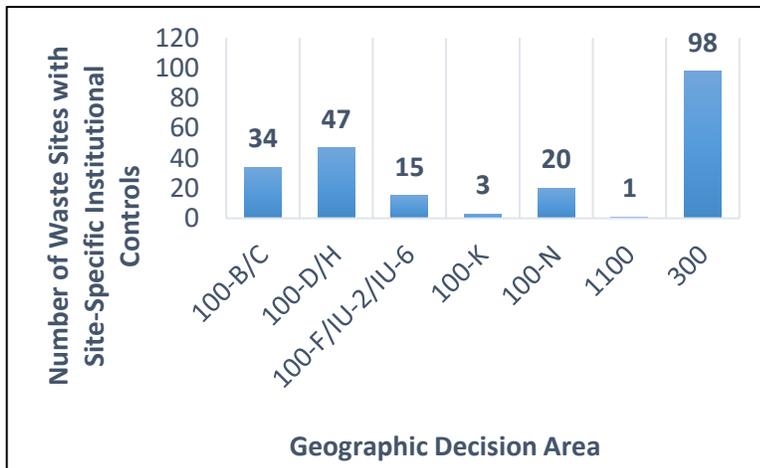


Figure 3-1. Waste Sites with Site-Specific Institutional Controls in each Geographic Decision Area.

#### 3.1 100-B/C GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments for the 100-B/C GDA. The 100-B/C GDA encompasses the 100-BC-1 and 100-BC-2 soil OUs, as well as the 100-BC-5 groundwater OU. During FY 2020, the LTS Program assessed 34 waste sites with ICs in the 100-B/C GDA as identified in the decision documents listed in Table 3-1.

The types of ICs required at these waste sites are identified in Figure 3-2. Figure 3-3 shows the boundaries of the 100-B/C GDA and the IC assessment areas. Assessments found that the appropriate ICs were in place and objectives for the ICs were met.

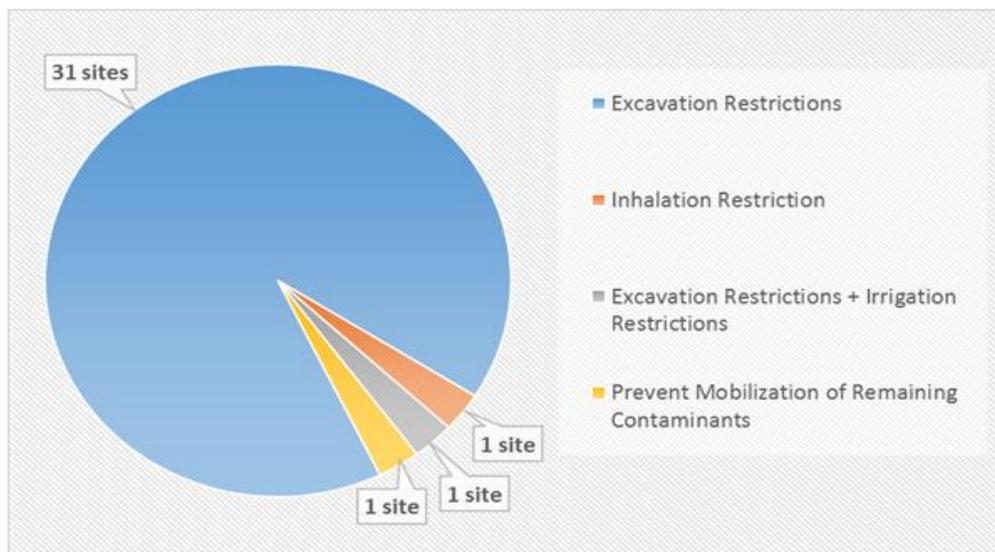


Figure 3-2. Types of Institutional Controls at Waste Sites in the 100-B/C Geographic Decision Area.

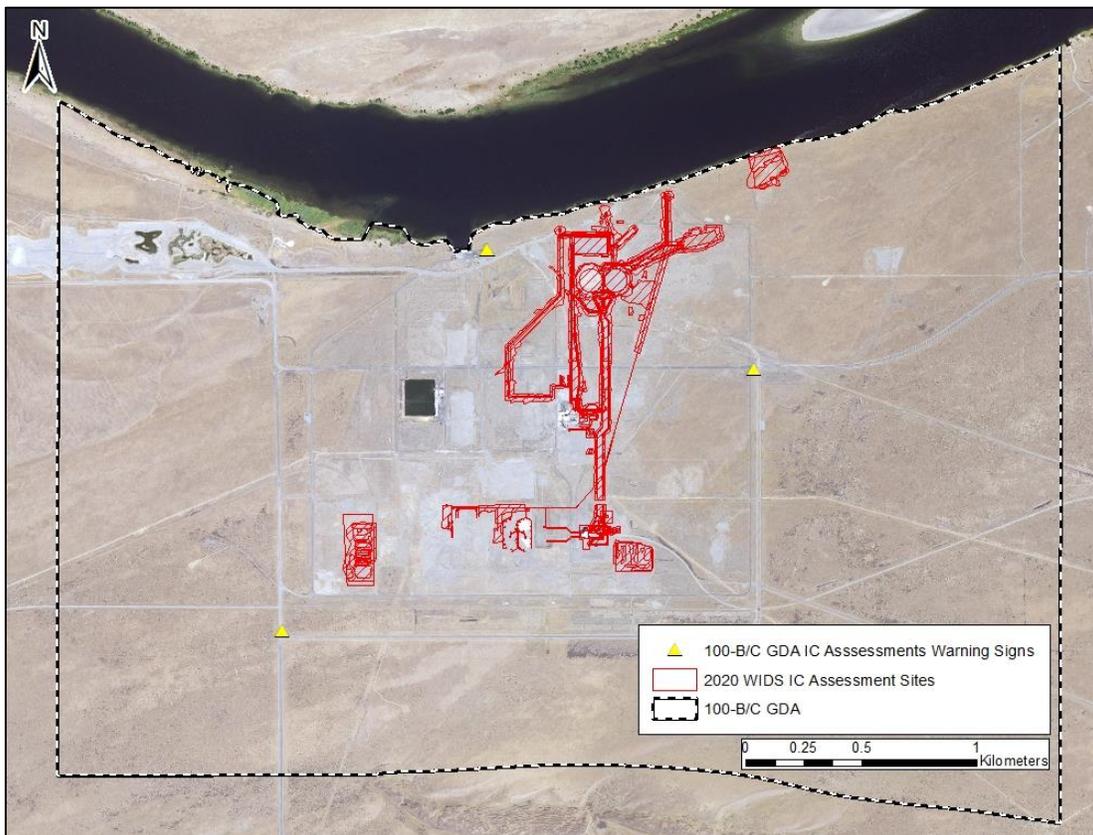


Figure 3-3. Areas Assessed in the 100-B/C Geographic Decision Area.

The following subsections in 3.1 identify the CERCLA decision documents, and the assessment results for ICs applicable to specific waste sites and warning notices associated with the 100-B/C GDA.

**3.1.1 Decision Documents for the 100-B/C Geographic Decision Area**

Table 3-1 lists the decision documents associated with the 100-B/C GDA, which identify the IC requirements. Some of the decision documents do not have IC requirements; those documents also are noted in Table 3-1.

Table 3-1. Decision Documents Associated with the 100-B/C Geographic Decision Area. (2 sheets)

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Interim Action Record of Decision for the 100-BC-1, 100-DR-1 and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington (EPA 1995).</i>	N/A	Section 2.1

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Table 3-1. Decision Documents Associated with the 100-B/C Geographic Decision Area. (2 sheets)

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Amendment to the Interim Action Record of Decision for the 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington (EPA 1997).</i>	N/A	Section 2.3
<i>Interim Action Record of Decision for the 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 (EPA 1999a). This is also known as the “100 Area Remaining Sites ROD.”</i>	Section 3.1.3	Section 2.4
<i>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) (EPA 2000b).</i>	Section 3.1.3	Section 2.7
<i>Explanation of Significant Differences for the 100 Area Remaining Sites Interim Remedial Action Record of Decision, 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 (EPA 2004).</i>	N/A	This document revised the due date for the IC report from March 30 to September 30 of each year. The annual IC assessment is reported every September at the UMM.
<i>Explanation of Significant Difference for the 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 (100 Area Burial Grounds), Hanford Site, Benton County, Washington (EPA 2007).</i>	N/A	Section 2.8
<i>Explanation of Significant Differences for the 100 Area Remaining Sites Record of Decision, Hanford Site, Benton County, Washington (EPA 2009a).</i>	N/A	No other ICs are identified in this document.
<i>100 Area “Plug-In” and Candidate Waste Sites for Fiscal Year 2010 – Annual Listing of Waste Sites Plugged into the Remove, Treat and Dispose Remedy in the 1999 Interim Action Record of Decision for the 100 Area (DOE-RL 2011).</i>	N/A	No other ICs are identified in this document.
<i>100 Area “Plug-In” and Candidate Waste Sites for Calendar Year 2012 – Annual Listing of Waste Sites Plugged into the Remove, Treat Dispose Remedy in the 1999 Interim Action Record of Decision for the 100 Area Remaining Sites (DOE-RL 2013).</i>	N/A	No other ICs are identified in this document.

<sup>a</sup>The results of the assessments for ICs specific to waste sites are presented in Section 3.1.2.

IC = institutional control.

N/A = not applicable.

UMM = unit managers meeting.

### **3.1.2 Institutional Controls for Waste Sites in the 100-B/C Geographic Decision Area**

This section presents the assessment results for the ICs applicable to specific waste sites in the 100-B/C GDA. Table 3-2 lists each assessment completed by the waste site assessment group, identifies the associated waste sites and their respective WSRFs, the ICs being assessed, and observations and results for site-specific performance objectives resulting from the assessment.

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Table 3-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (4 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
100-B-8:2 100-C-6:2 100-C-6:3 100-C-6:4 116-B-1 116-B-7 116-B-11 116-C-1 116-C-5 132-B-6 132-C-2	Interim Closed Out	2003-050 2003-050 2003-050 2003-050 99-048 2002-046 99-033 98-012 99-036 2002-046 2002-046	6/4/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-B-5 100-B-8:1 100-C-6:1 116-B-2 116-B-3 116-B-4 116-B-6A 116-B-12 116-B-16 118-B-6	Interim Closed Out	2003-030 2004-020 2004-020 99-097 99-101 99-082 99-055 99-052 99-055 <sup>a</sup> 2006-005	6/10/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-B-21:4 116-C-2A 116-C-2B 116-C-2C 116-C-3 118-C-3:2	Interim Closed Out	2009-041 99-098 99-099 99-100 2008-002 2000-099	6/10/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>

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Table 3-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (4 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
118-B-1	Interim Closed Out	2007-032	6/10/2020	The IC requirements for this site include deed restrictions to prohibit irrigation and prevent uncontrolled drilling or excavation into the deep zone (4.6 m/15 ft below ground surface).	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No known periodic/repetitive water or other liquid discharges to the waste site as confirmed by the ECO.</li> <li>• There were no known inadvertent long-term or significant discharges at or near the waste site.</li> <li>• No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation and as observed during the systematic walk down of the waste site area.</li> <li>• No evidence of unauthorized irrigation or water marks were observed during the systematic walk down of the waste site area.</li> </ul>
100-C-9:4	Interim No Action	2004-015	6/10/2020	Given the demonstrated maximum residual concentration of hexavalent chromium in the feedwater pipes, ICs are required to prevent an inhalation exposure pathway.	<ul style="list-style-type: none"> <li>• No breaching of the below-grade underground features is apparent from the surface.</li> <li>• Access to the system entrance for the underground structures are controlled by signage or doors and hatches.</li> <li>• All signage was found to be in place, and all hatches and doors were found to be secured, as required.</li> </ul>

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Table 3-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (4 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
128-B-3	Interim Closed Out	2006-058	6/4/2020	An interim closure reclassification is supported for the 128-B-3 waste site, with imposition of ICs on the river embankment area to prevent activities that would mobilize residual contaminants to travel to groundwater or the river. ICs will be maintained until the results of a baseline risk assessment can be considered (for a final site remedy or closure). The remainder of the site does not have a deep zone or residual contaminant concentrations that would require any ICs.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the shallow zone.</li> <li>• There were no known periodic/repetitive water or other liquid discharges to the waste site as confirmed by the ECO.</li> <li>• There were no known inadvertent long-term or significant releases that were reported at the mentioned sites or near the waste site.</li> <li>• No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation and as observed during the systematic walk of the waste site area.</li> <li>• No unauthorized irrigation was observed.</li> </ul>
100-C-9:3	Interim No Action	2004-014	6/10/2020	The 100-C-9:3 site is comprised exclusively of a deep zone (i.e., greater than 4.6 m [15 ft] below ground surface). ICs will be required because the evaluation of compliance with direct exposure standards failed for some of the semi-volatiles.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
118-C-1	Interim Closed Out	2006-063	6/10/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-B-14:1	Interim Closed Out	2004-005	6/4/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>

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Table 3-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (4 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
100-C-9:1	Interim Closed Out	2004-012	6/4/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>

\*WIDS site 116-B-16 Waste Site Reclassification Form 99-055 is located within CVP-99-00011.

ECO = environmental compliance officer.  
 IC = institutional control.

WIDS = Waste Information Data System.  
 WSRF = Waste Site Reclassification Form.

### 3.1.3 Warning Notices in the 100-B/C Geographic Decision Area

Two decision documents have the same requirement to maintain warning notices in the 100-B/C GDA along access roads and the Columbia River to warn visitors and workers of potential hazards associated with the area (see Section 3.1.1). Detailed requirements for the notices, including their locations, verbiage, and language (the signs are to be in English with one sign along the river also provided in Spanish) are defined in DOE/RL-96-17, *Remedial Design Report/Remedial Action Work Plan for the 100 Area*, Section 3.8.

Table 3-3 presents the observations resulting from the assessments of these signs, which serve as the warning notices. Table 3-3 also describes the location of each sign, the number of signs at each location, and the language used for the verbiage. The signs for the 100-B/C GDA were found to be in place at the correct locations (see Figure 3-3) with the proper text and in good condition. Figure 3-4 presents photographs of the signs.

Table 3-3. Warning Notices for 100-B/C Geographic Decision Area.

Location	Number of Signs	Language	Observations
East Entrance to 100B/C Reactor Area	1	English	In Place
Southwest Entrance to 100B/C Reactor Area	1	English	In Place
North Fence Near River in 100B/C Reactor Area	2	English & Spanish	In Place

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East Entrance to 100 B/C Reactor Area



Southwest Entrance to 100 B/C Reactor Area



North Fence Near River in 100 B/C Reactor Area

Figure 3-4. Warning Notices for 100-B/C Geographic Decision Area.

### 3.2 100-D/H GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments in the 100-D/H GDA. The 100-D/H GDA encompasses the 100-DR-1, 100-DR-2, 100-HR-1, and 100-HR-2 soil OUs, as well as the 100-HR-3 groundwater OU. The ROD with the final action decisions for this area, *Record of Decision Hanford 100 Area Superfund Site 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units* (EPA 2018), defines the boundaries for 100-DR-1, 100-DR-2, 100-HR-1, and 100-HR-2 OU locations where land-use ICs are required. Therefore, the IC assessments for the 100-D/H GDA were conducted in groups based on the areas defined in the final ROD, rather than the boundaries of the individual waste sites. During FY 2020, the LTS Program assessed the 47 waste sites with ICs in the 100-D/H GDA as identified in the final decision document listed in Table 3-4. The types of ICs required at these waste sites are identified in Figure 3-5. Figure 3-6 shows the boundaries of the 100-D/H GDA and the IC assessment areas. Assessments of the waste sites for the 100-D/H GDA found that the appropriate ICs were in place and objectives for the ICs were met.

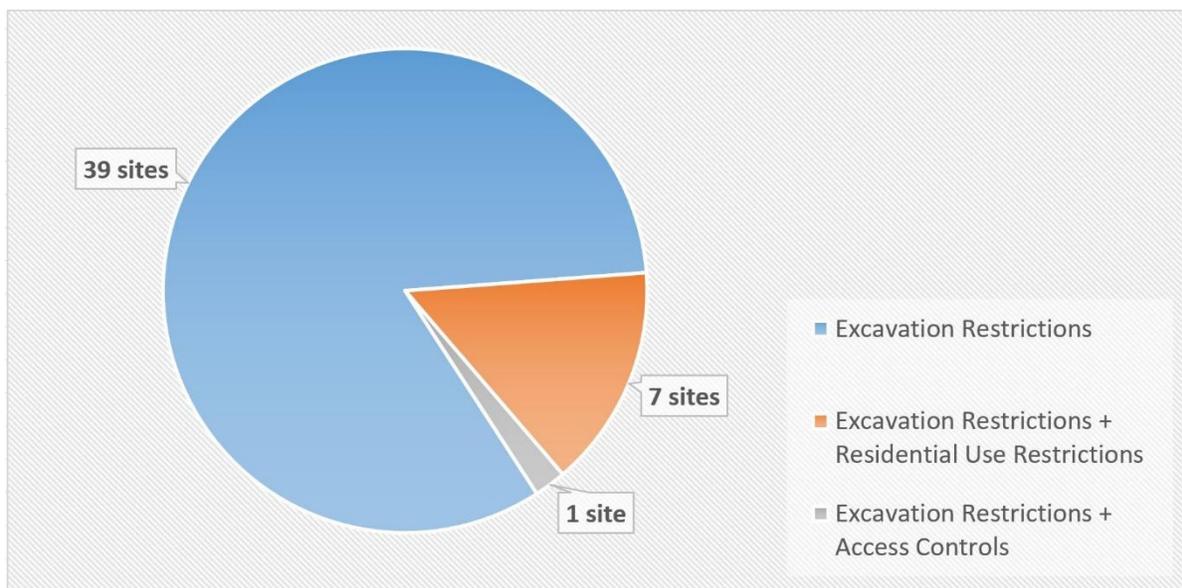


Figure 3-5. Types of Institutional Controls at Waste Sites in the 100-D/H Geographic Decision Area.

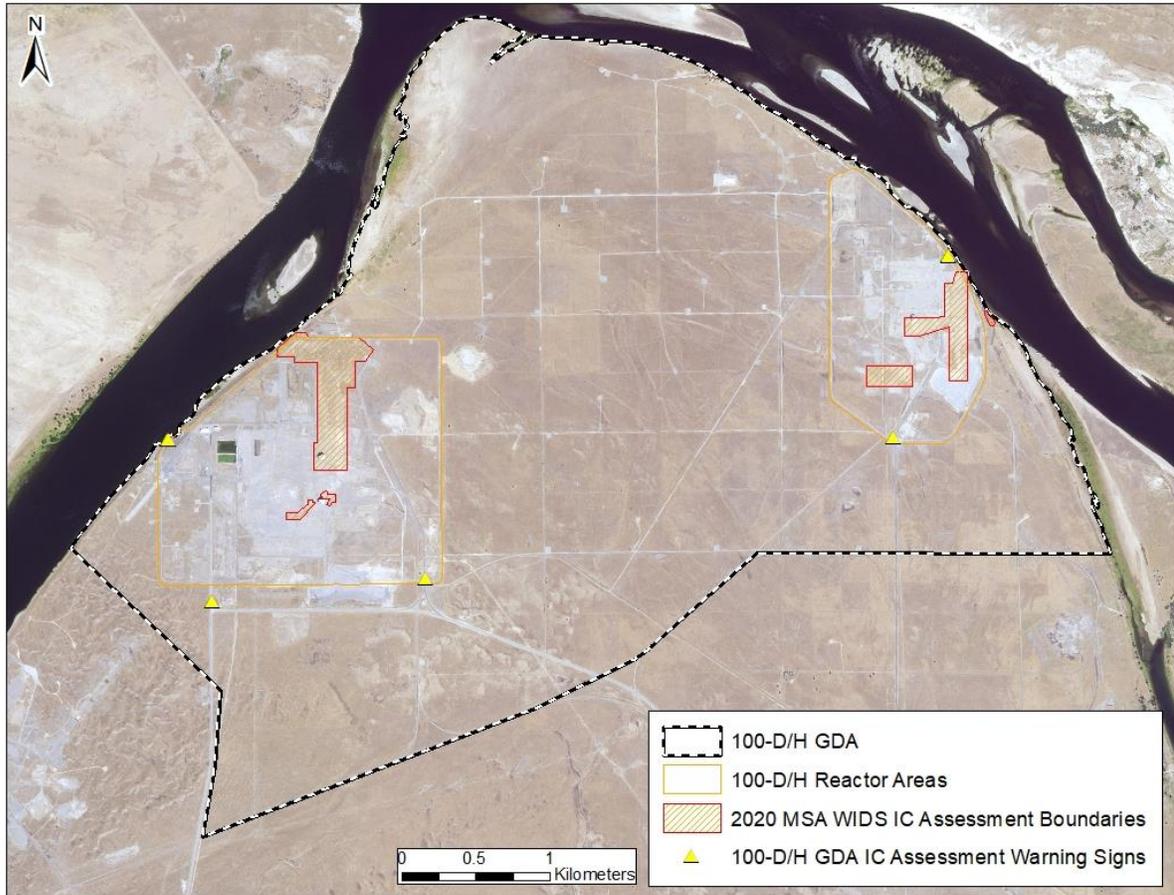


Figure 3-6. Areas Assessed in the 100-D/H Geographic Decision Area.

The following subsections in 3.2 identify the CERCLA decision documents, and the assessment results for ICs applicable to specific waste sites and warning notices associated with the 100-D/H GDA.

### 3.2.1 Decision Documents for the 100-D/H Geographic Decision Area

Table 3-4 lists the final ROD associated with the 100-D/H GDA (the interim ROD is not listed in Table 3-4 since the final ROD has been published.) This document defines the waste site-specific ICs, as well as other ICs for the 100-D/H GDA.

Table 3-4. Decision Documents Associated with the 100-D/H Geographic Decision Area.

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Record of Decision Hanford 100 Area Superfund Site 100-DR-1, 100-DR-2, 100-HR-1, 100-HR-2, and 100-HR-3 Operable Units (EPA 2018).</i>	Section 3.2.3	Section 2.10

<sup>a</sup>The results of the assessments for ICs specific to waste sites are presented in Section 3.2.2.

IC = institutional control.

### 3.2.2 Institutional Controls for Waste Sites in the 100-D/H Geographic Decision Area

This section presents the assessment results for the waste site-specific ICs in the 100-D/H GDA. Table 3-5 lists each assessment completed by waste site assessment group, identifies the associated waste sites and their respective WSRFs, assessment dates, the ICs being assessed, and observations and results for site-specific performance objectives. This year, the waste sites were assessed based on the ICs assigned in the final D/H ROD, which was published in July 2018 and on final Waste Site Reclassification Forms (WSRF) published in FY 2020. Final WSRFs (2019-026 and 2019-024) for waste sites 116-H-5 and 118-H-1:1 state that because the duration of the ICs expired in 2016, there are no remaining ICs assigned to the sites and no further remedial actions have been identified for the sites. Therefore, waste sites 116-H-5 and 118-H-1:1 will no longer be assessed. In addition to the waste sites with ICs assigned in the final ROD, the final ROD also identifies five sites for Removal, Treatment, and Disposal (RTD) that had ICs in the interim ROD that will be applicable until the RTD actions are complete, and/or until they have been reclassified. Although the final ROD and some final WSRFs have been published, reclassifications of the remainder of the waste sites in this GDA have not yet been completed; they remain “interim closed out.” These sites will be reclassified after their final WSRFs are published.

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Table 3-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (4 sheets).

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control <sup>c</sup>	Observations/Results
100-D-25 116-DR-9	Final Closed Out	2019-016	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)] and the shallow zone [i.e., depth less than 4.6m (15 ft)]. ICs are also in place to restrict residential use.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No unauthorized excavation was observed in the shallow zone.</li> <li>• No approved site evaluation and excavation permit requests in this area include residential land uses.</li> <li>• No residential land uses were observed.</li> </ul>
118-D-6:4	Final Closed Out	2019-016	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)] and the shallow zone [i.e., depth less than 4.6m (15 ft)]. ICs are also in place to restrict residential use.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No unauthorized excavation was observed in the shallow zone.</li> <li>• No approved site evaluation and excavation permit requests in this area include residential land uses.</li> <li>• No residential land uses were observed.</li> </ul>
118-D-2:1	Final Closed Out	2019-021	6/18/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)] and the shallow zone [i.e., depth less than 4.6m (15 ft)]. ICs are also in place to restrict residential use.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No unauthorized excavation was observed in the shallow zone.</li> <li>• No approved site evaluation and excavation permit requests in this area include residential land uses.</li> <li>• No residential land uses were observed.</li> </ul>

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Table 3-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (4 sheets).

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control <sup>c</sup>	Observations/Results
100-D-50:2	Interim Closed Out <sup>a</sup>	-- <sup>b</sup>	6/16/2020	ICs are required to control access to the site, and prevent uncontrolled drilling or excavations.	<ul style="list-style-type: none"> <li>• All related site surface access points are restricted thru signage and rope barrier.</li> <li>• No unauthorized access to the site was observed.</li> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed.</li> </ul>
100-D-18 100-D-19 100-D-46 100-D-48:1 100-D-48:2 100-D-48:3 100-D-49:1 100-D-49:2 100-D-5 100-D-6 116-D-1A 116-D-1B 116-D-7 116-DR-1&2 118-D-3:1 118-D-6:3 UPR-100-D-2 UPR-100-D-3 UPR-100-D-4	Final Closed Out	2019-014 2019-014 2019-020 2019-014 2019-014 2019-014 2019-014 2019-014 2019-014 2019-014 2019-015 2019-015 2019-015 2019-015 2019-020 2019-015 2019-014 2019-014 2019-014	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>

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Table 3-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (4 sheets).

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control <sup>c</sup>	Observations/Results
116-D-8	Final Closed Out	2019-021	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the shallow zone [i.e., depth less than 4.6m (15 ft)]. ICs are also in place to restrict residential use.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the shallow zone.</li> <li>• No residential land uses were observed.</li> <li>• No approved site evaluation and excavation permit requests in this area include residential land uses.</li> </ul>
100-D-86:3 100-D-50:1 100-D-50:6	Interim Closed Out <sup>a</sup>	2015-016 2012-101 2013-011	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
116-DR-6 100-D-49:4	Final Closed Out	2019-020 2019-014	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
122-DR-1:2 122-DR-1:4 122-DR-1:5	Interim Closed Out	2003-053 2003-053 2003-053	6/16/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-H-1 100-H-11 100-H-12 100-H-14 100-H-21 100-H-22 116-H-1 116-H-3 116-H-7 118-H-6:3 118-H-6:6	Final Closed Out	2019-030 2019-030 2019-030 2019-030 2019-030 2019-030 2019-030 2019-030 2019-030 2019-030 2019-030	7/14/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>

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Table 3-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (4 sheets).

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control <sup>c</sup>	Observations/Results
100-H-5	Interim Closed Out <sup>a</sup>	2000-117	7/14/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
126-H-2	Interim Closed Out <sup>a</sup>	2006-006	7/14/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-H-54	Interim Closed Out <sup>a</sup>	2013-131	7/14/2020	ICs are required to prevent uncontrolled drilling or excavation into the shallow zone [i.e., depth less than 4.6m (15 ft)]. ICs are also in place to restrict residential use.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No unauthorized excavation was observed in the shallow zone.</li> <li>• No approved site evaluation and excavation permit requests in this area include residential land uses.</li> <li>• No residential land uses were observed.</li> </ul>

IC = institutional control.

WSRF = waste site reclassification form.

<sup>a</sup>Sites will be reclassified once final WSRFs are published.

<sup>b</sup>Previously inspected as a WIDS inspection (without ICs) in previous years for signage and access control. ICs are now in place as defined in the new ROD.

<sup>c</sup>Institutional Controls are based off the final 100-D/H ROD with the exception of the 5 RTD sites (100-D-50:1, 100-D-50:6, 100-D-86:3, 100-H-5, 126-H-2) that currently have ICs assigned by the Interim 100-D/H ROD and have not yet been reclassified.

### 3.2.3 Warning Notices in the 100-D/H Geographic Decision Area

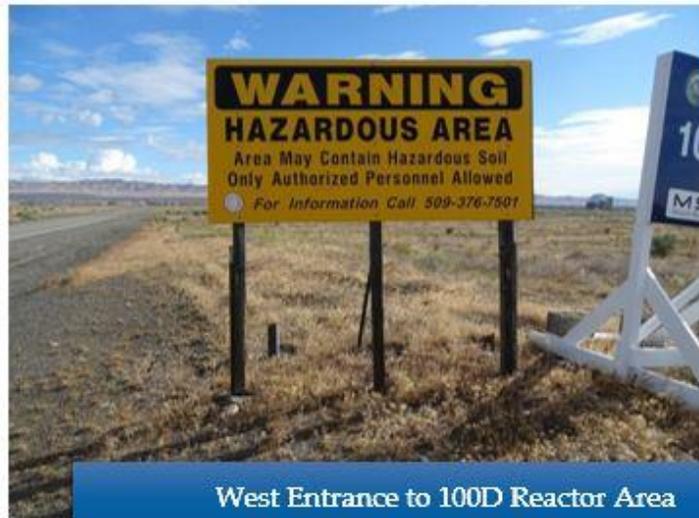
The final 100-D/H ROD has the requirement to maintain warning signs. This requirement is currently met by warning notices placed in the 100-D/H GDA along access roads and the Columbia River to warn visitors and workers of potential hazards associated with the area (see Section 3.2.1). In addition to the final 100-D/H ROD requirements, the LTS Program will continue to assess the warning notices per the detailed requirements defined in the interim Remedial Design Report / Remedial Action Work Plan, DOE/RL-96-17, Section 3.8. This includes assessing warning notice locations, verbiage, and language (the signs are to be in English with one sign along the river also provided in Spanish).

Table 3-6 lists the location of each sign, the number of signs at each location, the language used for the verbiage on the sign, and the observations. In FY 2020, the sign in English near the Columbia River in the 100H Reactor Area was observed to have fallen and was repaired. In addition, the sign at the east entrance to 100D Reactor Area was observed to have fallen, but was not damaged. The skid was placed in an upright position and cinder blocks were added to prevent it from falling again in the future. All other signs in the 100-D/H Area were found to be in place at the correct locations (see Figure 3-6) with the proper text and in good condition. Figures 3-7 and 3-8 show the signs.

Table 3-6. Warning Notices for 100-D/H Geographic Decision Area.

Location	Number of Signs	Language	Observations
West Entrance to 100D Reactor Area	1	English	In Place
East Entrance to 100D Reactor Area	1	English	In Place
Near Columbia River in 100D Reactor Area	2	English & Spanish	In Place
Main Entrance to 100H Reactor Area	1	English	In Place
Near Columbia River in 100H Reactor Area	2	English & Spanish	In Place

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West Entrance to 100D Reactor Area



East Entrance to 100D Reactor Area



Main Entrance to 100H Reactor Area

Figure 3-7. Warning Notices for 100-D/H Geographic Decision Area (sheet 1).

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Near Columbia River in 100D Reactor Area (English)



Near Columbia River in 100D Reactor Area (Spanish)



Near Columbia River in 100H Reactor Area (English and Spanish)

Figure 3-8. Warning Notices for 100-D/H Geographic Decision Area (sheet 2).

### 3.3 100-F/IU-2/IU-6 GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments for the 100-F/IU-2/IU-6 GDA. The 100-F/IU-2/IU-6 GDA encompasses the 100-FR-1, 100-FR-2, 100-IU-2, and 100-IU-6 soil OUs, as well as the 100-FR-3 groundwater OU.

*Only the 100F Operational Area contains waste sites with ICs managed by MSA within the 100-F/IU-2/IU-6 GDA.*

The ROD with the final action decisions for this area, *Record of Decision, Hanford 100 Area Superfund Site 100-FR-1, 100-FR-2, 100 FR-3, 100-IU-2, and 100-IU-6 Operable Units* (EPA 2014), defines the boundaries for 100-FR-1 and 100-FR-2 OU locations where land-use ICs are required. Therefore, the IC assessments for the 100-F/IU-2/IU-6 GDA were conducted in groups based on the areas defined in the final ROD, rather than the boundaries of the individual waste sites; no ICs are required at waste sites located in other areas of the GDA.

During FY 2020, the LTS Program assessed 15 waste sites with ICs in the 100-F/IU-2/IU-6 GDA as identified in the decision documents listed in Table 3-7. The types of ICs required at these waste sites are identified in Figure 3-9. Figure 3-10 shows the boundaries of the IC assessment areas. Assessments of the waste sites for the 100-F/IU-2/IU-6 GDA found that the appropriate ICs were in place and objectives for the ICs were met.

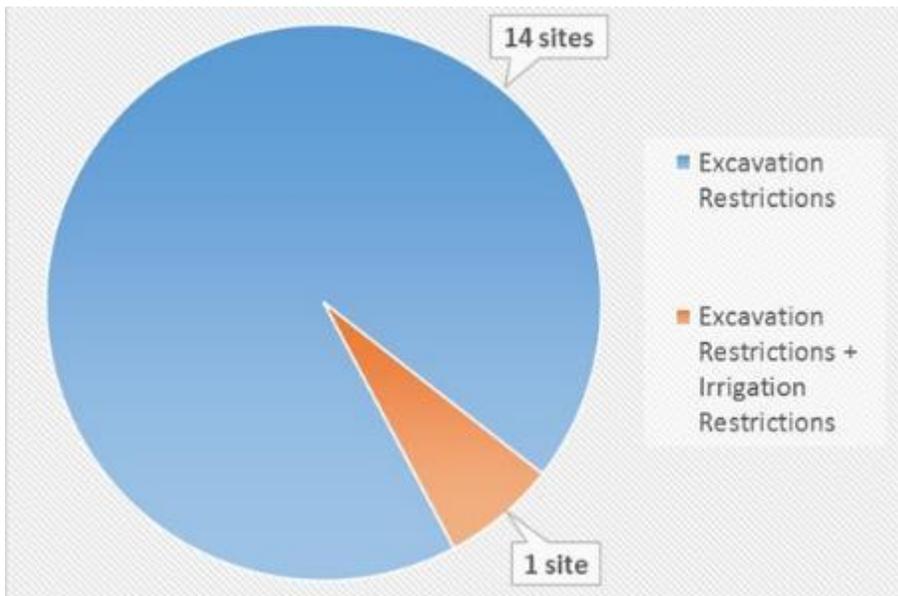


Figure 3-9. Types of Institutional Controls at Waste Sites in the 100-F/IU-2/IU-6 Geographic Decision Area.

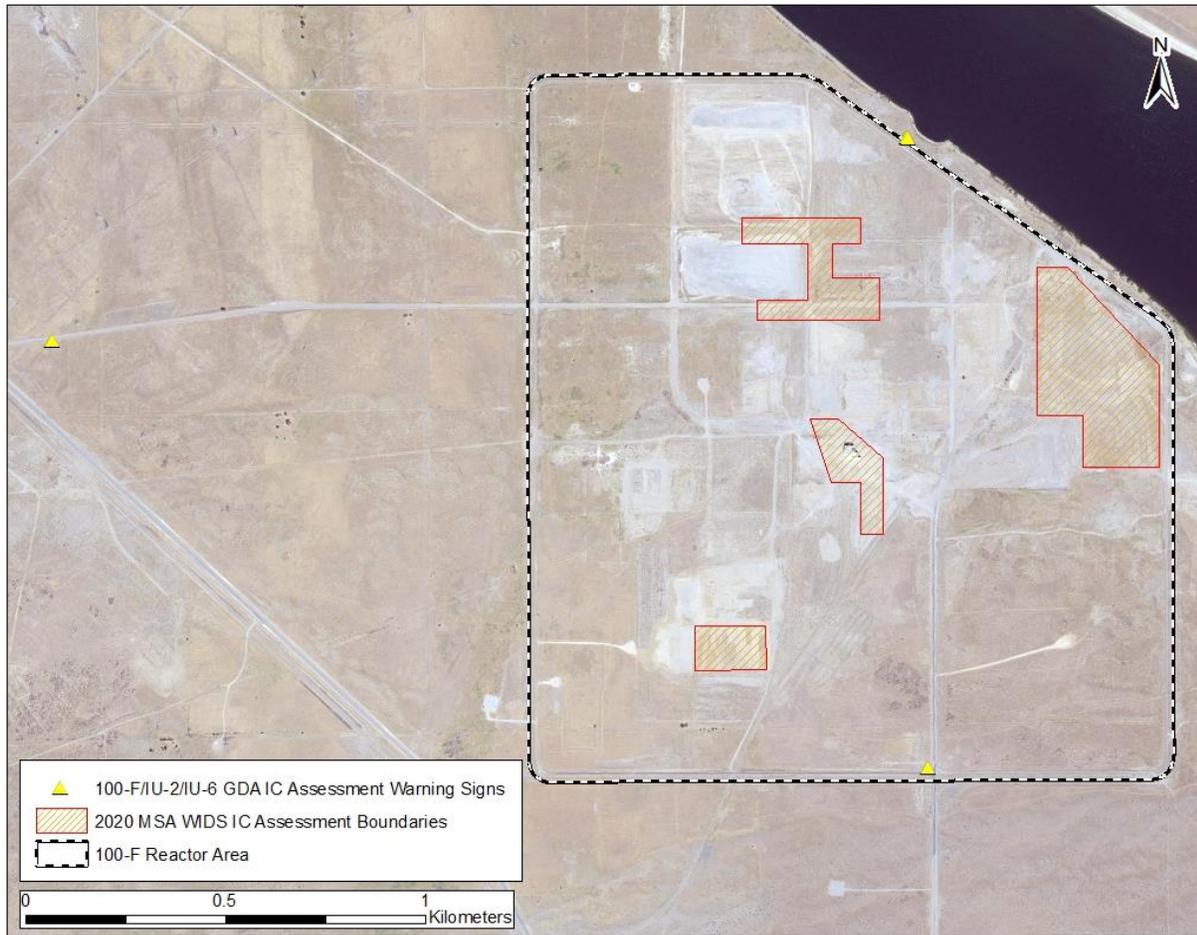


Figure 3-10. Areas Assessed in the 100-F/IU-2/IU-6 Geographic Decision Area in FY 2020.

The following subsections in 3.3 identify the CERCLA decision documents, and the assessment results for ICs applicable to specific waste sites and warning notices associated with the 100-F/IU-2/IU-6 GDA.

### 3.3.1 Decision Documents for the 100-F/IU-2/IU-6 Geographic Decision Area

The primary decision document associated with the 100-F/IU-2/IU-6 GDA, EPA (2014), a ROD that defines the final-action cleanup decisions, is listed in Table 3-7. This document serves as the basis for the site-specific ICs, as well as other ICs for the 100-F/IU-2/IU-6 GDA. Previously issued CERCLA decision documents, which are no longer applicable to this area after the issuance of the final action ROD, were not assessed for the 100-F/IU-2/IU-GDA.

Table 3-7. Decision Documents Associated with the 100-F/IU-2/IU-6 Geographic Decision Area.

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Record of Decision Hanford 100 Area Superfund Site 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2 and 100-IU-6 Operable Units (EPA 2014).</i>	Section 3.3.3	Section 2.9
<i>Explanation of Significant Differences for the 100-FR-3 Operable Unit Record of Decision (EPA 2019a).</i>	N/A	No other ICs are identified in this document.

<sup>a</sup>The results of the assessments for ICs specific to waste sites are presented in Section 3.3.2.

IC = institutional control.

N/A = not applicable.

### 3.3.2 Institutional Controls for Waste Sites in the 100-F/IU-2/IU-6 Geographic Decision Area

This section presents the assessment results for the waste site-specific ICs in the 100-F/IU-2/IU-6 GDA. Table 3-8 lists each assessment completed by waste site assessment group, identifies the associated waste sites and their respective WSRFs, assessment dates, the ICs being assessed, and observations and results for site-specific performance objectives resulting from the assessment.

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Table 3-8. 100-F/IU-2/IU-6 Geographic Decision Area Waste Sites with Institutional Controls. (2 sheets)

Waste Site Assessment Group	Reclassification Status	WSRFs	Date Assessed	Institutional Control	Observations/Results
100-F-10 100-F-19:2 116-F-6 118-F-8:3 118-F-8:4	Final Closed Out	2015-078 2015-078 2015-078 2015-078 2015-078	6/3/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-F-19:1 100-F-29 100-F-34 116-F-2 116-F-9 116-F-12 UPR-100-F-1	Final Closed Out	2015-078 2015-078 2015-078 2015-078 2015-078 2015-078 2015-078	6/3/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
100-F-19:3	Final Closed Out	2015-078	6/3/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>
118-F-6	Final Closed Out	2015-079	6/3/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>

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Table 3-8. 100-F/IU-2/IU-6 Geographic Decision Area Waste Sites with Institutional Controls. (2 sheets)

Waste Site Assessment Group	Reclassification Status	WSRFs	Date Assessed	Institutional Control	Observations/Results
116-F-14	Final Closed Out	2015-077	6/3/2020	ICs are required to restrict excavation into deep zone soils (greater than 4.6 m [15 ft] below ground surface) and to prohibit irrigation over or near the site.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No constructed drainage systems that would discharge to the site was observed.</li> <li>• No unauthorized irrigation was observed.</li> <li>• No known periodic/repetitive water or other liquid discharges occurred to the 116-F-14 waste site, as confirmed by the ECO.</li> <li>• No known inadvertent long-term or significant releases were reported at the mentioned sites or near the 116-F-14 waste site.</li> <li>• No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/ documentation.</li> </ul>

ECO = environmental compliance officer.  
 IC = institutional control.

WSRF = waste site reclassification form.

**3.3.3 Warning Notices in the 100-F/IU-2/IU-6 Decision Area**

Warning notice requirements for the 100-F/IU-2/IU-6 GDA are documented in *Record of Decision Hanford 100 Area Superfund Site 100-FR-1, 100-FR-2, 100-FR-3, 100-IU-2 and 100-IU-6 Operable Units* (EPA 2014) (Table 3-9). Detailed requirements for the signs, which serve as warning notices, including their locations, verbiage, and language (the signs are to be in English with one sign along the river also provided in Spanish) are defined in DOE/RL-2014-44-ADD1, *Remedial Design Report/Remedial Action Work Plan Addendum for 100-FR-1, 100-FR-2, 100-IU-2, and 100-IU-6 Soils*, Section 2.3.

Table 3-9 identifies the location of each sign, the number of signs at each location, the language used for the verbiage on the sign, and the observations. The sign at the west entrance to the 100F Reactor Area was observed to have fallen over and the Spanish sign near the Columbia River was also observed to have been damaged (see Section 5.1 for photos). These signs were repaired and/or put back in place in FY 2020. All other signs for the 100-F/IU-2/IU-6 GDA were found to be in place at the correct locations (see Figure 3-10) with the proper text and in good condition. The signs are shown in Figure 3-11.

Table 3-9. Warning Notices for 100-F/IU-2/IU-6 Geographic Decision Area.

Location	Number of Signs	Language	Observations
Main (South) Entrance to 100F Reactor Area	1	English	In Place
West Entrance to 100F Reactor Area	1	English	In Place
Near Columbia River in 100F Reactor Area	2	English & Spanish	In Place

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Main (South) Entrance to 100F Reactor Area



West Entrance to 100F Reactor Area



Near Columbia River in 100F Reactor Area

Figure 3-11. Warning Notices for 100-F/IU-2/IU-6 Geographic Decision Area.

### 3.4 100-K GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments for the 100-K GDA for waste sites assigned to MSA LTS. The 100-K GDA encompasses the 100-KR-1 and 100-KR-2 soil OUs, as well as the 100-KR-4 groundwater OU. Figure 3-12 shows the boundaries of the 100-K GDA and the IC assessment areas. The three waste sites assigned to MSA LTS in the 100-K GDA had IC requirements in FY 2020; the only IC in the 100-K GDA at this time is that requiring excavation restrictions. Assessments of the waste sites for the 100-K GDA found that the appropriate ICs were in place and objectives for the ICs were met.

*The 100-K Geographic Decision Area includes ICs that are assessed by MSA and CHPRC. The results of MSA's assessment are in this report. The results of CHPRC's assessment are reported separately.*

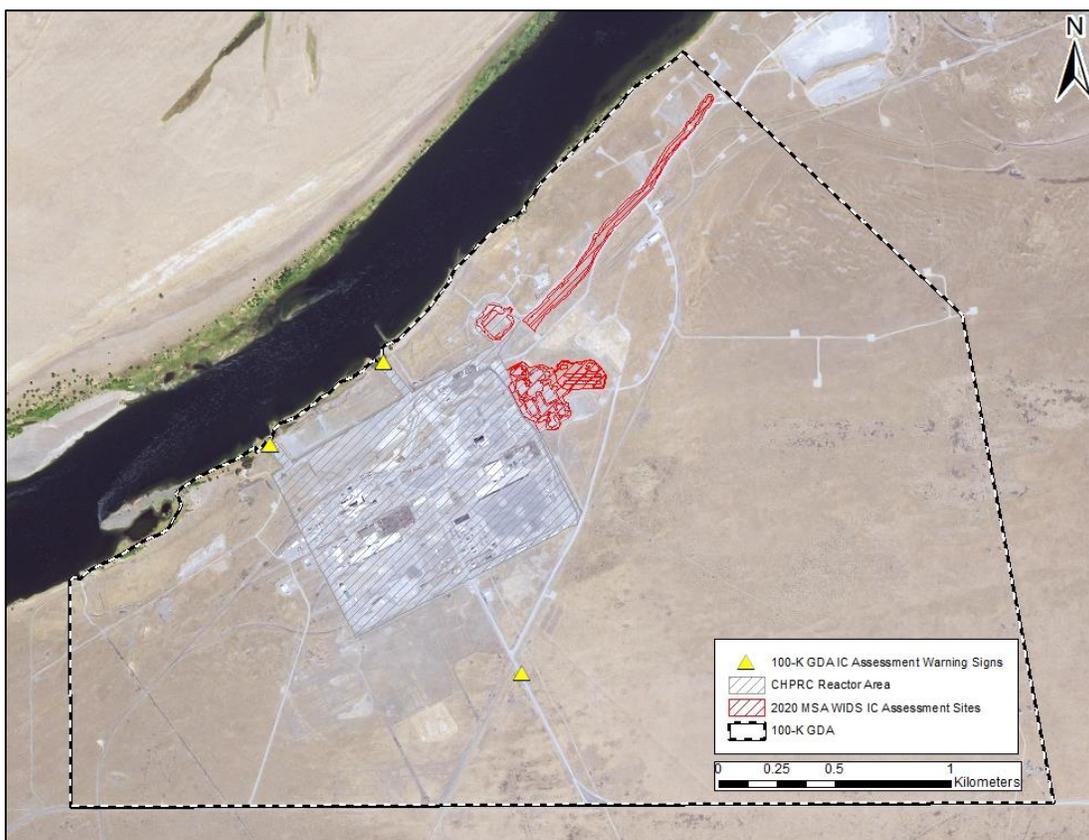


Figure 3-12. Areas Assessed in the 100-K Geographic Decision Area.

The following subsections in 3.4 identify the CERCLA decision documents and the assessment results for ICs applicable to specific waste sites and the warning notices associated with the 100-K GDA.

### 3.4.1 Decision Documents for the 100-K Geographic Decision Area

Table 3-10 lists the decision documents associated with the 100-K GDA. These documents serve as the bases for the waste site ICs, as well as other ICs for the 100-K GDA. Some of the decision documents do not have IC requirements; these documents also are noted in Table 3-10.

Table 3-10. Decision Documents Associated with the 100-K Geographic Decision Area. (2 sheets)

Decision Documents	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Interim Action Record of Decision for the 100-HR-3 and 100-KR-4 Operable Units, Hanford Site, Benton County, Washington (EPA 1996a).</i>	N/A	Section 2.2
<i>Amendment to the Interim Action Record of Decision for the 100-BC-1, 100-DR-1, and 100-HR-1 Operable Units, Hanford Site, Benton County, Washington (EPA 1997).</i>	N/A	Section 2.3
<i>Interim Action Record of Decision for the 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 (EPA 1999a). This is also known as the “100 Area Remaining Sites ROD.”</i>	Section 3.4.3	Section 2.4
<i>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) (EPA 2000b).</i>	Section 3.4.3	Section 2.7
<i>Explanation of Significant Differences for the 100 Area Remaining Sites Interim Remedial Action Record of Decision, 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 (EPA 2004).</i>	N/A	The IC requirement revised the reporting date from March 30 to September 30. The Annual IC assessment is reported every September at the unit managers’ meeting
<i>Explanation of Significant Difference for the 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 (100 Area Burial Grounds), Hanford Site, Benton County, Washington (EPA 2007).</i>	N/A	Section 2.8
<i>Explanation of Significant Differences for the 100 Area Remaining Sites Record of Decision, Hanford Site, Benton County, Washington (EPA 2009a).</i>	N/A	No other ICs are identified in this document
<i>Explanation of Significant Differences for the 100-HR-3 and 100-KR-4 Operable Units Interim Record of Decision, Hanford Site, Benton County, Washington (EPA 2009b).</i>	N/A	No other ICs are identified in this document
<i>100 Area “Plug In” and Candidate Waste Sites for Calendar Year 2011 – Annual Listing of Waste Sites Plugged into the Remove,</i>	N/A	No other ICs are identified in this document

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Table 3-10. Decision Documents Associated with the 100-K Geographic Decision Area. (2 sheets)

Decision Documents	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Treat and Dispose Remedy in the 1999 Interim Action Record of Decision for the 100 Area Remaining Sites (DOE-RL 2012).</i>		
<i>Explanation of Significant Differences for the 100-HR-3 and 100-KR-4 Operable Unit Interim Action Record of Decision (EPA 2019b)</i>	N/A	No other ICs are identified in this document

<sup>a</sup>The results of the assessments for ICs applicable to specific to waste sites are presented in Section 3.4.2.

IC = institutional control.

N/A = not applicable.

### 3.4.2 Institutional Controls for Waste Sites in the 100-K Geographic Decision Area

This section presents the assessment results for the waste site ICs in the 100-K GDA. Table 3-11 lists each assessment completed by waste site assessment group, identifies the associated waste sites and their respective WSRFs, assessment dates, the ICs being assessed, and observations and results for site-specific performance objectives resulting from the assessment.

Table 3-11. 100-K Geographic Decision Area Waste Sites with Institutional Controls.

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
116-K-1	Interim Closed Out	2004-001	6/11/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>
116-K-2	Interim Closed Out	2006-002	6/11/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)]	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>
118-K-1	Interim Closed Out	2013-094	6/11/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)]	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> </ul>

IC = institutional control.

WSRF = waste site reclassification form.

### 3.4.3 Warning Notices in the 100-K Geographic Decision Area

Two of the decision documents have requirements to maintain warning notices in the 100-K GDA along access roads and the Columbia River to warn visitors and workers of potential hazards associated with the area (see Section 3.4.1). Detailed requirements for the notices, including their locations, verbiage, and language (the signs are to be in English with one sign along the river also provided in Spanish) are defined in DOE/RL-96-17, Section 3.8.

Table 3-12 describes the location of the sign that serves as the warning notice, the number of signs at each location, the language used for the verbiage on the sign, and the observations. The signs for the 100-K GDA were found to be in place at the correct locations (as shown in Figure 3-12) with the proper text and in good condition; the signs are shown in Figure 3-13.

Table 3-12. Warning Notices for 100-K Geographic Decision Area.

Location	Number of Signs	Language	Observations
Main Entrance to 100K Reactor Area	1	English	In Place
Near Columbia River in 100K Reactor Area at the 100-KE Intake Structure	2	English and Spanish	In Place
Near Columbia River in 100K Reactor Area at the 100-KW Intake Structure	2	English and Spanish	In Place

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Main Entrance to 100K Reactor Area



Near Columbia River 100K Reactor Area at the 100-KE Intake Structure



Near Columbia River in 100K Reactor Area at the 100-KW Intake Structure

Figure 3-13. Warning Notices for the 100-K Geographic Decision Area.

### 3.5 100-N GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments for the 100-N GDA. The 100-N GDA encompasses the 100-NR-1 soil OU and the 100-NR-2 groundwater OU. Figure 3-14 shows the boundaries of the 100-N GDA and the IC assessment areas. Twenty waste sites in the 100-N GDA had IC requirements in FY 2020 as identified in the decision documents listed in Table 3-13. The only IC in the 100-N GDA at this time is that requiring excavation restrictions. Assessments of the waste sites for the 100-N GDA found that the appropriate ICs were in place and objectives for the ICs were met.



Figure 3-14. Areas Assessed in the 100-N Geographic Decision Area.

The following subsections in 3.5 identify the CERCLA decision documents and the assessment results for ICs applicable to specific waste sites and the warning notices associated with the 100-N GDA.

### 3.5.1 Decision Documents for the 100-N Geographic Decision Area

Table 3-13 lists the decision documents associated with the 100-N GDA. These documents serve as the bases for the waste site ICs, as well as other ICs for the 100-N GDA. Some of the decision documents do not have IC requirements; those documents also are noted in Table 3-13.

Table 3-13. Decision Documents Associated with the 100-N Decision Areas.

Decision Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Interim Action Record of Decision for USDOE 100-NR-1 and NR-2 Operable Unit Hanford Site 100 Area, Benton County, Washington (EPA 1999b).</i>	Section 3.5.3	Section 2.5
<i>Interim Action Record of Decision for the 100-NR-1 Operable Units (TSD) Hanford Site, Benton County, Washington (EPA 2000a).</i>	Section 3.5.3	Section 2.6
<i>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, Hanford Site, Benton County, Washington (EPA 2003).</i>	N/A	The IC requirement revised the reporting date from March 30 to September 30. The annual IC assessment is reported every September at the unit managers meeting.
<i>Amendment to the Interim Action Record of Decision for the 100-NR-1 and 100-NR-2 Operable Units, Hanford Site, Benton County, Washington (EPA 2010b).</i>	N/A	No other ICs are identified in this document beyond those specified in the original ROD.
<i>Explanation of Significant Differences for the 100-NR-1 and 100-NR-2 Operable Units Interim Remedial Action Record of Decision, Hanford Site, Benton County, Washington (EPA 2011).</i>	N/A	No other ICs are identified in this document beyond those specified in the original ROD.
<i>Explanation of Significant Differences for the 100-NR-1 and 100-NR-2 Operable Units Interim Remedial Action Record of Decision, Hanford Site, Benton County, Washington (EPA 2013a).</i>	N/A	No other ICs are identified in this document beyond those specified in the original ROD.
<i>Explanation of Significant Differences for the 100-NR-1 and 100-NR-2 Operable Unit Interim Action Record of Decision (EPA 2019c).</i>	N/A	No other ICs are identified in this document beyond those specified in the original ROD.

<sup>a</sup>The results of the assessments for ICs specific to waste sites are presented in in Section 3.5.2.

IC = institutional control. N/A = not applicable. ROD = record of decision.

### 3.5.2 Institutional Controls for Waste Sites in the 100-N Geographic Decision Area

This section presents the assessment results for the waste site ICs in the 100-N GDA. Table 3-14 lists each assessment completed by waste site assessment group, identifies the associated waste sites and their respective WSRFs, assessment dates, the ICs being assessed, and observations and results for site-specific performance objectives resulting from the assessment.

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Table 3-14. 100-N Geographic Decision Area Waste Sites with Institutional Controls.

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
100-N-31 100-N-32 100-N-38 100-N-61:3 100-N-64:3 100-N-68 118-N-1 UPR-100-N-3 UPR-100-N-7 UPR-100-N-10 UPR-100-N-12	Interim Closed Out	2013-065 2013-066 2013-067 2013-068 2013-069 2013-070 2013-076 2013-071 2013-072 2013-073 2013-074	6/11/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>
116-N-2 100-N-84:2 UPR-100-N-5 UPR-100-N-25	Interim Closed Out	2013-015 2014-088 2013-016 2013-017	6/11/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>
124-N-2	Interim Closed Out	2013-030	7/7/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation is observed in the deep zone.</li> </ul>
100-N-50 100-N-51 100-N-51B UPR-100-N-37	Interim Closed Out	2004-059 2004-059 2004-059 2004-059	6/11/2020	Because unrestricted access to areas greater than 4.6 m (15 ft) below the ground surface was not evaluated, ICs to prevent uncontrolled drilling or excavation into the lower basement (greater than 7.6 m [25 ft] below the ground surface) of the 185-N Building are required.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No excavation was observed into the lower basement level of the former 185-N building to more specifically address the IC.</li> </ul>

IC = institutional control.

WSRF = waste site reclassification form.

### 3.5.3 Warning Notices in the 100-N Geographic Decision Area

Two of the decision documents have requirements to maintain warning notices in the 100-N GDA along access roads and the Columbia River to warn visitors and workers of potential hazards associated with the area (see Section 3.5.1). Detailed requirements for the notices, including their locations, verbiage, and language (the signs are to be in English with one sign

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along the river also provided in Spanish) are defined in DOE/RL-2005-93, *Remedial Design Report/Remedial Action Work Plan for the 100-N Area*, Section 3.8.

Table 3-15 describes the location of the sign that serves as the warning notice, the number of signs at each location, the language used for the verbiage on the sign, and the observations. Warning notices for the 100-N GDA were found to be in place at the correct locations (see Figure 3-14) with the proper text and in good condition as described in Table 3-15. The warning notices are shown in Figure 3-15.

Table 3-15. Warning Notices for 100-N Geographic Decision Area.

Location	Number of Signs	Language	Observations
Main Entrance to 100N Reactor Area	1	English	In Place
Near Columbia River in 100N Reactor Area	2	English & Spanish	In Place



Main Entrance to 100N Reactor Area



Near Columbia River in 100N Reactor Area (English and Spanish)

Figure 3-15. Warning Notices for the 100-N Geographic Decision Area.

### 3.6 300 GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments for the 300 GDA. The 300 GDA encompasses the 300-FF-1 and 300-FF-2 soil OUs, as well as the 300-FF-5 groundwater OU. During FY 2020, the LTS Program assessed the 98 waste sites with ICs in the 300 GDA as identified in the decision documents listed in Table 3-16. The types of ICs required

at these waste sites are shown in Figure 3-16. Figure 3-17 shows the boundaries of the IC assessment areas, as well as the boundaries of the 300 Area Industrial Complex,<sup>5</sup> within which most of the sites are located. Section 3.6.2 presents the assessment results of the site-specific ICs.

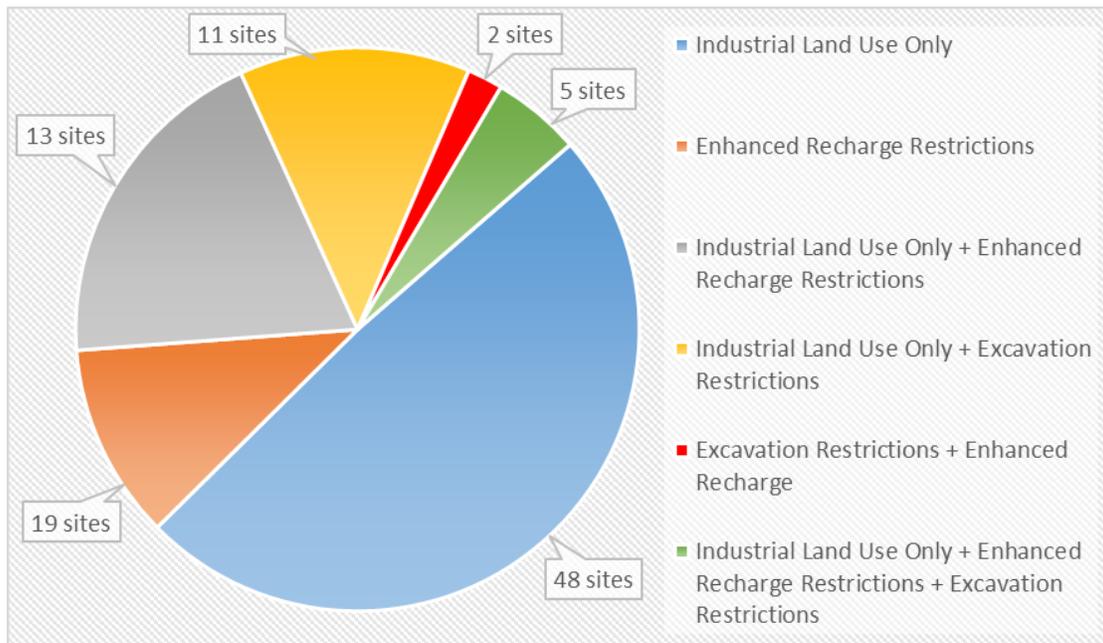


Figure 3-16. Types of ICs at Waste Sites in the 300 Area Geographic Decision Area.

<sup>5</sup> As described in the 300 Area ROD, the 300 Area Industrial Complex includes buildings, facilities and process units where uranium nuclear fuel production plus research and development activities took place.

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Figure 3-17. IC Assessment Area for 618-10 and the 300 Area Industrial Complex.

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Assessments of the waste sites in the 300 GDA found that the ICs were in place and objectives for the ICs were met. Generally, ICs applicable to specific waste sites are defined in decision documents, including WSRFs. However, the 300 Area ROD included an enhanced recharge IC that is to be applied to waste sites that are above cleanup levels (CUL)<sup>6</sup>, though the ROD does not identify the specific waste sites. Therefore, to identify the waste sites with the enhanced recharge control, the closeout verification sampling results for the “Final Closed Out” WIDS sites in the 300 Area ROD were compared to the applicable CULs. The “Accepted” waste sites where this IC applies were identified based on DOE/RL-2014-13-ADD1, *Remedial Design Report/Remedial Action Work Plan for 300-FF-2 Soils (RDR/RAWP)*. More detailed information regarding the observations related to the enhanced recharge IC are described in Section 3.6.2 and Table 3-17.

In addition to the waste sites listed in Table 3-17, MSA is also responsible for maintaining ICs in the vicinity of the 300-5 waste site, which is currently assigned to CHPRC. This site is located near the 3709A fire station managed by MSA. As an Accepted WIDS site, the 300-5 waste site is subject to the enhanced recharge IC in the 300-FF-2 ROD. Specific guidelines to control irrigation and drainage at the fire station were developed and approved by EPA as specified in AMRP: RFG/14-AMRP-0264, *Recommendations for Proposed Irrigation and Recharge Control for 3709A, 3709B, 3220, 3212, 3507, and 339A, Hanford Site 300 Area*. Results of the assessment concluded that all ICs are in place and in compliance with the final 300 Area ROD as described below:

- Manual watering with the irrigation and sprinkler system is kept to a minimum, with run times nominally about 1 hour before moving locations, and is limited to the west and north side of the 3709A building.
- Vehicle washing is limited to the north driveway and inside the facility and minimized to limit the amount of discharge to the ground.
- No known new discharges to the ground were implemented that would enhance groundwater discharge.
- Fire hydrant FH-01 has been taken out of service (see Figure 3-18).

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<sup>6</sup>Enhanced recharge control is implemented to prevent enhanced aquifer recharge for waste sites in the 300 Area Industrial Complex where contamination levels are above the residential groundwater/surface water protection CUL specified in the 300 Area FF-2 ROD (EPA, 2013b) and DOE/RL-2014-13-ADD1.



Figure 3-18. Fire Hydrant FH-01 tagged as “Out of Service” in order to follow guidelines to control drainage at the fire station near the 300-5 waste site.

The following subsections in 3.6 identify the CERCLA decision documents, and the assessment results for ICs applicable to specific waste sites and the warning notices associated with the 300 GDA.

### **3.6.1 Decision Documents for the 300 Geographic Decision Area**

Table 3-16 lists the decision documents associated with the 300 GDA. These documents serve as the bases for the ICs applicable to specific waste sites, as well as other ICs for the 300 GDA. Some of the decision documents do not have IC requirements; those documents also are noted in Table 3-16. In addition to the decision documents listed in Table 3-16, DOE/RL-2014-13-ADD1, provides additional guidance for implementing IC requirements. Previously issued decision documents are no longer applicable to this area after the issuance of the final action ROD in 2013 and were not assessed for the 300 GDA.

Table 3-16. Decision Documents Associated with the 300 Geographic Decision Area.

Decision Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Hanford Site 300 Area Record of Decision for 300-FF-1 and 300-FF-5 Operable Units, Hanford Site, Benton County, Washington (EPA 1996b).</i>	N/A	Section 2.11
<i>Explanation of Significant Differences for Hanford 300 Area, 300-FF-1 Operable Unit, Benton County, Washington (EPA 2000c).</i>	N/A	This document identifies no other ICs
<i>Hanford Site 300 Area Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1, Hanford Site, Benton County, Washington (EPA 2013b).</i>	Section 3.6.3	Section 2.12
<i>Explanation of Significant Differences for the 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 2015).</i>	N/A	This document identifies no other ICs
<i>Explanation of Significant Differences #2 for the "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 2016).</i>	N/A	This document identifies no other ICs
<i>Explanation of Significant Differences for the 300-FF-5 Operable Unit Record of Decision (EPA 2019d).</i>	N/A	This document identifies no other ICs

<sup>a</sup>The results of the assessments for ICs specific to waste sites are presented in section 3.6.2.

IC = institutional control.

N/A = not applicable.

OU = operable unit.

### 3.6.2 Institutional Controls for Waste Sites in the 300 Geographic Decision Area

This section presents the assessment results for the ICs specific to waste sites in the 300 GDA. Table 3-17 lists each assessment completed by the waste site assessment group, identifies the associated waste sites and their respective WSRFs, assessment dates, the ICs being assessed, and observations and results for site-specific performance objectives resulting from the assessment. If the source of the IC requirement is a document other than the WSRF, or if there is no WSRF, information regarding the source of the IC is provided.

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300 RFBP 316-1 UPR-300-32 UPR-300-33 UPR-300-34 UPR-300-35 UPR-300-36 UPR-300-37	Final Closed Out	2000-112 2000-112 2003-001 2003-001 2003-001 2003-001 2003-001 2003-001	7/9/2020	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling or excavation.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the site assessment.</li> <li>A permit process is in place requiring review and approval prior to any excavations.</li> <li>No unauthorized excavation was observed within the listed waste site excavation areas.</li> </ul>
UPR-300-FF-1 300-44 300-50 316-2 618-12	Final Closed Out	2003-002 99-109 2000-110 99-050 99-050	7/9/2020	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling or excavation.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the site assessment.</li> <li>A permit process is in place requiring review and approval prior to any excavations.</li> <li>No unauthorized excavation was observed within the listed waste site excavation areas.</li> </ul>
618-1 618-1:1 618-1:2 618-2	Final Closed Out	2015-069 2015-069 2015-069 2015-071	7/9/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)] and prevent enhanced recharge.	<ul style="list-style-type: none"> <li>A permit process is in place requiring review and approval prior to any excavations.</li> <li>No unauthorized excavation was observed within the listed waste site excavation areas.</li> <li>No drainage or irrigation issues were observed at the time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>
300-110 303-M SA 303-M UOF 333 ESHWSA	Final Closed Out	2014-017 2014-018 2014-028 2014-018	7/9/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the site assessment.</li> <li>No drainage or irrigation issues were observed at the time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
628-4	Final Closed Out	2000-111	7/9/2020	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	<ul style="list-style-type: none"> <li>• All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the site assessment.</li> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed within the listed waste site excavation areas.</li> </ul>
300-15:1	Accepted	--- <sup>a</sup>	7/9/2020	ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>• No irrigation activities were observed.</li> <li>• As described in DOE/RL-2014-13-ADD1, portions of the inactive pipelines are within revegetated areas meet the intent of preventing contamination mobilization and supporting the enhanced recharge control. No interim stabilization actions are required at this site per the RDR/RAWP.</li> <li>• A drainage event occurred in September 2019 when a PNNL contractor was replacing a fire hydrant and a thrust block failed after cutting the line leading to the hydrant, causing the line to separate and release water. The LTS evaluation completed in FY 2020 for this event concluded no significant impact occurred that would have caused enhanced recharge at the 300-15:1 waste site.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
UPR-300-8 UPR-300-9 UPR-300-15 UPR-300-19 UPR-300-20 UPR-300-21 UPR-300-22 UPR-300-23 UPR-300-24 UPR-300-25 UPR-300-26 UPR-300-27 UPR-300-28 UPR-300-29 UPR-300-30 UPR-300-47	Final Closed Out	98-013 98-014 98-015 98-016 98-017 98-018 98-019 98-020 98-021 98-022 98-023 98-024 98-025 98-026 98-027 98-028	7/9/2020	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling and excavation. <sup>c</sup>	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>A permit process is in place requiring review and approval prior to any excavations.</li> <li>No unauthorized excavation was observed within the listed waste site excavation areas.</li> </ul>
300 RLWS:3 300 RRLWS:2 300-175 300-214:2 300-265	Accepted	- - - <sup>a</sup>	7/28/2020	ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>No irrigation activities were observed.</li> <li>As described in DOE/RL-2014-13-ADD1, the barriers and stabilization measures (including any temporary surface barriers constructed<sup>b</sup>) meet the intent of preventing contamination mobilization and supporting the enhanced recharge control.</li> </ul>
UPR-300-10 UPR-300-12 UPR-300-48	Accepted	- - - <sup>a</sup>	7/30/2020	ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>No irrigation activities were observed.</li> <li>As described in DOE/RL-2014-13-ADD1, the barriers and stabilization measures (including any temporary surface barriers constructed<sup>b</sup>) meet the intent of preventing contamination mobilization and supporting the enhanced recharge control.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300-16:2 300-24 300-80 300-218 300-253	Final Closed Out	2014-030 2014-030 2014-030 2014-030 2014-012	7/23/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No drainage or irrigation issues were observed at the time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>
618-3	Final Closed Out	2015-072	7/9/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>
300-270 313 ESSP UPR-300-38	Final Closed Out	2014-039 2014-039 2014-039	7/23/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>
300-15:2	Final Closed Out	2015-081	7/23/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300-15:3	Final Closed Out	2015-047	7/23/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No irrigation sources were observed or discovered during assessment.</li> <li>Decision Unit 3 was above the CUL for Aroclor-1248. This portion of the site was immediately adjacent to Apple Street, Alaska Avenue, and Wisconsin Avenue. Road pavement may remain in place.</li> </ul>
300-33 300-41 300-53 300-256 300-262	Final Closed Out	2014-017 2014-017 2014-011 2014-017 2014-017	7/23/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>
316-3	Final Closed Out	2015-049	7/30/2020	Site restricted to industrial land use.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> </ul>
300-121	Accepted	- - - <sup>a</sup>	7/30/2020	ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>The UIC at this site has been grouted and is inactive; the associated facility, 3621D, has been demolished.</li> <li>No irrigation activities were observed.</li> <li>As described in DOE/RL-2014-13-ADD1, the barriers and stabilization measures (including any temporary surface barriers constructed<sup>b</sup>) meet the intent of preventing contamination mobilization and supporting the enhanced recharge control.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
UPR-300-17	Final Closed Out	2014-018	7/23/2020	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.</li> </ul>
300-269	Accepted	- - - <sup>a</sup>	7/28/2020	ICs are required to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>As described in DOE/RL-2014-13-ADD1, the concrete barrier over the entire area meets the intent of preventing contamination mobilization and supporting the enhanced recharge control.</li> <li>No drainage or irrigation issues were observed at the time of the assessment.</li> </ul>
300 ASH PITS	Final Closed Out	98-004	7/28/2020	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling and excavation. <sup>c</sup>	<ul style="list-style-type: none"> <li>All land-use requests for the 300 Area in FY 2020 were consistent with industrial use; no non-industrial uses were observed during the assessment.</li> <li>No unauthorized excavation was observed within the listed waste site excavation areas.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300 RLWS:1 300 RLWS:2 300 RRLWS:1 300-9 300-15:4 300-15:6 300-16:1 300-16:3 300-28 300-34 300-43 300-46 300-48 300-214:1 300-219 300-224 300-249 300-251 300-257 300-263 300-274 300-284 300-286 331 LSLDF 333 WSTF UPR-300-4 UPR-300-7 UPR-300-46	Final Closed Out	2015-031 2015-032 2015-033 2015-010 2013-117 2015-054 2014-029 2014-031 2014-031 2015-048 2014-031 2014-034 2014-031 2015-030 2014-035 2014-035 2014-031 2014-036 2014-037 2015-050 2014-040 2014-100 2014-045 2014-019 2014-035 2014-049 99-050 2014-018	7/23/2020	Site restricted to industrial land use.	<ul style="list-style-type: none"> <li>• All land-use requests for the 300 Area in FY 2020 were consistent with industrial use.</li> <li>• No non-industrial uses were observed during the assessment.</li> </ul>

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Table 3-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (8 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
618-10		2017-028	6/3/2020	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)] and to prevent enhanced recharge.	<ul style="list-style-type: none"> <li>• A permit process is in place requiring review and approval prior to any excavations.</li> <li>• No unauthorized excavation was observed in the deep zone.</li> <li>• No irrigation or engineered drainage systems were observed. No other potential sources of enhanced recharge were observed.</li> </ul>

<sup>a</sup> Accepted sites are not closed out and, therefore, are not assigned a reclassification status and do not have a WSRF. However, DOE/RL-2014-13-ADD1, Rev. 1, *Remedial Design Report/Remedial Action Work Plan for 300-FF-2 Soils*, provides additional guidance for the implementation of IC requirements.

<sup>b</sup> To support implementation of the enhanced recharge control, temporary surface barriers were planned to be installed and maintained, per DOE/RL-2014-13-ADD1, for waste sites that exceed applicable cleanup levels and are adjacent to the long-term retained facilities. These temporary surface barriers are intended to reduce infiltration and contaminant flux to groundwater at the following waste sites: 300 RLWS (subsite 3 is an Accepted site, other subsites are Final Closed Out); 300 RRLWS (subsite 2 is an Accepted site, while subsite 1 is Final Closed Out), 300-5, 300-121, 300-214 (subsite 2 is an Accepted site, while subsite 1 is Final Closed Out), and 300-265. DOE/RL-2014-13-ADD1 also describes that 300-175 has been covered with a concrete slab adjacent to the 325 facility (temporary surface barriers have been installed and maintained at waste sites 331-LSLT1, 331-LSLT2, and 300-5. Temporary surface barriers were also planned to be installed at waste sites 400-37 and 400-38, which are not assigned to MSA and thus, are not within the scope of this assessment).

<sup>c</sup> Source of the institutional control is from 2005 DOE-RL correspondence, Data Revisions in Institutional Controls (IC) Field of Waste Information Data System (WIDS), 118360.

CUL = cleanup level.  
DOE = U.S. Department of Energy.  
ESSP = East Side Storage Pad.  
FY = fiscal year.  
IC = institutional control.  
RDR/RAWP = remedial design report/remedial action work plan.

SAP = sampling and analysis plan.  
UIC = underground injection control (well).  
UPR = unplanned release.  
WIDS = Waste Information Data System.  
WSRF = waste site reclassification form.

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Some of the assessment activities in the 300 Area included observations related to the enhanced recharge control IC across multiple areas and in coordination with other Hanford contractors and organizations. The DOE/RL-2014-13-ADD1, *Remedial Design Report/Remedial Action Work Plan for 300-FF-2 Soils (RDR/RAWP)* requires temporary surface barriers to be installed and maintained at waste sites that exceed applicable cleanup levels and that are adjacent to the long-term retained facilities to support implementing the enhanced recharge control until removal, treat, and dispose (RTD) activity can be performed. During the 2019 IC assessment of the 300 Area for enhanced recharge drainage, LTS observed potential integrity/maintenance issues, such as surface cracks or decay and potholes related to some of the temporary surface barriers. The LTS Program worked on several issues with surrounding facility owners to repair and/or maintain surface barriers already in place during FY 2020. More information on some of the issues addressed are described below:

- Due to the overall deteriorated state of asphalt areas surrounding the 325 facility, MSA recommended the entire asphalt area be resurfaced for efficiency and cost effectiveness, rather than crack sealing, patching potholes, and resurfacing selected areas. PNNL already planned to modify the stormwater runoff drainage near room 50 at the NE corner of the 325 Building and was able to integrate this plan with the resurfacing of the asphalt in other places. This work was completed during FY 2020 and is reflected in Figure 3-19 below. This holistic approach allowed for improved drainage control and minimization of enhanced recharge to the respective waste sites.

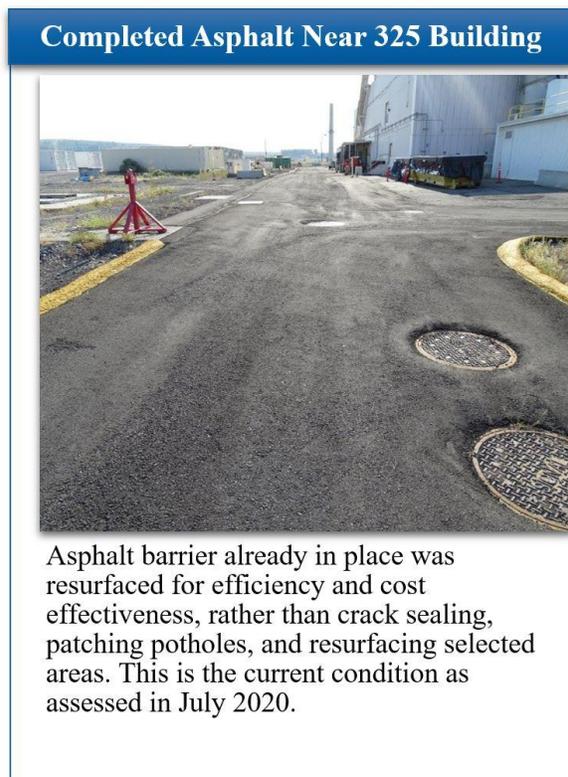


Figure 3-19. Resurfacing Project Completed in FY 2020 Around the 325 Building to Maintain Barriers in Place.

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- While most pipeline waste sites with enhanced recharge ICs within the 324 operational area have already been stabilized by either grouting or epoxy filling, the RDR/RAWP (DOE/RL-2014-13-ADD1) states, “Surface barriers are not required for waste sites with interim interferences (i.e., those associated with the 324 Building).” However, the 324 Building operational area is undergoing extensive deactivation and decommissioning (D&D) activities and equipment removal with heavy equipment usage that damages the existing asphalt barrier surfaces. Large areas of asphalt have already been removed by required excavations for installation of lateral boreholes beneath 324 building foundations to support radiological characterization of the 300-296 waste site beneath the building. Per Tri-Party Agreement (TPA) milestone M-016-85, remedial actions for 300-296 and disposition for the 324 Building and its ancillary buildings should be underway by 2021. Therefore, resurfacing the entire asphalt barrier area for this relatively short duration is not planned.

In addition to observing the condition of the temporary surface barriers, LTS Program personnel continue to evaluate drainage near waste sites with the enhanced recharge IC and identify ways to prevent and limit enhanced recharge. This included evaluating city water flushing discharge and flow directions, fire hydrant testing locations, and guidance for staging snow piles to limit enhanced recharge drainage from snow melt. Details of a project to relocate a flushing discharge for drinking water is described below:

- Fire hydrant flushing drainage events were evaluated for all 300 Area fire hydrant flushing locations. This year, the discharge location for Hydrant 84 was revised. Originally, water was being discharged to a small drainage basin. However, due to erosion, PNNL and LTS worked closely together and revised the location of hydrant 84 to drain into catch basins associated with the existing stormwater piping system away from the 300-15:1 waste site to prevent enhanced recharge (see Figure 3-20). PNNL advised the MSA LTS Program that a preliminary plan has been proposed to modify the city water system for drinking water lines. This would eliminate the need to flush fire hydrants and further limit enhanced recharge events.

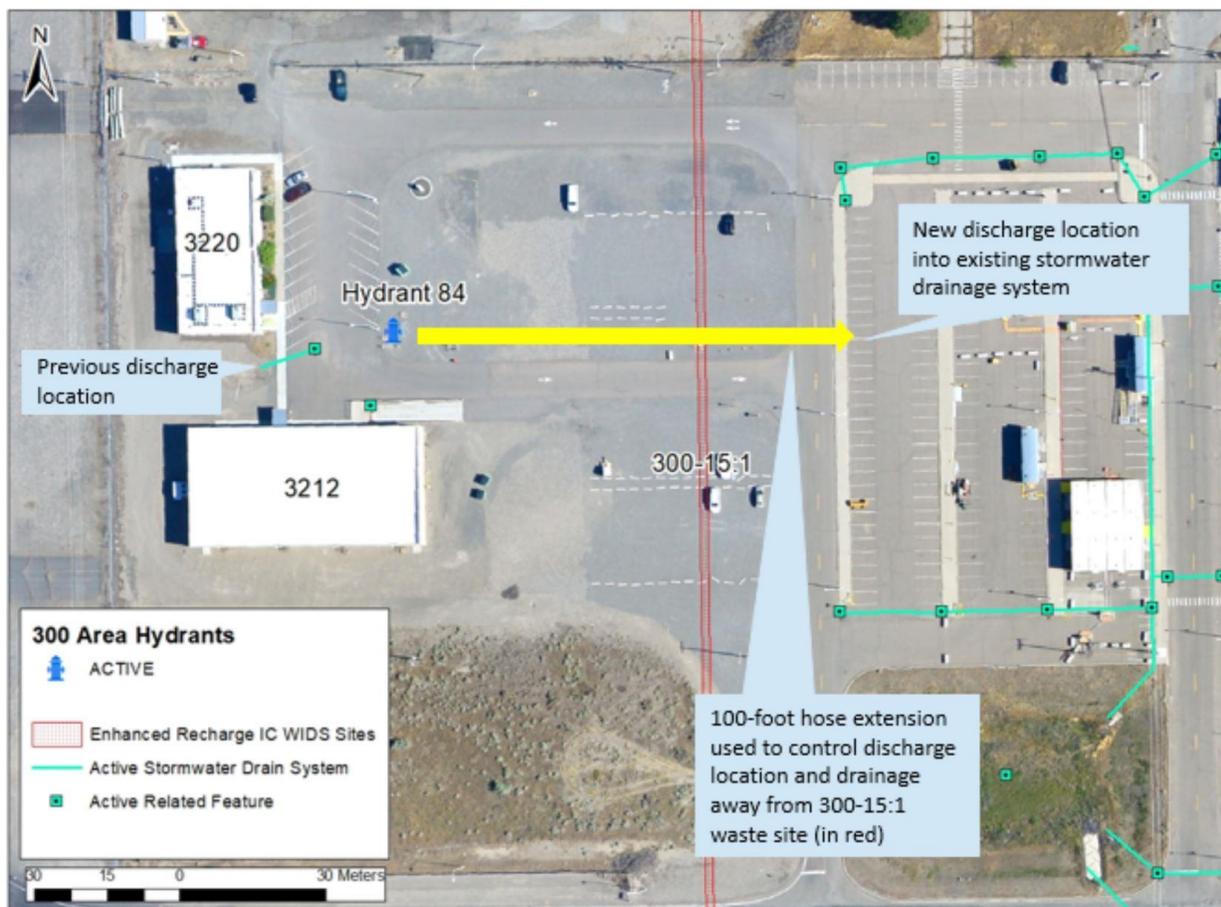


Figure 3-20. New discharge location for Hydrant 84 to control discharge and drainage in order to prevent enhanced recharge.

The LTS Program also responded to an unplanned release near a waste site with the enhanced recharge IC to assess the potential of enhanced recharge. Details of this event are provided below:

- On 9/17/2019, a release to the ground near waste site 300-15:1 was immediately reported to the Long-Term Stewardship Program. The release occurred while a PNNL contractor was replacing a fire hydrant and a thrust block failed after cutting the line leading to the hydrant. When the thrust block failed, this caused the line to separate and release water at an estimated 500 gallons per minute for approximately 10-15 minutes (up to a total of 6,000 gallons). Water dispersed on the surface towards the north and east side of the 339A Building. After assessing the area immediately following the event and further evaluation (see Figure 3-21), it was decided there was no significant impact to the 300-15:1 waste site with the IC to prevent enhanced recharge.

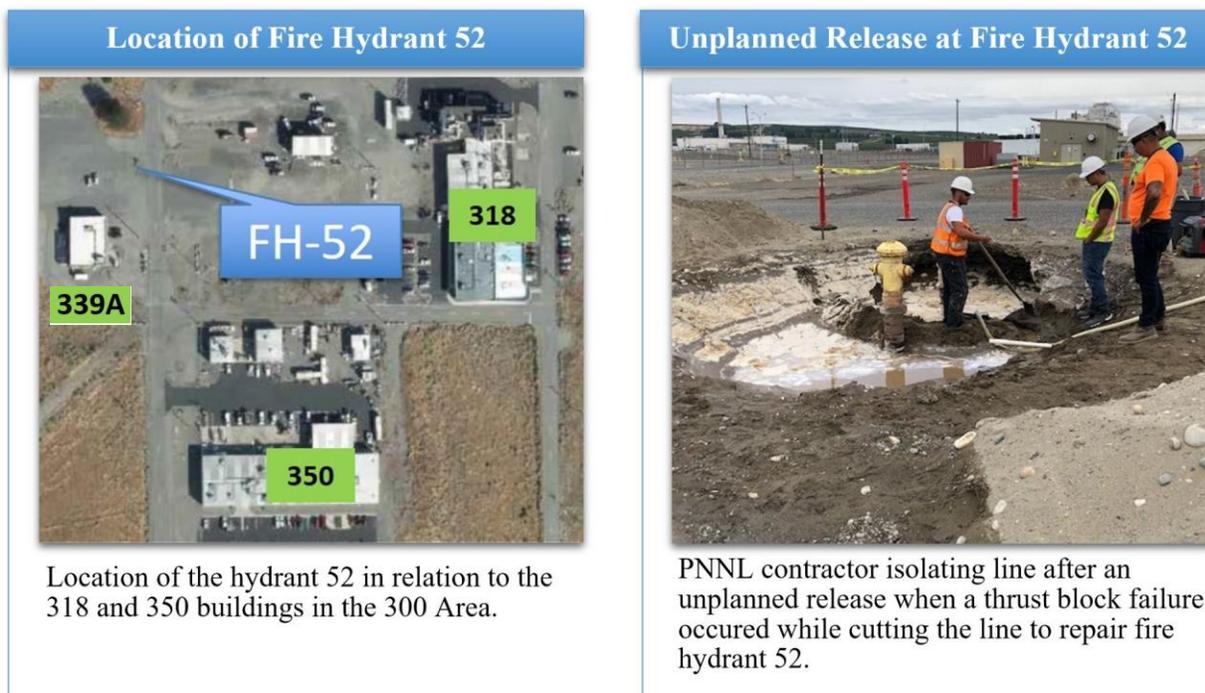


Figure 3-21. Unplanned release during repair work on fire hydrant 52 conducted by a PNNL contractor.

The LTS Program continues to work closely with DOE and Other Hanford Contractors to ensure that LTS receives timely notifications of events that could involve the release of water or other liquids near waste sites with ICs that require prevention of enhanced recharge and prohibit irrigation. This includes monitoring an LTS Spills and Notification email inbox, updating procedures as needed, reviewing Planned Significant Water Discharge form for concurrence, and facilitating regular interface meetings with the 300 Area contractors. These interface meetings have resulted in identifying projects on which LTS is working closely with other MSA organizations and other Prime contractors, such as PNNL and CHPRC, to ensure enhanced recharge ICs will be mitigated and limited to the fullest extent possible.

### 3.6.3 Warning Notices in the 300 Geographic Decision Area

The 300 Area signage requirements are documented in *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 2013b). Detailed requirements for the signs, including their locations, verbiage, and language (the signs are to be in English with one sign along the river also provided in Spanish) are outlined in DOE/RL-2014-13-ADD1, *Remedial Design Report/Remedial Action Work Plan for 300-FF-2 Soils*, Section 4.3.4.

Table 3-18 describes the location of the sign that serves as the warning notice, the number of signs at each location, the language used for the verbiage on the sign, and the observations. All signs for the 300 Area were found to be in place at the correct locations (see Figure 3-17) with the proper text at the time of assessment and in good conditions shown in Figure 3-22. However, after the FY 2020 field assessments were completed, it was observed that the sign near the 618-

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10 waste site entrance had fallen. A service request was completed upon discovery and is scheduled to be repaired.

Table 3-18. Warning Notices for 300 Geographic Decision Area.<sup>a</sup>

Location 1	Number of Signs	Language	Observations
Cypress Street Entrance to 300 Area Industrial Complex	1	English	In Place
George Washington Way Extension Entrance to 300 Area Industrial Complex	1	English	In Place
Apple Street Entrance to 300 Area Industrial Complex	1	English	In Place
Former North Parking Lot Entrance to 300 Area Complex	1	English	In Place
Former 300-FF-1 Remediation Entrance to 300 Industrial Complex	1	English	In Place
Near Columbia River in 300 Area Industrial Complex	2	English & Spanish	In Place
Near the Entrance to 618-10 waste site	1	English	In Place <sup>b</sup> (at time of assessment)

<sup>a</sup>Signs in areas managed by CHPRC were not included in this assessment and are not included in this table.

<sup>b</sup>This sign was in place at the time of the assessment. However, after the FY 2020 field assessments were completed, it was observed that the sign near the 618-10 waste site entrance had fallen. A service request was completed upon discovery and the sign is scheduled to be repaired.

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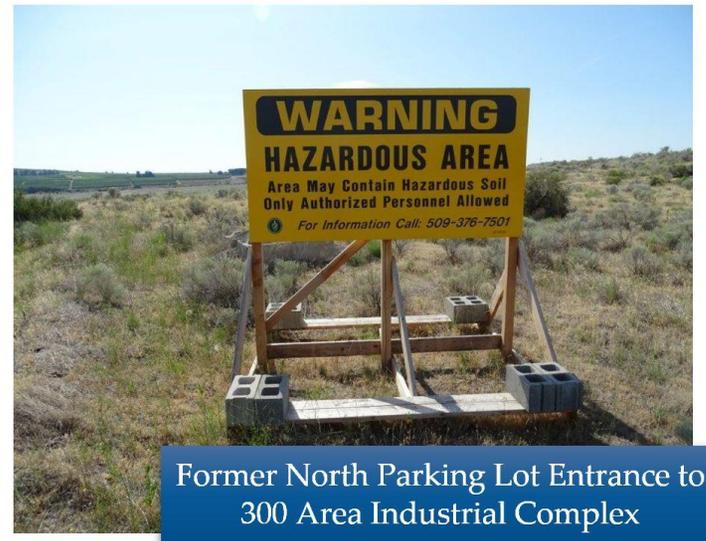
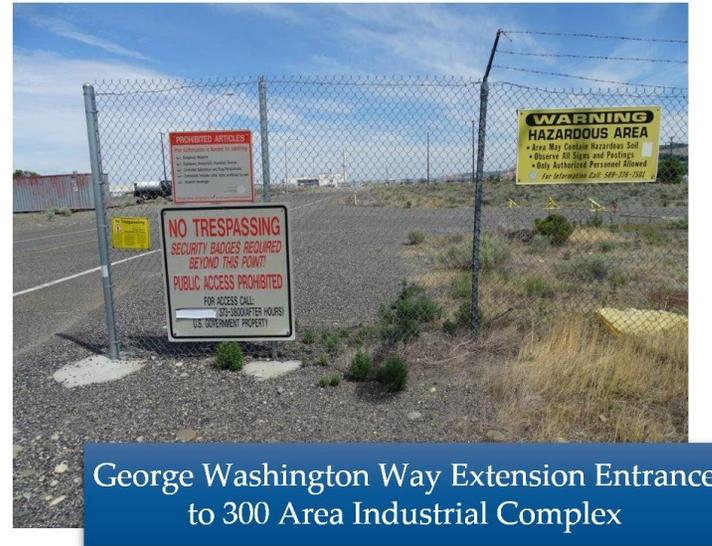
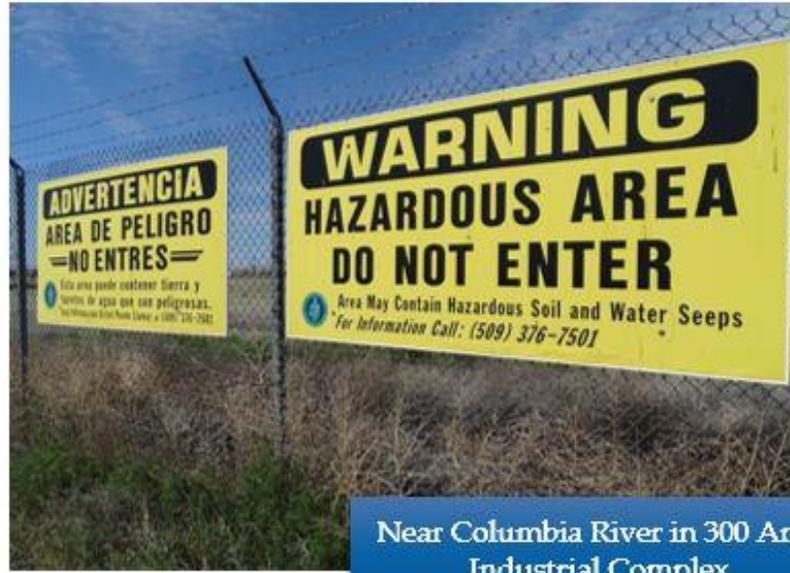


Figure 3-22. Warning Notices for the 300 Geographic Decision Area (sheet 1).



Near Columbia River in 300 Area Industrial Complex



Former 300-FF-1 Remediation Entrance to 300 Area Industrial Complex



Near the Entrance to 618-10 Waste Site

Figure 3-22. Warning Notices for the 300 Geographic Decision Area (sheet 2).

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In addition to assessing the warning notices, it was noticed there were still a lot of outdated and unnecessary signage around the perimeter of the 300 Area Industrial Fence. To address this, the LTS program worked with other contractors in the 300 Area and with MSA's Physical Security in FY 2020 to reduce the signage footprint and complacency around the fence line by completing a management assessment. During the field portion of the assessment, 143 signs were identified, and categorized into 30 different sign types. The results of the assessment can be summarized as follows:

- No changes = 81 signs (57%) were found to be in good condition and applicable to current conditions
- Removals = 52 signs (36%) were found to be out of date (i.e., abandoned and no longer applicable to current conditions)
- Replacements = 10 signs (7%) were found to require replacements, due to aging/weathering and/or needing to be updated to current conditions.

MSA's Emergency Services/Physical Security organization also recommended the addition of 19 new signs: 13 of the standard yellow DOE "No Trespassing" signs, and six (6) "Security Badge Required" signs at targeted locations.

MSA's LTS Program aims to continuously look for ways to improve the effectiveness of institutional controls and Site conditions. The approach (or similar focused assessment) used for the 300 Area Industrial perimeter fence could potentially be applied at other areas within Hanford River Corridor in the future. Figure 3-23 is an example of signs removed at the now fenced-off Apple Street just north of the 300 Area Fire Station near Route 4 South.



Outdated and wornout signage left in place at the Apple Street man-gate entrance after remediation activities were completed.

Outdated and wornout signage was removed at the Apple Street man-gate entrance after completing the management assessment in FY 2020.

Figure 3-23. Signage assessed during a Management Assessment completed in FY 2020. Signage that was unnecessary or outdated was removed and/or updated to reflect the current conditions of the 300 Area Industrial Complex.

### 3.7 1100 AREA INSTITUTIONAL CONTROLS

This section presents the observations and results from the IC assessments for the 1100 Area. The 1100 Area NPL site contains four operable units – 1100-EM-1, 1100-EM-2, 1100-EM-3, and 1100-IU-1.<sup>7</sup> One WIDS site in the 1100 GDA had IC requirements in FY 2020; these are summarized in Figure 3-24. Figure 3-25 shows the location within the 1100 Area where ICs are applicable, which is at the Horn Rapids Landfill (WIDS site HRD). This figure also shows the boundaries from the WIDS Hanford Geographic Information System (HGIS) that correlate to the fence surrounding the landfill, as well as the location of the soil cap that was installed in the 1990s. The assessments of the HRD waste site in the 1100 Area found that the appropriate ICs were in place and objectives for the ICs were met.



Figure 3-24. Institutional Controls Required for the Horn Rapids Disposal Waste Site in the 1100 Area.

<sup>7</sup> The 1100 Area NPL site was deleted from the NPL in 1996 after closure requirements were met in accordance with the *Record of Decision for the USDOE Hanford 1100 Area* (EPA 1993).

### 3.7.1 Decision Documents for the 1100 Area

Table 3-19 lists the decision documents associated with the 1100 Area. These documents serve as the bases for ICs specific to waste sites, as well as other ICs for the 1100 Area.

Table 3-19. Decision Documents Associated with the 1100 Area.

Decision Document	Sections Describing the Results of the Decision Area-Wide IC Assessment <sup>a</sup>	
	Warning Notices	Other ICs
<i>Record of Decision for the USDOE Hanford 1100-Area Final Remedial Action, Benton County, Washington (EPA 1993).</i>	N/A	Section 2.13
<i>Explanation of Significant Differences for the USDOE Hanford 1100 Area, Benton County, Washington (EPA 1996c).</i>	N/A	No other ICs are identified in this document.
<i>Superfund Site Final Closeout Report, U.S. Department of Energy Hanford 1100 Area, Richland, Washington (DOE 1996).</i>	N/A	Section 2.14
<i>Explanation of Significant Differences for USDOE Hanford 1100 Area, Benton County, Washington, (EPA 2010a).</i>	Section 2.7.3	Section 2.15

<sup>a</sup>The results of the assessment for the waste site ICs are presented in Section 2.6.2

IC = institutional control.

N/A = not applicable.



Figure 3-25. Area Assessed in the 1100 Area.

**3.7.2 Institutional Controls for Waste Sites within the 1100 Area**

This section presents the assessment results for the ICs applicable to specific waste sites in the 1100 Area. Table 3-20 identifies the waste sites, their status, the assessment dates, the ICs being

assessed, and observations for site-specific performance objectives resulting from the assessment.

Table 3-20. 1100 Area Waste Sites with Institutional Controls.

Waste Site	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observation
HRD	Deleted From NPL	- - -	6/3/2020	Control access to the landfill property, including inspecting and maintaining the fencing and signs (which are to be in accordance with 40 CFR 61.151 <sup>a</sup> as an asbestos-containing landfill) at the Horn Rapids Landfill <sup>b</sup> .	Access is controlled by fencing and gates. Signs are in place and fencing was found to be intact as required (see Section 3.7.3).

<sup>a</sup>40 CFR 61.151, “Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations,” *Code of Federal Regulations*, as amended.

<sup>b</sup>The sources of this IC requirement is *Superfund Site Final Closeout Report, U.S. Department of Energy Hanford 1100 Area and Explanation of Significant Differences, USDOE, Hanford 1100 Area, Benton County, Washington*.

HRD = Horn Rapids Landfill.      NPL = National Priorities List      WSRF = waste site reclassification form.

### 3.7.3 Warning Notices in the 1100 Area

The *Explanation of Significant Differences for the USDOE Hanford 1100 Area* (EPA 2010a) includes an IC requirement for the Horn Rapids Landfill to control access to the landfill property. This includes maintaining the fencing and signs to prevent disturbance of the landfill contents. Detailed requirements for the locations and verbiage on the signs are provided in Title 40 *Code of Federal Regulations* (CFR) Part 61.151, “Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations.” In FY 2020, the fencing was found to be intact and the signs, bearing the correct text, were visible at regular intervals around the perimeter of the fence line and in good condition. No disturbance to the landfill cap was observed. Photographs of the signs, which serve as warning notices, were collected during the FY 2020 field assessment (see Figure 3-26 for a representative sign).



Asbestos sign on fence at Horn Rapids Landfill



Warning Notice at the locked gate entrance of Horn Rapids Landfill

Figure 3-26. Locked Gate Entrance of the Horn Rapids Landfill.

#### 4.0 ASSESSMENT OF SITEWIDE-LEVEL INSTITUTIONAL CONTROLS

Some of the institutional controls specified by decision documents are implemented at a Sitewide level rather than at the GDA, OU, or waste-site-specific level. This section describes access control requirements and notification of trespassing incidents implemented Sitewide.

#### 4.1 FENCES AND SIGNAGE

Several decision documents include a requirement to control access to the Hanford Site, as further described in Section 4. In addition to the area-specific warning notices described in Section 2, access to the entire Site is controlled by fencing and/or “No Trespassing” signs. These controls serve a dual purpose of helping to minimize the potential for human exposure to residual contamination while helping meet Hanford Site operational requirements to protect government property. Fencing is installed along Horn Rapids Road and State Route 240, which, respectively, comprise the southern and western perimeters of the Hanford Site. Fencing also is installed along other portions of the Site that may potentially be accessible to the public (i.e., around the perimeter of the 300 Area). “No Trespassing” signs are maintained at 500-ft intervals along these identified fence locations, major roadways south of the Wye Barricade, and along the Columbia River shoreline near the high-water mark.

The fence line and “No Trespassing” signs outside of the Wye Barricade were inspected in the spring of 2020 along State Route 240 (Figure 4-1). In these areas, approximately 100 “No Trespassing” signs were found to be illegible or damaged due to a wildland fires and general weathering or vandalism. These signs have been fabricated; however, due to the COVID-19 pandemic and associated Site limitations they will be replaced as soon as the team is able to do so. Damaged fencing was identified in seven locations and was repaired in FY 2020.



Faded No Trespassing sign along Route 240



No Trespassing sign along Route 240 damaged by fire in FY 2020

Figure 4-1. Examples of “No Trespassing” signs found to be damaged due to wildland fires or faded from weathering along Route 240 in FY 2020.

## **4.2 TRESPASSING INCIDENTS**

Several decision documents include a requirement to report trespassing incidents on the Hanford Site to the Benton County Sheriff's Office, as noted in Section 2. The MSA Safeguards and Security group is responsible for tracking and reporting these incidents. Nine reportable trespassing incidents occurred from October 2019 to September 2020. Information regarding the details of the incidents is considered official use only and is not discussed in this report.

## 5.0 SUMMARY

This section summarizes the methods used to assess waste sites with ICs, status and observations resulting from this year’s IC assessment, and the related ongoing efforts. Figure 5-1 shows the categories and associated types of ICs that the MSA LTS Program assessed in FY 2020.

### 5.1 METHODS AND RESULTS

The IC assessments this year included the following updated methods, as described in Section 1.4:

- Supplementing field assessment with spatial analyses using the most recent rectified geo-referenced aerial imagery from Pix4dmapper software, and additional vehicular surveys in order to increase efficiency depending on the location of the site, type of topography, and weather conditions,
- Reducing complacency and footprint of outdated and unnecessary signage around the 300 Area Industrial Complex perimeter fence, and
- Further evaluating improvements to improve the effectiveness of IC already in place.

As described in Section 3.0, 217 waste sites with site-specific ICs assigned to MSA LTS were assessed in FY 2020. Repairs were completed in FY 2020 as needed (discussed in Sections 3.2.3, 3.3.3, and 4.1); all other ICs were observed to be in place as required for FY 2020.

Additional results include:

- Site-specific ICs at all 217 waste sites, located throughout the River Corridor, were observed to be in place and objectives for these ICs were met;
- ICs required for the Site to prevent public access in each GDA, where required, (i.e., Yellow Warning Signs) were observed to be in place or repaired as needed in FY 2020:



Figure 5-1. Categories and Types of ICs Assessed by the Long-Term Stewardship Program in FY 2020.

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- Warning signs observed to be in poor condition were replaced in FY 2020 (see Figure 5-2).



Fallen Over 100F West Entrance Warning Sign



100F West Entrance Warning Sign, Following Repair



Fallen Over 100D East Entrance Warning Sign



100D East Entrance Warning Sign, Following Repair



Fallen Over 100F Warning Sign in English Near Columbia River



100F Warning Sign in English Near Columbia River, Following Repair



Fallen Over 100H Warning Sign in English Near Columbia River



100H Warning Sign in English Near Columbia River, Following Repair

Figure 5-2. Signs repaired during the FY 2020 Sitewide assessments.

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- ICs defined in CERCLA Decision Documents listed in Section 2.0 (which may affect one or more GDAs) were found to be in place as required.
- As described in Section 4.0, the ICs required at a Sitewide-level were either repaired as needed and/or observed to be in place as required:
  - Approximately 100 “No Trespassing” signs have been fabricated; however, due to the COVID-19 pandemic and associated Site limitations they will be replaced as soon as the team is able to do so.
  - Fencing along State Route 240 was repaired in seven locations.
  - Nine reportable trespassing incidents occurred between October 2019 and September 2020.

## 5.2 ONGOING EFFORTS

As part of ongoing efforts to evaluate the effectiveness of ICs, the MSA LTS Program will continue to work with other Hanford Contractors. This includes reviewing planned significant discharges on the Site, and working closely with Interface Management and 300 Area facility owners to identify potential sources of enhanced recharge and identifying additional improvements to be implemented that will help minimize enhanced recharge drainage occurrences. The LTS Program is also considering ways to improve on the longevity of signs to minimize repairs and replacements such as more permanent mounting options, adding cinder blocks to skids, and using different material for signs that deteriorate due to weathering.

In addition, housekeeping items (e.g., occupational hazards, significant animal/insect intrusions) were observed and will be tracked to disposition and/or compared with previous and future assessments. No imminent safety hazards requiring immediate response were identified while addressing housekeeping items during field assessments. The MSA LTS Program also continues to work with the MSA Ecological Monitoring and Environmental Surveillance department to determine a path forward for managing noxious weeds on LTS waste sites with ICs.

Waste sites with ICs assigned to the LTS Program are managed and assessed throughout the year. The LTS Program continuously looks for ways to make improvements to the methods and processes in place for assessing these ICs. The LTS Program will continue to collaborate with other Hanford Site contractors to support the implementation of ICs. As decision documents are published, any updates made to ICs are incorporated into the assessment and evaluated to determine if they are maintained and in place as required.

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- Waste Site Reclassification Form 2013-131, 2014, with attachment, *Remaining Sites Verification Package for the 100-H-54, GPERS 100-H Shoreline Survey UPR Waste Site*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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- Waste Site Reclassification Form 2014-011, 2014, 300-53, Unplanned Release East Side of 303-G, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-012, 2014, 300-253, 384-W Original Brine Pit, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-017, 2014, 300-33, 306W Metal Fabrication Development Building Releases; 300-41, 306E Neutralization Tank; 300-110, 333 Building Stormwater Runoff; 300-256, 306E Fabrication and Testing Laboratory Releases, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-018, 2014, 303-M SA, 303-M Storage Area; 303-M UOF, 303-M Uranium Oxide Facility; UPR-300-17, UN-300-17, Metal Shavings Fire; UPR-300-46, Contamination North of 333 Building; 333 ESHWSA, 333 East Side HWSA, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-019, 2014, 331 LSLDF, 331 LSL Drain Field, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-028, 2014, 300-6, 366/366A Fuel Oil Bunkers; 300-123, 366 Building Fuel Oil Bunker Loading Station Steam Condensate French Drain; 300-268, 3741 Building Foundation; 300-273, Fuel Oil Transfer Pipeline; UPR-300-42, 300 Area Powerhouse Fuel Oil Spill, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-029, 2014, 300-16:1, Utility Pole Northwest of the 314 Building, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-030, 2014, 300-24, Soil Contamination at the 314 Metal Extrusion Building; 300-80, 314 Building Stormwater Runoff and Steam Condensate; 300-218, 314, 314A, and 314B Buildings; 300-16:2, Utility Pole East of 314 Building, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-031, 2014, 300-28, Contamination Found Along Ginko Street, Solid Waste Near 303-G Building; 300-43, Unplanned Release Outside the 304 Building; 300-48, Thorium Oxide and Fuel Fabrication Chemical Wastes Around 3732 Building; 300-249, 304 Building, Residual Rad Contamination; 300-16:3, Utility Pole Southeast of 314 Building, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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- Waste Site Reclassification Form 2014-035, 2014, 300-219, 300 Area Waste Transfer Line; 300-224, WATS and U-Bearing Piping Trench; 333 WSTF, West Side Tank Farm, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
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- Waste Site Reclassification Form 2014-039, 2014, UPR-300-38, Soil Contamination Beneath the 313 Building; 313 ESSP, 313 East Side Storage Pad; 300-270, Unplanned Release at 313 Building, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
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- Waste Site Reclassification Form 2014-045, 2014, 300-286, Three 300 Area Potentially Contaminated French Drain/Drywells, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-049, 2014, UPR-300-4, Contaminated Soil Beneath the 321 Building, with attachment, *Evaluation of 300 Area Waste Sites*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form, Control Number 2014-088, 2014, with attachment, *Remaining Sites Verification Package for the 100-N-84:2, 100-N Area Fuel and Foam Pipelines Subsite*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form 2014-100, 2014, 300-284, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.
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HNF-65616, Rev. 0

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- Waste Site Reclassification Form, Control Number 2019-015, 116-D-1A, 116-D-1B, 116-D-7, 116-DR-1&2, and 118-D-6:3, 2019, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Waste Site Reclassification Form, Control Number 2019-016, 100-D-25, 116-DR-9 and 118-D-6:4, 2019, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
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- Waste Site Reclassification Form, Control Number 2019-030, 100-H-1, 100-H-11, 100-H-12, 100-H-14, 100-H-21, 100-H-22, 116-H-1, 116-H-3, 116-H-7, 118-H-6:3, and 118-H-6:6, 2019, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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## **APPENDIX A. EXAMPLE OF COMPLETED ASSESSMENT FORM**

Appendix A consists of an example of a completed assessment form of a waste site within the 100-F/IU-2/IU-6 Geographic Decision Area with institutional controls to prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m/15 feet) and prohibit irrigation.

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**WIDS Site Institutional Control Assessment**

9/30/2020

**Number: LTS-WSIC-2020-0003**

Basis for Assessment: DOE/RL-2001-41 *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*

**Status:** Complete

**Assessor:** Rohlfing, Deanna B (MSA)

**Assessment Date:** 06/03/2020

**WIDS Sites:**

Name	Site Names	Turnover Area	Hanford Area	Classification Status	Reclassification Status	Status
<a href="#">116-F-14</a>	116-F-14, 107-F Retention Basin, 107-F	100-F	100F	Accepted	Final Closed Out	Removed

**Attendees:**

Name	Organization/Role
Lucas, Jonathan G (MSA)	GPS/Mapping
Sauceda, Adam (MSA)	LTS Intern

**IC Observation:**

**Institutional Control:** Prevent uncontrolled drilling or excavation into the deep zone (below 4.6 m/15 feet)

**Performance Objective:** A Sitewide excavation permit process is in place to control excavations.

**Objective Met:** Yes

**Observation:** DOE-0344 (Rev. 4-3) Hanford Site Excavating, Trenching and Shoring Procedure (HESTSP) dated 6-13-2018 controls all excavation that occurs within the boundaries of the US Department of Energy's Hanford Site.

**IC Observation:**

**Institutional Control:** Prevent uncontrolled drilling or excavation into the deep zone (below 4.6 m/15 feet)

**Performance Objective:** No unauthorized excavation is observed.

**Objective Met:** Yes

**Observation:** No unauthorized excavation or drilling was observed during the field assessment.

No unauthorized/uncontrolled excavations or uncontrolled drilling was observed in the 5/28/2020 high raster resolution (~1 to 450) vertical georeferenced aerial imagery spatial analysis.

Information not reviewed for public release.

**WIDS Site Institutional Control Assessment**

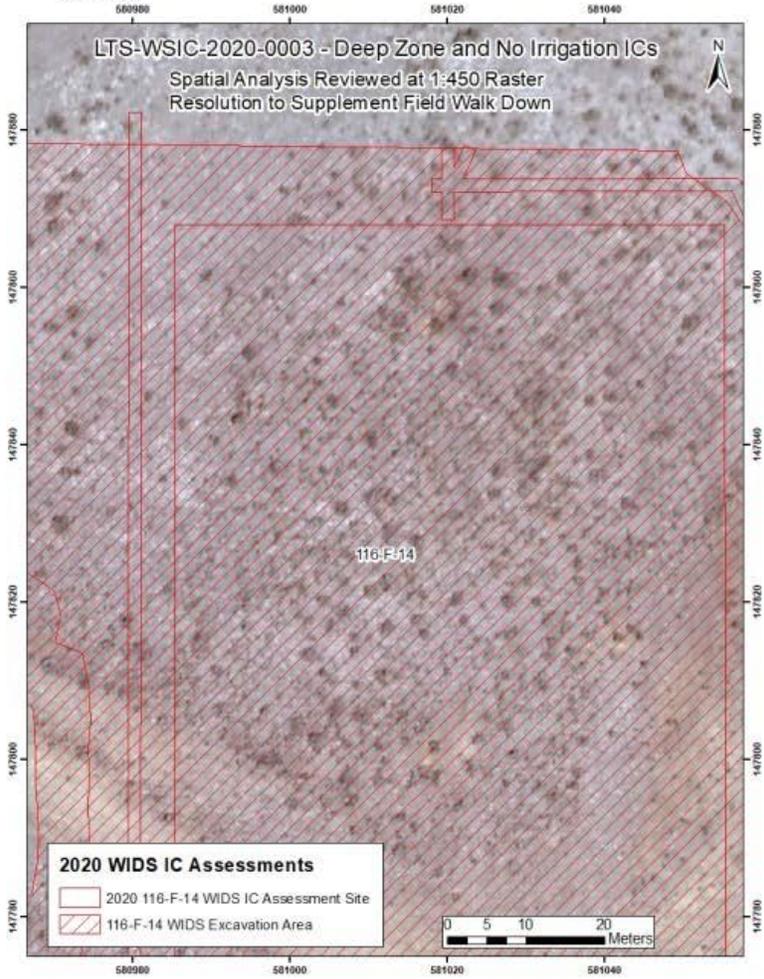
9/30/2020

**Number:** LTS-WSIC-2020-0003

**Image:**

**Date Taken:** 09/29/2020

**Description:** 5/28/2020 high raster resolution (~1 to 450) georeferenced vertical aerial imagery spatial analysis.



Information not reviewed for public release.

## HNF-65616, Rev. 0

### WIDS Site Institutional Control Assessment

9/30/2020

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Number: LTS-WSIC-2020-0003

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**IC Observation:**

**Institutional Control:** Prohibit irrigation

**Performance Objective:** No periodic or repetitive water or other liquids discharges were requested, as confirmed by the ECO.

**Objective Met:** Yes

**Observation:** No known periodic/repetitive water or other liquid discharges occurred to the 116-F-14 waste site, as confirmed by the Environmental Compliance Officer (ECO). See attached email from CHPRC and MSA ECO's.

**IC Observation:**

**Institutional Control:** Prohibit irrigation

**Performance Objective:** No inadvertent long-term releases were made in the vicinity of the site, as confirmed by the ECO.

**Objective Met:** Yes

**Observation:** No known inadvertent long-term or significant releases were reported at or near the 116-F-14 waste site as confirmed by the appropriate ECOs. See attached email from CHPRC and MSA ECOs.

**IC Observation:**

**Institutional Control:** Prohibit irrigation

**Performance Objective:** No man-made drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation.

**Objective Met:** Yes

**Observation:** No man-made drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation.

**Additional Notes:** Hanford HGIS data was reviewed for drainage systems (sanitary/potable water, sanitary sewer, process sewers, export water lines, etc.), wells, and UIC's did not find any man-made drainage systems exist that would discharge to the site.

**IC Observation:**

**Institutional Control:** Prohibit irrigation

**Performance Objective:** No man-made drainage systems that would discharge to the site is observed.

**Objective Met:** Yes

**Observation:** During the field portion and aerial imagery assessment, no man-made drainage systems that would discharge to the site was observed.

**Additional Notes:** During the field walk down of the site, the assessment team systematically traversed the site 20-30 meters apart.

High raster resolution (~1:450) georeferenced vertical aerial imagery taken on 5/28/2020 was used to complete the spatial analysis.

Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number:** LTS-WSIC-2020-0003

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**IC Observation:**

**Institutional Control:** Prohibit irrigation

**Performance Objective:** No unauthorized irrigation is observed.

**Objective Met:** Yes

**Observation:** No unauthorized irrigation or any form of irrigation was observed at the time of the assessment.

**Additional Notes:** During the field walk down of the site, the assessment team systematically traversed the site 20-30 meters apart.

**Image:**

**Date Taken:** 06/03/2020

**Historical Photo Number:** DSC00041

**Description:** General site photo at the northern boundary of the 116-F-14 WIDS site (See geo-tagged photo location on the attached map for assessment, LTS-WSIC-2020-0003) facing west.



Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number:** LTS-WSIC-2020-0003

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**Image:**

**Date Taken:** 06/03/2020

**Historical Photo  
Number:** DSC00035

**Description:** General site photo of the 116-F-14 WIDS site looking northeast. Cobbly surface with a mix of mature sagebrush and grey rabbit brush with recruits was observed.



Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number:** LTS-WSIC-2020-0003

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**Image:**

**Date Taken:** 06/03/2020

**Historical Photo  
Number:** DSC00036

**Description:** General site photo of the 116-F-14 WIDS site looking east. No apparent excavations, irrigation processes, or erosion or subsidence issues observed during this site assessment.



Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number:** LTS-WSIC-2020-0003

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**Image:**

**Date Taken:** 06/03/2020

**Historical Photo  
Number:** DSC00037

**Description:** General site photo facing south of current conditions on June 3, 2020 of the 116-F-14 WDS site. Mature sagebrush and grey rabbitbrush with cobbly surface was observed. No uncontrolled drilling or excavations, or signs of irrigation were observed.



Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number:** LTS-WSIC-2020-0003

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**Image:**

**Date Taken:** 06/03/2020

**Historical Photo  
Number:** DSC00053

**Description:** Photo of the 116-F-14 WIDS site facing east. This shows an area of sparse vegetation leading to a well pad, but dead ends on the west end.



Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number:** LTS-WSIC-2020-0003

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**Image:**

**Date Taken:** 06/03/2020

**Historical Photo Number:** DSC00039

**Description:** General site photo facing north from the south boundary of the 116-F-14 WDS site. Younger recruits of sagebrush and rabbitbrush with a cobbly surface was observed.



Information not reviewed for public release.

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**WIDS Site Institutional Control Assessment**

9/30/2020

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**Number: LTS-WSIC-2020-0003**

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**General Observations:** No significant subsidence or erosion issues were observed.  
All photos collected during this assessment are attached to this assessment report.

**Comments:** The assessment team systematically traversed the entire area of the WIDS site based on the boundaries of the excavation at approximately 20-30 meters apart.  
No significant changes to the general site terrain or vegetation/substrate ground cover were observed during the walk down in comparison to previous years.

**Certifier:** Rohlfing, Deanna B (MSA)      **Date Certified:** 09/30/2020

Information not reviewed for public release.

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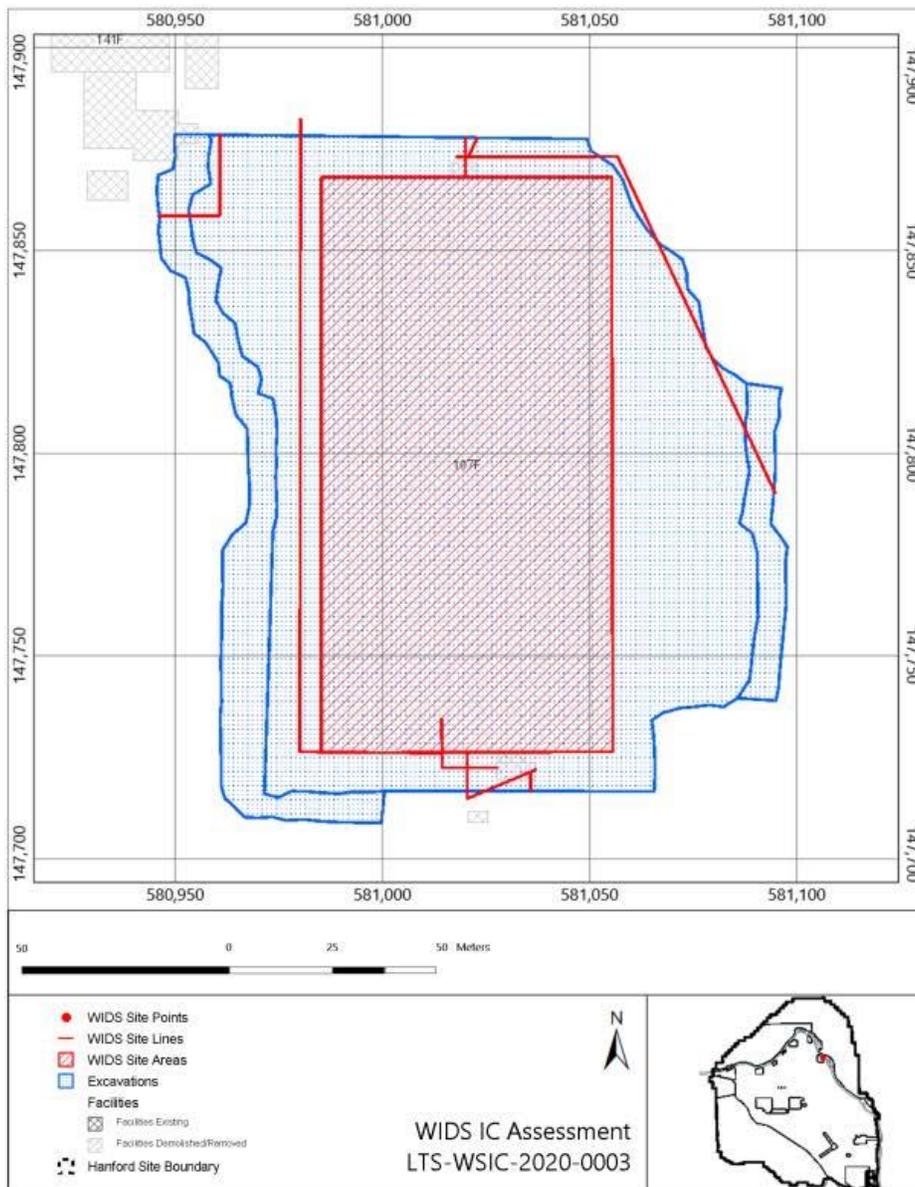
# HNF-65616, Rev. 0

## WIDS Site Institutional Control Assessment

9/30/2020

Number: LTS-WSIC-2020-0003

### Location Map:



Information not reviewed for public release.

## HNF-65616, Rev. 0

**From:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Sent:** Tuesday, September 8, 2020 8:54 AM  
**To:** Cowin, Benjamin J <[benjamin\\_j\\_cowin@rl.gov](mailto:benjamin_j_cowin@rl.gov)>  
**Cc:** Rohlfing, Deanna B <[deanna\\_b\\_rohlfing@rl.gov](mailto:deanna_b_rohlfing@rl.gov)>; Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Subject:** RE: Prohibit Irrigation Institutional Control

Hi Ben,

I received confirmation back from MSA Water & Sewer Utilities, Reliability Projects, and B Reactor ECO's confirming no water or other liquid discharges occurred at the subject WIDS sites this past year. I have attached their email responses for your records/information.

Please let me know if you need anything else.

Thanks

Matt

**From:** Cowin, Benjamin J <[benjamin\\_j\\_cowin@rl.gov](mailto:benjamin_j_cowin@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:26 PM  
**To:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Cc:** Rohlfing, Deanna B <[deanna\\_b\\_rohlfing@rl.gov](mailto:deanna_b_rohlfing@rl.gov)>  
**Subject:** Prohibit Irrigation Institutional Control

We are currently conducting our annual institutional control assessment for the WIDS sites managed by LTS. There are three sites in the 100 Areas that have ICs to prevent irrigation/watering that would mobilize contamination. The sites are 116-F-14, 118-B-1, and 128-B-3. For each site, would you be able to answer the following questions:

- 1) Were any periodic/repetitive water or other liquid discharges to the site approved by your organization in FY 2020?
- 2) Were there any inadvertent long-term or significant releases that were reported in the vicinity of the site?

The attached maps show the locations of the three sites. Could you please get back to us by September 15<sup>th</sup>?

I have attached the information that we received last year from Kip George.

Thank you,

Ben Cowin  
Environmental Project Manager  
MSA Land Stewardship  
(509) 372-0116

HNF-65616, Rev. 0

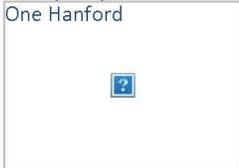
**From:** [Manzo, Jesus B](#)  
**To:** [Barnes, Brett M](#); [Mills, Mathison](#); [George, Kip A](#); [Carlson, Michael E](#); [Pennala, Eric S](#); [Shaw, David C](#)  
**Cc:** [Croft, Nicholas F](#)  
**Subject:** RE: Prohibit Irrigation Institutional Control  
**Date:** Tuesday, September 8, 2020 5:21:21 AM

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None that I am aware of or know about.

**Jesse Manzo**  
Operations Supervisor,  
MSA Water Utilities, WDM1  
Office (509)373-4809  
Cell (509)761-2541

One Hanford



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**From:** Barnes, Brett M <[brett\\_m\\_barnes@rl.gov](mailto:brett_m_barnes@rl.gov)>  
**Sent:** Thursday, September 3, 2020 4:09 PM  
**To:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>; George, Kip A <[kip\\_a\\_george@rl.gov](mailto:kip_a_george@rl.gov)>; Carlson, Michael E <[michael\\_e\\_carlson@rl.gov](mailto:michael_e_carlson@rl.gov)>; Pennala, Eric S <[eric\\_s\\_pennala@rl.gov](mailto:eric_s_pennala@rl.gov)>; Shaw, David C <[david\\_c\\_shaw@rl.gov](mailto:david_c_shaw@rl.gov)>  
**Cc:** Croft, Nicholas F <[nicholas\\_f\\_croft@rl.gov](mailto:nicholas_f_croft@rl.gov)>; Manzo, Jesus B <[jesus\\_b\\_manzo@rl.gov](mailto:jesus_b_manzo@rl.gov)>  
**Subject:** RE: Prohibit Irrigation Institutional Control

None that I am aware of, Mr. Croft, Mr. Manzo...anything you are aware of?

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**From:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:48 PM  
**To:** Barnes, Brett M <[brett\\_m\\_barnes@rl.gov](mailto:brett_m_barnes@rl.gov)>; George, Kip A <[kip\\_a\\_george@rl.gov](mailto:kip_a_george@rl.gov)>; Carlson, Michael E <[michael\\_e\\_carlson@rl.gov](mailto:michael_e_carlson@rl.gov)>; Pennala, Eric S <[eric\\_s\\_pennala@rl.gov](mailto:eric_s_pennala@rl.gov)>; Shaw, David C <[david\\_c\\_shaw@rl.gov](mailto:david_c_shaw@rl.gov)>  
**Cc:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Subject:** FW: Prohibit Irrigation Institutional Control

All,

Did any of your line organizations initiate irrigation/watering in the 100-B/C or 100-F Areas this past FY? Specifically, the WIDS sites areas identified in the attached pdf maps. If you could let me know ASAP it would be much appreciated. Your responses from last year are also attached for reference.

Have a great day.

Matt

## HNF-65616, Rev. 0

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**From:** Cowin, Benjamin J <[benjamin\\_j\\_cowin@ri.gov](mailto:benjamin_j_cowin@ri.gov)>  
**Sent:** Thursday, September 3, 2020 3:26 PM  
**To:** Mills, Mathison <[mathison\\_mills@ri.gov](mailto:mathison_mills@ri.gov)>  
**Cc:** Rohlfing, Deanna B <[deanna\\_b\\_rohlfing@ri.gov](mailto:deanna_b_rohlfing@ri.gov)>  
**Subject:** Prohibit Irrigation Institutional Control

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- 2) Were there any inadvertent long-term or significant releases that were reported in the vicinity of the site?

The attached maps show the locations of the three sites. Could you please get back to us by September 15<sup>th</sup>?

I have attached the information that we received last year from Kip George.

Thank you,

Ben Cowin  
Environmental Project Manager  
MSA Land Stewardship  
(509) 372-0116

HNF-65616, Rev. 0

**From:** [George, Kip A](#)  
**To:** [Mills, Mathison](#)  
**Subject:** RE: Prohibit Irrigation Institutional Control  
**Date:** Tuesday, September 8, 2020 5:57:52 AM

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Matt,

No irrigation/watering or other liquid discharges have occurred from B Reactor operations/tours to the WIDS site in the 100B/C Areas.

**Kip A. George**  
Environmental Compliance Officer  
Environmental Compliance & Sustainability  
Office: (509) 373-2785  
Cell: (509) 438-9480



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**From:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:48 PM  
**To:** Barnes, Brett M <[brett\\_m\\_barnes@rl.gov](mailto:brett_m_barnes@rl.gov)>; George, Kip A <[kip\\_a\\_george@rl.gov](mailto:kip_a_george@rl.gov)>; Carlson, Michael E <[michael\\_e\\_carlson@rl.gov](mailto:michael_e_carlson@rl.gov)>; Pennala, Eric S <[eric\\_s\\_pennala@rl.gov](mailto:eric_s_pennala@rl.gov)>; Shaw, David C <[david\\_c\\_shaw@rl.gov](mailto:david_c_shaw@rl.gov)>  
**Cc:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Subject:** FW: Prohibit Irrigation Institutional Control

All,

Did any of your line organizations initiate irrigation/watering in the 100-B/C or 100-F Areas this past FY? Specifically, the WIDS sites areas identified in the attached pdf maps. If you could let me know ASAP it would be much appreciated. Your responses from last year are also attached for reference.

Have a great day.

Matt

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**From:** Cowin, Benjamin J <[benjamin\\_j\\_cowin@rl.gov](mailto:benjamin_j_cowin@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:26 PM  
**To:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Cc:** Rohlfing, Deanna B <[deanna\\_b\\_rohlfing@rl.gov](mailto:deanna_b_rohlfing@rl.gov)>  
**Subject:** Prohibit Irrigation Institutional Control

We are currently conducting our annual institutional control assessment for the WIDS sites managed

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by LTS. There are three sites in the 100 Areas that have ICs to prevent irrigation/watering that would mobilize contamination. The sites are 116-F-14, 118-B-1, and 128-B-3. For each site, would you be able to answer the following questions:

- 1) Were any periodic/repetitive water or other liquid discharges to the site approved by your organization in FY 2020?
- 2) Were there any inadvertent long-term or significant releases that were reported in the vicinity of the site?

The attached maps show the locations of the three sites. Could you please get back to us by September 15<sup>th</sup>?

I have attached the information that we received last year from Kip George.

Thank you,

Ben Cowin  
Environmental Project Manager  
MSA Land Stewardship  
(509) 372-0116

HNF-65616, Rev. 0

**From:** [Croft, Nicholas F](mailto:Croft_Nicholas_F)  
**To:** [Barnes, Brett M](mailto:Barnes_Brett_M); [Mills, Mathison](mailto:Mills_Mathison); [George, Kip A](mailto:George_Kip_A); [Carlson, Michael E](mailto:Carlson_Michael_E); [Pennala, Eric S](mailto:Pennala_Eric_S); [Shaw, David C](mailto:Shaw_David_C)  
**Cc:** [Manzo, Jesus B](mailto:Manzo_Jesus_B)  
**Subject:** RE: Prohibit Irrigation Institutional Control  
**Date:** Thursday, September 3, 2020 4:12:01 PM

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We had no such discharges.

*Nic*

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**From:** Barnes, Brett M <[brett\\_m\\_barnes@rl.gov](mailto:brett_m_barnes@rl.gov)>  
**Sent:** Thursday, September 3, 2020 4:09 PM  
**To:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>; George, Kip A <[kip\\_a\\_george@rl.gov](mailto:kip_a_george@rl.gov)>; Carlson, Michael E <[michael\\_e\\_carlson@rl.gov](mailto:michael_e_carlson@rl.gov)>; Pennala, Eric S <[eric\\_s\\_pennala@rl.gov](mailto:eric_s_pennala@rl.gov)>; Shaw, David C <[david\\_c\\_shaw@rl.gov](mailto:david_c_shaw@rl.gov)>  
**Cc:** Croft, Nicholas F <[nicholas\\_f\\_croft@rl.gov](mailto:nicholas_f_croft@rl.gov)>; Manzo, Jesus B <[jesus\\_b\\_manzo@rl.gov](mailto:jesus_b_manzo@rl.gov)>  
**Subject:** RE: Prohibit Irrigation Institutional Control

None that I am aware of, Mr. Croft, Mr. Manzo...anything you are aware of?

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**From:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:48 PM  
**To:** Barnes, Brett M <[brett\\_m\\_barnes@rl.gov](mailto:brett_m_barnes@rl.gov)>; George, Kip A <[kip\\_a\\_george@rl.gov](mailto:kip_a_george@rl.gov)>; Carlson, Michael E <[michael\\_e\\_carlson@rl.gov](mailto:michael_e_carlson@rl.gov)>; Pennala, Eric S <[eric\\_s\\_pennala@rl.gov](mailto:eric_s_pennala@rl.gov)>; Shaw, David C <[david\\_c\\_shaw@rl.gov](mailto:david_c_shaw@rl.gov)>  
**Cc:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Subject:** FW: Prohibit Irrigation Institutional Control

All,

Did any of your line organizations initiate irrigation/watering in the 100-B/C or 100-F Areas this past FY? Specifically, the WIDS sites areas identified in the attached pdf maps. If you could let me know ASAP it would be much appreciated. Your responses from last year are also attached for reference.

Have a great day.

Matt

---

**From:** Cowin, Benjamin J <[benjamin\\_j\\_cowin@rl.gov](mailto:benjamin_j_cowin@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:26 PM  
**To:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
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by LTS. There are three sites in the 100 Areas that have ICs to prevent irrigation/watering that would mobilize contamination. The sites are 116-F-14, 118-B-1, and 128-B-3. For each site, would you be able to answer the following questions:

- 1) Were any periodic/repetitive water or other liquid discharges to the site approved by your organization in FY 2020?
- 2) Were there any inadvertent long-term or significant releases that were reported in the vicinity of the site?

The attached maps show the locations of the three sites. Could you please get back to us by September 15<sup>th</sup>?

I have attached the information that we received last year from Kip George.

Thank you,

Ben Cowin  
Environmental Project Manager  
MSA Land Stewardship  
(509) 372-0116

## HNF-65616, Rev. 0

**From:** [Carlson, Michael E](mailto:Carlson_Michael_E)  
**To:** [Mills, Mathison](mailto:Mills_Mathison)  
**Subject:** RE: Prohibit Irrigation Institutional Control  
**Date:** Thursday, September 3, 2020 3:55:35 PM

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Matt,

Neither Project Services nor Fleet Services conducted irrigation/watering at either of these two WIDS sites this past FY.

Thank you,

Mick

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**From:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Sent:** Thursday, September 3, 2020 3:48 PM  
**To:** Barnes, Brett M <[brett\\_m\\_barnes@rl.gov](mailto:brett_m_barnes@rl.gov)>; George, Kip A <[kip\\_a\\_george@rl.gov](mailto:kip_a_george@rl.gov)>; Carlson, Michael E <[michael\\_e\\_carlson@rl.gov](mailto:michael_e_carlson@rl.gov)>; Pennala, Eric S <[eric\\_s\\_pennala@rl.gov](mailto:eric_s_pennala@rl.gov)>; Shaw, David C <[david\\_c\\_shaw@rl.gov](mailto:david_c_shaw@rl.gov)>  
**Cc:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Subject:** FW: Prohibit Irrigation Institutional Control

All,

Did any of your line organizations initiate irrigation/watering in the 100-B/C or 100-F Areas this past FY? Specifically, the WIDS sites areas identified in the attached pdf maps. If you could let me know ASAP it would be much appreciated. Your responses from last year are also attached for reference.

Have a great day.

Matt

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**Sent:** Thursday, September 3, 2020 3:26 PM  
**To:** Mills, Mathison <[mathison\\_mills@rl.gov](mailto:mathison_mills@rl.gov)>  
**Cc:** Rohlfing, Deanna B <[deanna\\_b\\_rohlfing@rl.gov](mailto:deanna_b_rohlfing@rl.gov)>  
**Subject:** Prohibit Irrigation Institutional Control

We are currently conducting our annual institutional control assessment for the WIDS sites managed by LTS. There are three sites in the 100 Areas that have ICs to prevent irrigation/watering that would mobilize contamination. The sites are 116-F-14, 118-B-1, and 128-B-3. For each site, would you be able to answer the following questions:

- 1) Were any periodic/repetitive water or other liquid discharges to the site approved by your organization in FY 2020?

## HNF-65616, Rev. 0

- 2) Were there any inadvertent long-term or significant releases that were reported in the vicinity of the site?

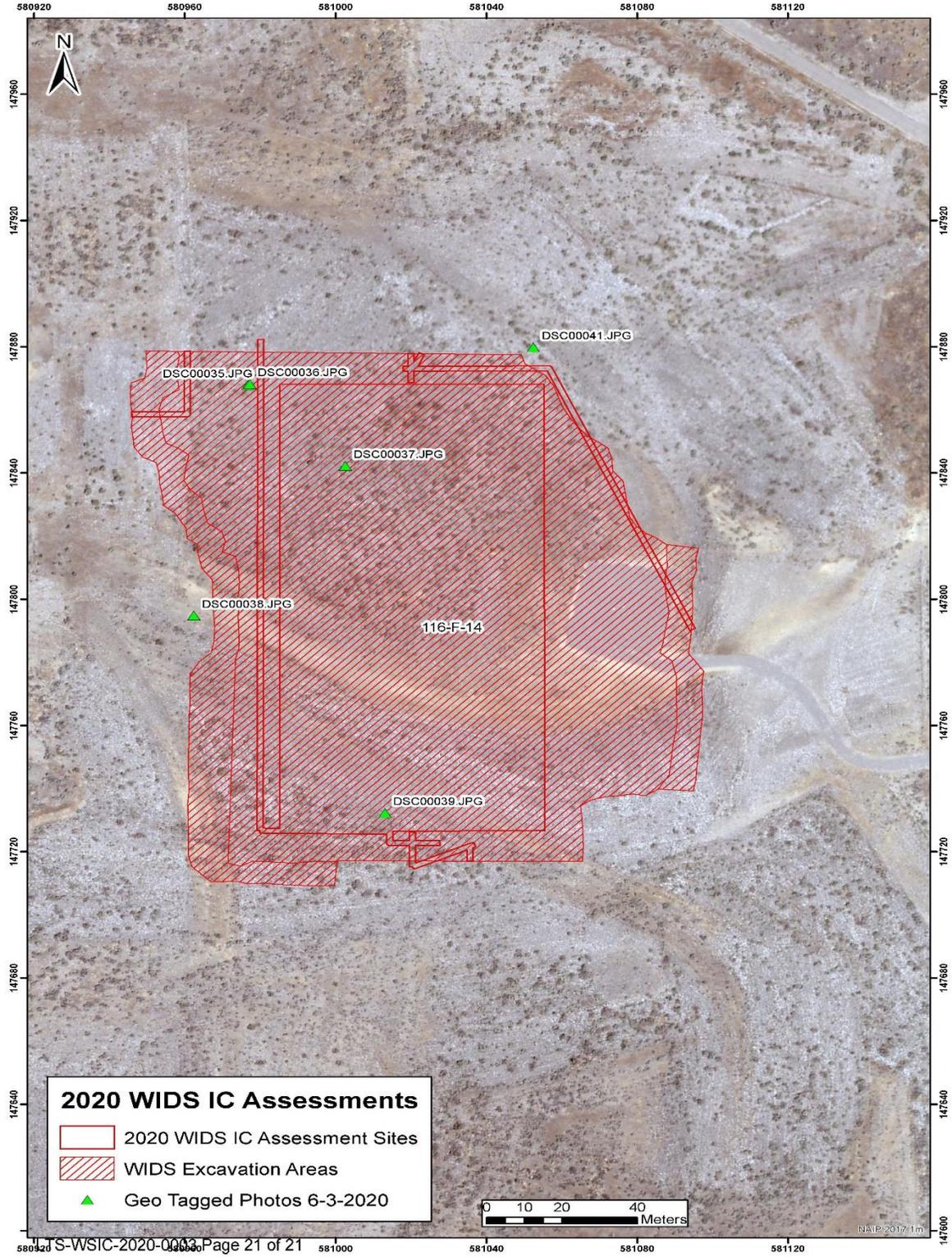
The attached maps show the locations of the three sites. Could you please get back to us by September 15<sup>th</sup>?

I have attached the information that we received last year from Kip George.

Thank you,

Ben Cowin  
Environmental Project Manager  
MSA Land Stewardship  
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HNF-65616, Rev. 0



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MSA-1105355.9

**CONTRACT NO. DE-AC06-09RL14728**

**ATTACHMENT 2**

**Contract Deliverable CD0182**

**FY 2020 SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT  
CH2M HILL PLATEAU REMEDIATION COMPANY**

Consisting of 16 pages,  
including this cover page

## 100 Area Background and Introduction

The 100-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. Institutional Controls Requirements Listed in Record of Decision for Final Remedial Action for Hanford 100 Area, 100-K Basins Operable Unit (Required through time of completion of the remedy.)		
Institutional Control Category	Institutional Controls Requirement	2020 Status
Entry Restrictions	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.
Warning Notices	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 181KW and 181KE buildings along the river (Figures 1 through 6). The signs are effective controls.
Miscellaneous Provision	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.
Miscellaneous Provision	Report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	DOE reports trespass incidents to appropriate authorities.
Land-Use Management	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. The controls remain in place as managed by MSA.
Miscellaneous Provision	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.	Institutional control requirements were modified and placed in the Administrative Record.
Miscellaneous Provision	The implementation and effectiveness of institutional controls will be evaluated and reported in accordance with DOE/RL-2001-41, Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions.	The assessment of the implementation and effectiveness of the institutional controls were evaluated and reported.
Warning Notices  Entry Restrictions	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.



Figure 1. Approaching Main Entrance to 100-K.



Figure 2. Signage to main entrance to 100-K.



Figure 3. Southwest fence line of 100-K.



Figure 4. West fence line at 100-K.



Figure 5. Warning signs at the former 100-KW Intake Structure.



Figure 6. Warning signs at the former 100-KE Intake Structure.



Figure 7. Taken on the North West side of the KW Reactor.



Figure 8. East fence line at 100-K.



Figure 9. Southeast gate entrance to 100-K.

200 Area Background and Introduction

The 200 Area Central Plateau Records 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 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 2. Institutional Controls Requirements Listed in Record of Decision for Final Remedial Action for Hanford 200 Area, 200-UP-1 Operable Unit (Required through time of completion of the remedy.)

Institutional Controls Category	Institutional Controls Requirement	2020 Status
Entry Restrictions	The 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.
Land-Use Management	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.
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.	No findings, no unauthorized wells have been drilled.
Groundwater-Use Management	The 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 Management	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.
Warning Notices	The 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.
Miscellaneous Provision	In the event of any unauthorized access (e.g. trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access or trespass.
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.	No findings, no activities have been implemented that would disrupt/lesson performance of the interim remedy
Miscellaneous Provision	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.	No findings.

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

Institutional Controls Category	Institutional Controls Requirement	2020 Status
Land-Use Management	The 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.
Miscellaneous Provision	The 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.
Land-Use Provision	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.
Miscellaneous Provision	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.

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).

Institutional Controls Category	Institutional Controls Requirement	2020 Status
Entry Restrictions	DOE shall control access to prevent unacceptable exposure of humans to contaminants at the 221-U Facility site addressed in the scope of this ROD until remedy construction is complete. Visitors entering any site areas are required to be badged and escorted at all times. See Figure 7 of the 221-U Facility ROD (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.
Land-Use Management	No intrusive work shall be allowed at the 221-U Facility site unless the EPA and Ecology have approved the plan for such work and that plan is followed.	No findings, work plans are being/have been submitted for approval.
Land-Use Management	DOE shall prohibit well drilling at the 221-U Facility site except for monitoring, characterization, or remediation wells authorized in EPA-and Ecology-approved documents.	No findings, no unauthorized wells have been drilled.
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 Operable Unit and 200-UP-1 Groundwater Operable Unit 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.
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.	No findings, warning signs are in place.
Miscellaneous Provision	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.

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 Category	Institutional Controls Requirement	2020 Status
Entry Restrictions	The 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.
Land-Use Management	No intrusive work shall be allowed in the 200-ZP-1 OU unless EPA has approved the plan for such work and that plan is followed.	No findings, work plans are being/have been submitted for approval.
Land-Use Management	The DOE shall prohibit well drilling in the 200-ZP-1 OU, except for monitoring, characterization or remediation wells authorized in EPA approved documents.	No findings, no unauthorized wells have been drilled.
Groundwater-Use Management	Groundwater use in the 200-ZP-1 OU is prohibited, except for limited research purposes, monitoring, and treatment authorized in EPA approved documents. The <i>Sitewide Institutional Controls Plan</i> will contain the institutional controls and implementing details prohibiting well drilling and groundwater use in the 200-ZP-1 OU, as defined in the Decision document for the 200-ZP-1 OU.	No findings, no unauthorized groundwater use has occurred.
Warning Notices	The 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 10-12).
Miscellaneous Provision	In the event of any unauthorized access to the site (e.g., trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	No findings, no unauthorized access to the site has occurred.
Land-Use Management	Activities that would disrupt or lessen the performance of the pump-and-treat, MNA (Monitored Natural Attenuation), and flow-path control components of the remedy are to be prohibited.	No findings, no activities have been implemented that would disrupt/lessen performance of remedy.
Land-Use Management	The DOE shall prohibit activities that would damage the pump-and-treat, MNA, and flow-path control components (e.g., extraction wells, injection wells, piping, treatment plant, or monitoring wells).	No findings, no activities have been implemented that would damage the remedy components.
Miscellaneous Provision	The 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.
Land-Use Management	The DOE will provide notice to EPA at least six 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 six 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, the 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.

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 Category	Institutional Controls Requirement	2020 Status
Land -Use Management	The DOE will prevent the development and use of property above the 200-ZP-1 groundwater OU for residential housing, elementary and secondary schools, childcare facilities and playgrounds.	No findings, no property development has taken place.
Land -Use Management	Land use controls will be maintained until cleanup levels are achieved and the concentrations of hazardous substances in groundwater are at such levels to allow for unrestricted use and exposure and EPA authorizes the removal of restrictions.	No findings, land use controls are still in place.



Figure 10. Beloit and 23<sup>rd</sup> Street.



Figure 11. Camden and 23<sup>rd</sup> Street.



Figure 12. East of 200 West P&T

Table 5. Institutional Controls Requirements (Required through the Time of Completion of Remedy Construction) Listed in Record of Decision for 200-CW-2 and 200-PW-1, 200-PW-3, and 200-PW-6 Operable Units.

Institutional Controls Category	Institutional Controls Requirement	2020 Status
Entry Restrictions	DOE shall controls access to prevent unacceptable exposure of humans to contaminants in the 200-CW-5 and 200-PW-1, 200-PW-3, and 200-PW-6 OU's. Visitors entering any of these OUs will be required to be badged and escorted at all time.	No findings, access controls still in place.
Warning Notices	DOE shall post and maintain warning signs at the waste sites in these OUs that caution visitors and workers of potential hazards from contaminants below the ground surface.	No findings, warning signs are in place.
Miscellaneous Provision	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.
Land-Use Management	DOE shall prohibit activities that are not industrial in nature, and prohibit drilling, excavation, or use of soil at these waste sites.	No findings.
Groundwater Use Management	DOE shall prohibit use of groundwater located beneath the 200-CW-5, 200-PW-1, 200-PW-3, and 200-PW-6 OUs for the foreseeable future until drinking water standards are achieved.	No findings, no use of groundwater as a drinking water standards.
Land-Use Management	DOE shall maintain the integrity of and prohibit activities that could damage or lessen the performance of required evapotranspiration caps and soil covers.	Not applicable at present time.
Miscellaneous Provision	DOE shall report annually on the effectiveness of ICs for the 200-CW-4 and 200-PW-1, 200-PW-3, and 200-PW-6 OUs as specified in the Hanford Sitewide Institutional Controls Plan or an alternative report reporting frequency specified by EPA.	No findings, ICs have been effective.
Land-Use Management	DOE will provide notice to EPA at least 6 months prior to any transfer or sale of any land in the 200-CW-1 and 200-PW-1, 200-PW-3, and 200-PW-6 so EPA can be involved in discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective ICs. If it is not possible for DOE to notify 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.	Land has not been transferred or sold, no findings.
Land-Use Management	DOE will prevent the development and use of 200-CW-5, 200-PW-1, 200-PW-3, and 200-Pw-6 OUs for residential housing, elementary and secondary schools, childcare facilities, and playgrounds.	Development of land has not occurred, no findings.
Land-Use Management	Land-use controls will be maintained as long as the contamination remains at levels do not allow for unrestricted use and unlimited exposure and shall not be removed without the prior authorization of EPA.	Land use controls are still being maintained.

Table 6. Institutional Controls Requirements Listed in Record of Decision for Environmental Restoration Disposal Facility.

<b>Institutional Controls Category</b>	<b>Institutional Controls Requirement</b>	<b>2020 Status</b>
Entry Restrictions	DOE shall controls access to restrict public access to the landfill.	No findings, access controls still in place.

300 Area Background and Introduction

The 300 Area Records 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 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 7. Institutional Controls Requirements Listed in 300-FF-1 Amendment and 300-FF-2 Operable Unit Record of Decision for 300-5, 331- LSLT1, 331-LSLT2, and 618-11 Waste Sites

Institutional Controls Category	Institutional Controls Requirement	2020 Status
Entry Restrictions	DOE shall controls access to prevent unacceptable exposure of humans to contaminants. Visitors entering any of these OUs will be required to be badged and escorted at all time.	No findings, access controls still in place.
Warning Notices	DOE shall post and maintain warning signs at the waste sites in these OUs that caution visitors and workers of potential hazards from contaminants below the ground surface.	No findings, warning signs are in place.
Miscellaneous Provision	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.
Land-Use Management	DOE shall prohibit activities that are not industrial in nature, and prohibit drilling, excavation, or use of soil at these waste sites.	No findings.
Groundwater Use Management	DOE shall prohibit use of groundwater for the foreseeable future until cleanup levels are achieved.	No findings, no use of groundwater as a drinking water standards.
Land-Use Management	DOE shall maintain the integrity of and prohibit activities that could damage or lessen the performance of required evapotranspiration caps and soil covers.	Not applicable at present time.
Miscellaneous Provision	DOE shall report annually on the effectiveness of ICs as specified in the Hanford Sitewide Institutional Controls Plan or an alternative report reporting frequency specified by EPA.	No findings, ICs have been effective.
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	Land has not been transferred or sold, no findings.

MSA-1105355.9

CONTRACT NO. DE-AC06-09RL14728

ATTACHMENT 3

Contract Deliverable CD0182

**ASSESSMENT OF CERCLA INSTITUTIONAL CONTROLS  
FOR BUILDINGS OCCUPIED BY PNNL IN THE  
HANFORD 300 AREA**

Consisting of 18 pages,  
including this cover page

Pacific Northwest National Laboratory (PNNL) occupies 300 Area facilities that are being retained to support PNNL missions. As of this date, those facilities include:

**Table 1. PNNL-Occupied 300 Area Retained Facilities**

<b>Building #</b>	<b>Building Name/Function</b>
312	Pump Pit
318	Radiological Calibrations Laboratory
325	Radiochemical Processing Laboratory (RPL)
331	Life Sciences Laboratory I
339A	Computer Server Building
350	Plant Operations and Maintenance Facility
350A	Paint Shop
350B	Warehouse
350C	Storage Building
350D	Oil Storage Facility
3614A	River Water Support Building
385	Sanitary Water Pump Building

\*NOTE: 3220 Building is in the process of being transferred to PNSO/PNNL in late CY2020. The 318, 331, and 325 Building boiler annexes are planned to transfer to PNNL in late summer 2021.

The “Hanford Site 300 Area Record of Decision for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1”, dated November 2013 (hereinafter “300 Area ROD”) identifies several waste sites which, while not the direct responsibility of PNNL, rely on measures utilized by PNNL as part of the management of the retained facility for compliance with the institutional controls requirements. These waste sites are associated with the retained facilities in that they lie underneath or in close proximity to PNNL operated facilities, which prevents the exercise of the selected remedy (i.e., remove contaminated soil to disposal until industrial cleanup levels have been reached) until the buildings can be demolished. The waste sites identified in the 300 Area ROD that are deferred and located adjacent to PNNL occupied facilities include:

**Table 2. Waste Sites Adjacent to PNNL Occupied Facilities**

<b>WIDS ID</b>	<b>Description</b>	<b>Associated With</b>
300 RLWS	Radioactive Liquid Waste System	325RPL
300 RRLWS	Retired Radioactive Liquid Waste System	325RPL
300-15	300 Area Process Sewer	318, 325RPL, 331
300-265	324/325 Building Transfer Pipeline	325RPL
300-269	331-A Building Foundation	331
331 LSLT1*	LSL Septic Tank/Drainfield	331
331 LSLT2*	LSL Septic Tank/Drainfield	331
UPR-300-10	Pipeline Leak Under 325-B Building	325RPL
UPR-300-12	Pipeline Leak Under 325-A Building	325RPL
UPR-300-48	Broken Pipe Under 325 Building	325RPL

\* CHPRC stabilized these WIDS sites in 2019.

This assessment identifies the applicable 300 Area ROD requirements that are met or partially met through PNNL’s management activities for the 300 Area retained facilities it occupies and those facilities’ associated WIDS sites.

Table 3. Assessment of Institutional Controls in 300 Area ROD and Applicable to PNNL Retained Facilities.

<b>Institutional Controls Requirement<sup>1</sup></b>	<b>Institutional Controls Status</b>
Signage and access control to waste sites	Warning sign posted at 300 Area entrances (maintained by MSA). PNNL maintains access control (using keys or proxcards) to its facilities.
Maintenance and operation of an excavation permit program for protection of environmental and cultural resources and site workers	PNNL excavations are performed in accordance with the How Do I? <i>Excavation Work Environment</i> work control This work control specifies use of the Mission Support Alliance (MSA) excavation permit program for the Hanford Site when excavation is proposed in the 300 Area.
Administrative controls limiting groundwater access and use where groundwater is above clean up levels (CULs)	Groundwater access and use is prohibited, except for utilization of the 399-4-12 well for supplemental water supply for the aquatic research facility in 331 as previously authorized.

<sup>1</sup> From 300 Area ROD Section 9.2.

Table 3. Assessment of Institutional Controls in 300 Area ROD and Applicable to PNNL Retained Facilities.

<b>Institutional Controls Requirement<sup>1</sup></b>	<b>Institutional Controls Status</b>
<p>Prevent enhanced recharge over or near waste sites with potential to pose an unacceptable groundwater risk from irrigation</p>	<p>No irrigation at any PNNL-occupied 300 Area facility was allowed except for the 331 Building. PNNL discontinued irrigation around the 331 Building except for the west tree line and a few shrubs near the south building entrance in June 2014.</p> <p>Drinking water system flushing is performed routinely at fire hydrants in the 300 Area and is coordinated with CHPRC and MSA to obtain approval prior to allowing discharge. Fire hydrant discharge approvals are included as an attachment. In 2020 modifications for discharge locations from fire hydrants #3 and #84 were coordinated with MSA to reduce potential impacts to underground contamination areas.</p>
<p>Prevent bare gravel or bare sand covers over waste sites in the 300 Area Industrial Complex in areas where contamination exceeds residential groundwater and river protection CULs</p>	<p>Areas around PNNL-occupied 300 Area buildings are paved with asphalt except for 331. WIDS sites directly adjacent to 331 (east side of building) were capped in FY18 with a ROD-compliant cover under a project managed and executed by CHPRC.</p>

Table 3. Assessment of Institutional Controls in 300 Area ROD and Applicable to PNNL Retained Facilities.

<b>Institutional Controls Requirement<sup>1</sup></b>	<b>Institutional Controls Status</b>
<p>Prevent enhanced recharge from the discharge of water (such as drainage from paved parking lots or buildings) in areas where contamination exceeds residential groundwater and river protection CULs. Prevent irrigation in areas where contamination exceeds residential groundwater and river protection CULs.</p>	<p>Paved areas are generally graded to drain away from buildings and waste sites. CHPRC has re-routed parking lot runoff on the east side of the 331 Building and installed a ROD-compliant cover over the WIDS sites (see above). Building and roof drains are routed to: 1) registered underground injection control (UIC) wells in the 300 Area (see attached miscellaneous streams map and description); 2) paved areas that follow the natural slope of the 300 Area towards the Columbia River.</p> <p>Additional asphalt was placed in the northeast corner of the 325 Building to prevent stormwater from infiltrating into the basement. The design allows water to be channeled to the north of the facility and was coordinated with MSA to evaluate against the 300Area IC's.</p>

2020 Releases

In FY2020, PNNL had the following release to ground that presented potential impacts to the 300 Area institutional controls:

- Fire Hydrant 52 repair – On 9/17/2019, a PNNL contractor was replacing hydrant #52 located north of the 350 Building. When cutting the line leading to the hydrant an adjacent thrust block failed causing the line to separate. Water flowed from the pipe at an estimated 500gpm for 10-15 minutes (up to 6,000 gallons total) before being shut off. Water infiltrated to the east side of toward the 339A Building.

**Attachment 1 – PNNL 300A UIC Locations**

ACTIVE STREAMS								
Stream Number	WIDS Site Code	Process Description	Flow (gpm)	Disposal Structure	Washington State Planar Coordinates (meters) Lat/Long	Comments	Stream Status/ UIC Code	PNNL STATUS
792	300-243	318 Building – LOCATION: Storm water runoff from paved area on North side of building. Catch basin leads to UIC well.	<0.01	Injection Well	E594031.5 N115528.2	Catch basin drains to injection well.	AC/ 5D2	<ul style="list-style-type: none"> <li>• Status Verified 5/15/98.</li> <li>• Status verified 5/19/99. (BPA / MJM)</li> <li>• Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>
793	300-244	318 Building – LOCATION: Storm water runoff from east side of building in graveled area between road and building. No UIC well is visible.	<0.01	Injection Well	E594057.3 N115485.3	No UIC well is visible.	AC/ 5D2	<ul style="list-style-type: none"> <li>• Status Verified 5/15/98.</li> <li>• Status verified 5/19/99. (BPA / MJM)</li> <li>• Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>
883	N/A	318 Building - Stormwater runoff from stairwell pit. LOCATION: West side of building at bottom of stairwell pit near rollup door.	<0.01	Injection Well	E594007 N115525	Registered with Ecology on 9/5/2008	AC/ 5D2	<ul style="list-style-type: none"> <li>• New – To be installed in 2008. Rerouting stormwater from sewer to ground as part of 300 Area transition project.</li> <li>• Well installation verified via photos 3/12 (EAR).</li> </ul>
706	300-97	325 Building – Storm water runoff and fire system test water. LOCATION: south side of building.	<0.01	Injection Well	E594029.0 N115758.9  E594034.0 N115765.6	ADDED: Per 8/2/96 cc:Mail from B. Atencio	AC/ 5D2	<ul style="list-style-type: none"> <li>• Status Verified 5/8/98.</li> <li>• Status verified 5/19/99. (BPA / MJM)</li> <li>• Coordinates/location corrected by Dave Encke, WCH 8/13/09.</li> <li>• Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>
447	300-107	331 Building – Storm water runoff. LOCATION: west side of building by kennels	<0.01	Injection Well	E594469.0 N115383.0	Injection Well # 32.	AC/ 5D2	<ul style="list-style-type: none"> <li>• Status Verified 5/6/98.</li> <li>• Status verified 5/19/99. (BPA / MJM)</li> <li>• Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>
448	300-108	331 Building – Storm water runoff. LOCATION: west side, 40' south from the northwest corner of building. Catch basins drain low lying areas from two doorways.	<0.01	Injection Well	E594492.9 N115453.3	Injection Well #37.	AC/ 5D2	<ul style="list-style-type: none"> <li>• Status Verified 5/6/98. Revise location description.</li> <li>• Status verified 5/19/99. (BPA / MJM)</li> <li>• Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>

ACTIVE STREAMS								
Stream Number	WIDS Site Code	Process Description	Flow (gpm)	Disposal Structure	Washington State Planar Coordinates (meters) Lat/Long	Comments	Stream Status/ UIC Code	PNNL STATUS
513	300-105	331 Building - Steam Condensate. LOCATION: 30 feet off the northwest corner of the 331 building.	<0.01	Injection Well	E594497.438 N115462.891		AC/ 5A19	<ul style="list-style-type: none"> <li>Stream incorrectly assigned to PNNL. DynCorp owner per June 1, 1998 e-mail message from Michelle Gunter.</li> <li>Status verified 8/17/98. BPA- (PNNL), SW - (BHI), TJ - (BHI)</li> <li>Assigned to WCH in Hanford Site UIC database update 8/22/11.</li> </ul>
827	N/A	350 Building - French drain to collect storm water. LOCATION: Inside west gate to the Service Yard on the north side of the driveway near 350A	<0.01	Injection Well	E593898 N115384	Added per e-mail to D. Korematsu-Olund on 8/31/00 from E. Raney	AC/ 5D2	<ul style="list-style-type: none"> <li>New - Installed September 2000</li> <li>Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>
828	N/A	350 Building - French drain to collect storm water. LOCATION: Near the north edge of the Service driveway, midway between 350B and 350C	<0.01	Injection Well	E593948 N115384	Added per e-mail to D. Korematsu-Olund on 8/31/00 from E. Raney	AC/ 5D2	<ul style="list-style-type: none"> <li>New - Installed September 2000</li> <li>Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).</li> </ul>
TBD	N/A	331 Building – WCH disconnected stormwater line from process sewer in 2009 and installed new injection well north of 331 by lift station #12	<0.01	Injection Well	N115516.43 E59483.22	NA	???	<ul style="list-style-type: none"> <li>TBD on PNNL operational control.</li> </ul>
INACTIVE STREAMS								
Stream Number	WIDS Site Code	Process Description	Flow (gpm)	Disposal Structure	Washington State Planar Coordinates (meters)	Comments	Stream Status	PNNL STATUS
264	300-98	325 Building – LOCATION: inside 325 Building, south stairwell drain, accessed via cafeteria. This drain is located indoors and does not receive stormwater.	<0.01	Injection Well	E593978.0 N115745.0		SA/ 5D2	<ul style="list-style-type: none"> <li>Status Verified 5/8/98</li> <li>Status verified 5/19/99. (BPA / MJM)</li> <li>Status verified 11/28/12 during Hanford Site UIC Well Assessment. Well is located indoors. Status kept as active at request of MSA.</li> </ul>
791	300-242	325 Building –Source unknown. Large-diameter carbon steel line coming from the basement of 325 and terminating in the concrete box. LOCATION: Northwest side of building approximately 35 feet from corner of building. Source abandoned (pipe has been cut and plugged). Does not receive stormwater.	<0.01 0.00	Injection Well	E593960.2 N415829.4 E593968.835 N115829.598	X_COORD 593968.8349 ( -119.278638865) Y_COORD 115829.5984 (46.368894489)	SA	<ul style="list-style-type: none"> <li>Status Verified 5/20/98.</li> <li>Status Verified 5/19/99 (BPA / MJM). Pipe has been cut and permanently plugged.</li> <li>New coordinates identified by WCH 4/15/09 for waste site 300-242 (Joan Woolard, Len Habel, James D Anderson)</li> <li>Status verified 11/28/12 during Hanford Site UIC Well Assessment. Does not receive stormwater. Pipe is plugged.</li> </ul>

**Attachment 2 – PNNL Hydrant Flushing Approvals**

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones <b>PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE</b>			
To be completed ONLY if planned discharge will exceed a volume of 2,000 gallons or application rate of 10 gal/ft <sup>2</sup> /day (MSC-PRO-EI-15333, Sections 4.7 and 4.87)			
TO BE FILLED OUT BY THE REQUESTOR			
1. Requestor:  Daniel L. Edwards	2. Organization:  PNNL - 300A Core Team	3. Date of Request:	
4. Reason for Discharge: Flushing of the 300A drinking water lines is needed to ensure quality drinking water is delivered to 300A residents. 300A water usage has significantly decreased as D&D actions have been completed, the residence time of water in the delivery lines has increased as a result - which impacts chlorine and disinfection by-product levels in the drinking water. Flushing of various segments of the lines is needed to maintain 300A drinking water to WDOH standards.			
5. Date(s) of Planned Discharge(s) (dd/mm/yy): ~2x/week for each hydrant/location		6. Duration (weeks/days/hours): Up to 60 minutes per each hydrant flushed	
7. Total Volume (gal): Up to 30K gallons/location	8. Discharge Rate (gal/min):	9. Point Source (check one): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (if NO, proceed to No. 11)	
10. Location (attach topographic base map with discharge location marked): See attached Figures.			
11. Area of Discharge Distribution (area in ft <sup>2</sup> , attach topographic base map with area indicated): See attached file.			
TO BE FILLED OUT BY GVZ ECO			
Potentially Affected Areas of Contamination (include any within 1,000 ft.)		Yes	No
12. Waste Areas/Vadose Zone Contamination (If Yes, list by WIDS name and responsible contractor):  <i>NOTE: If no MSA assigned contractor's WIDS sites are identified within 100 ft. of the potentially affected areas of contamination, then section 15 is not applicable.</i>  See attached maps for identification of WIDS sites. No discharge will be performed within 300 feet of a crib, ditch or trench which received waste.		<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Groundwater Contaminate Plumes (from annual groundwater report):  Nitrate plume across much of the southern half of 300-FF-5 OU		<input checked="" type="checkbox"/>	<input type="checkbox"/>
14. Groundwater Remedial Actions (from annual operations summary reports):  300-FF-5 Record of Decision, enhanced attenuation of uranium		<input checked="" type="checkbox"/>	<input type="checkbox"/>
TO BE FILLED OUT BY LTS REVIEWER			
Institutional Controls in the Potentially Affected Areas of Contamination			
15. Are there any WIDS sites with institutional controls within 100 ft. of the potentially affected areas of contamination? (if yes, list applicable sites affected):		<input checked="" type="checkbox"/>	<input type="checkbox"/>

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones <b>PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE (Continued)</b>		
15. Are there any WIDS sites with institutional controls within 100 ft. of the potentially affected areas of continuation? (if yes, list applicable sites affected):	<input type="checkbox"/>	<input type="checkbox"/>
See attached document titled, "300 Area Drainage Guidance for Enhanced Recharge Institutional Control_2020"		
Hydrant 84: Prevent discharge over or near the 300-15:1 WIDS site east of hydrant with enhanced recharge institutional control. See attached document titled, "PH-84 New Discharge Location_LTS Comment"		
Review/Concurrence		
16. GVZ Environmental Compliance Officer (ECO):		
<u>see attached email from Jean Sexton</u>	Signature	Date
<small>Print First and Last Name</small>		
17. Requesting Organization ECO:		
<u>DAN EDWARDS</u>		<u>4/30/2020</u>
<small>Print First and Last Name</small>	<small>Signature</small>	<small>Date</small>
18. GVZ Technical Lead:		
_____	Signature	Date
<small>Print First and Last Name</small>		
19. Long-Term Stewardship POC:		
<u>Deanna B. Rohlifing</u>		<u>4/29/20</u>
<small>Print First and Last Name</small>	<small>Signature</small>	<small>Date</small>
20. Comments:		

**From:** [Sexton, Sean M](#)  
**To:** [Edwards, Daniel L](#); [Collom, Landon Roy \(JACOB\)](#)  
**Cc:** [Raney, Elizabeth A](#); [Sanan, Sanjay K](#)  
**Subject:** RE: Revised PNNL flushing approval docs  
**Date:** Monday, April 6, 2020 8:07:49 AM  
**Attachments:** [2020 Discharge Review Form - MSA-CHPRC combined SMS.pdf](#)

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Attached is my information for the discharge request. I do not have the ability to print and sign, but please use this email as approval for the discharge locations that were provided.

Thanks!  
Sean

---

**From:** Edwards, Daniel L <Daniel.Edwards@pnnl.gov>  
**Sent:** Thursday, April 2, 2020 12:48 PM  
**To:** Sexton, Sean M <sean\_m\_sexton@rl.gov>; Collom, Landon R <landon\_r\_collom@rl.gov>  
**Cc:** Raney, Elizabeth A <Elizabeth.Raney@pnnl.gov>; Sanan, Sanjay K <Sanjay.Sanan@pnnl.gov>  
**Subject:** Revised PNNL flushing approval docs

Landon/Sean –

Based on the proposed relocation of the discharge location for flushing of fire hydrant 84 I have updated the map (Figure 6). This flush water will drain to the large swale off Cypress that handles the stormwater from the parking lots and 385 fire system discharge. The rest of the discharge locations remain unchanged.

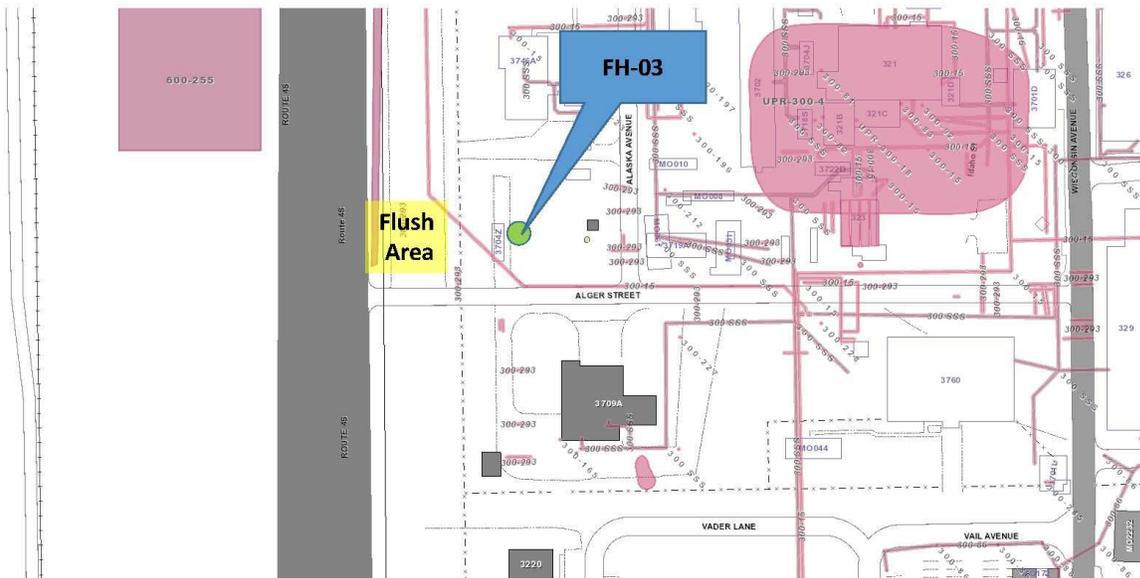
Wanted to keep this as a packet so we don't have multiple approvals throughout the year. Please review and provide me a scan signature or email approval, give me a call if you have any questions.

**Dan Edwards**

PNNL – F&O Env. Compliance Rep.  
(509) 371-7860 / (509) 528-5522  
[Daniel.edwards@pnnl.gov](mailto:Daniel.edwards@pnnl.gov)

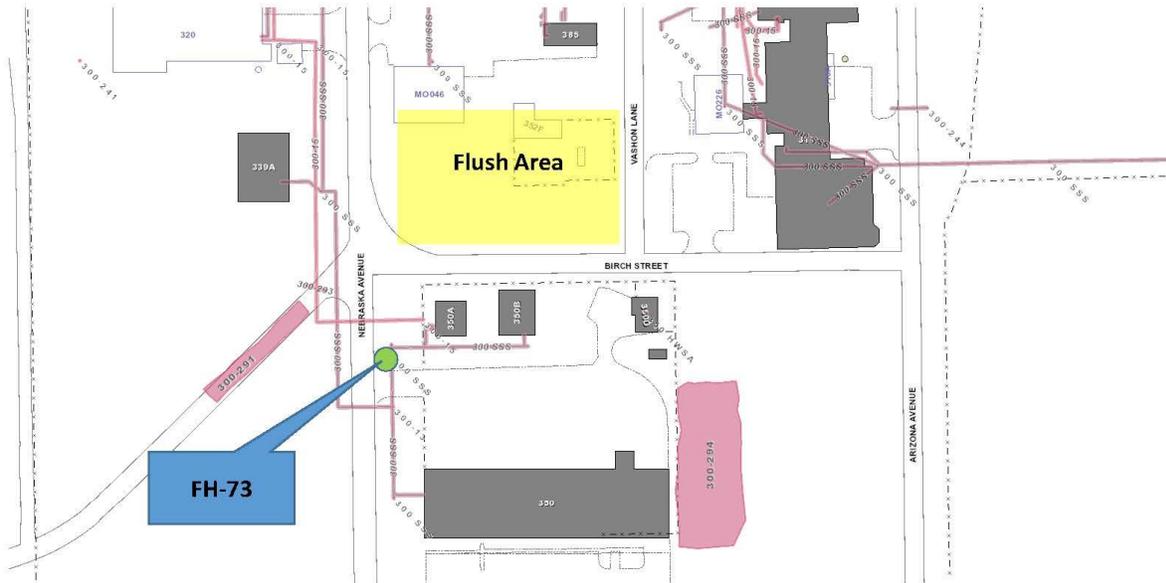
300A Drinking Water Line Flushing - PNNL						
Hydrant Number / Location	Max Flow (GPM)	Max Duration (min)	Flow Discharge Location	Discharge Area (sqft)	WIDS Sites Near Potentially Affected Area	IC Associated with WIDS Site
FH-03	500	60	Figure 1	7000	300-15:3, 300-15:1	Prevent enhanced recharge
FH-48	500	60	Figure 2	10000	300-214:2, 300 RLWS:3, 300-265, 300-15:3	Prevent enhanced recharge
FH-65/66	500	60	Figure 3	18000	300-15:1, 300-269	Prevent enhanced recharge
FH-73	500	60	Figure 4	35000	300-15:1	Prevent enhanced recharge
FH-77/78	500	60	Figure 5	55000	300-15:1 *Only for FH-78	Prevent enhanced recharge
FH-84	500	60	Figure 6	11000	300-86; 300-15:1 (where hose will cross)	Prevent enhanced recharge
FH-86	500	60	Figure 7	60000	N/A	N/A
MO-262, 263, 265	500	60	Figure 8	22000	N/A	N/A

**FIGURE 1**

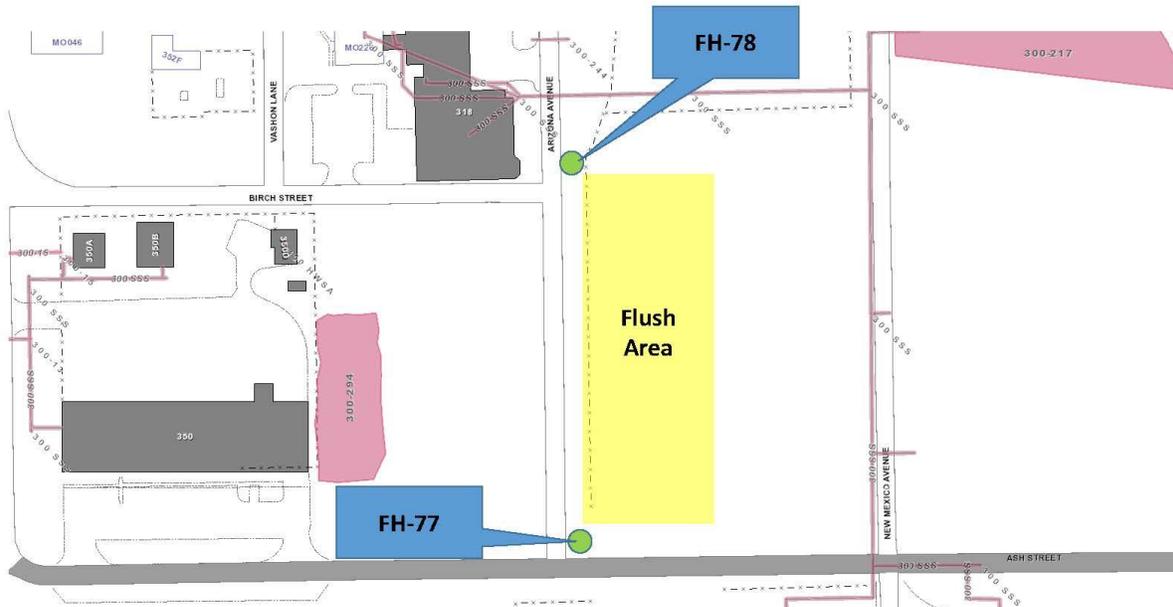


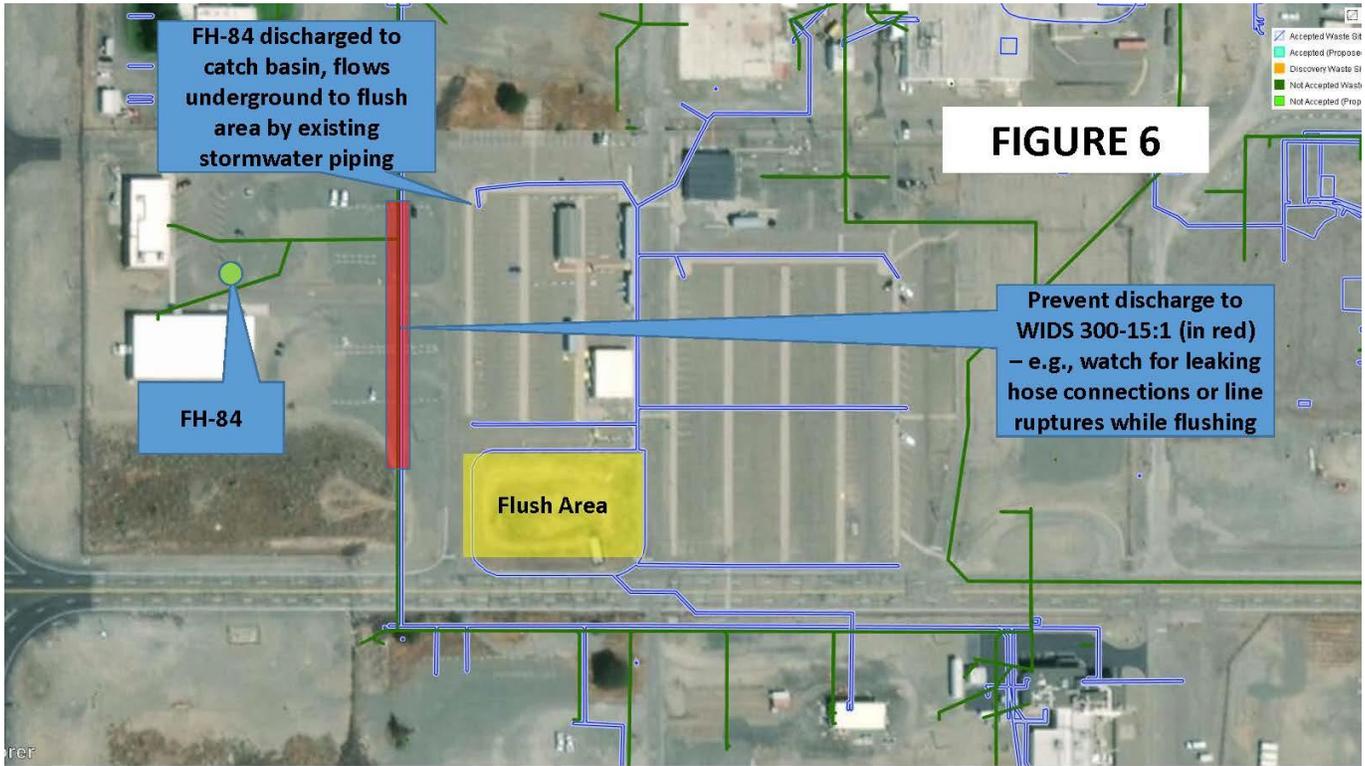


**FIGURE 4**

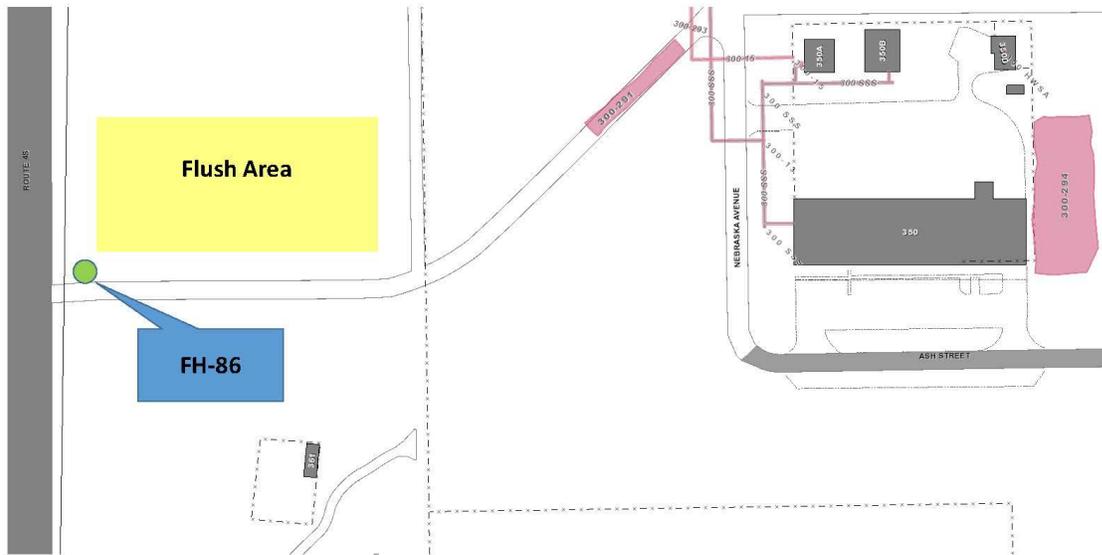


**FIGURE 5**

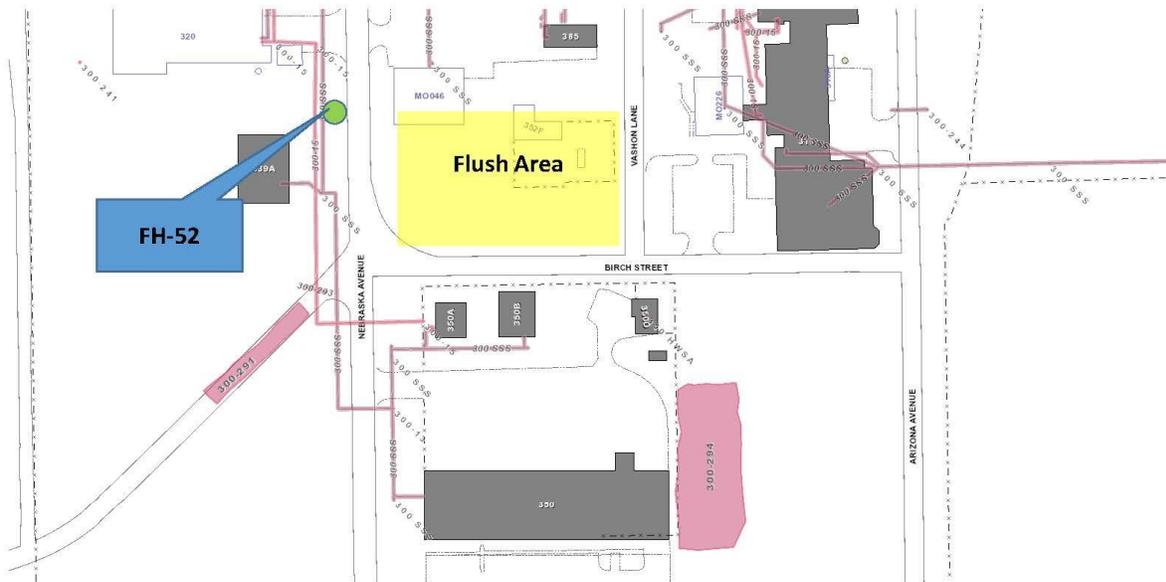
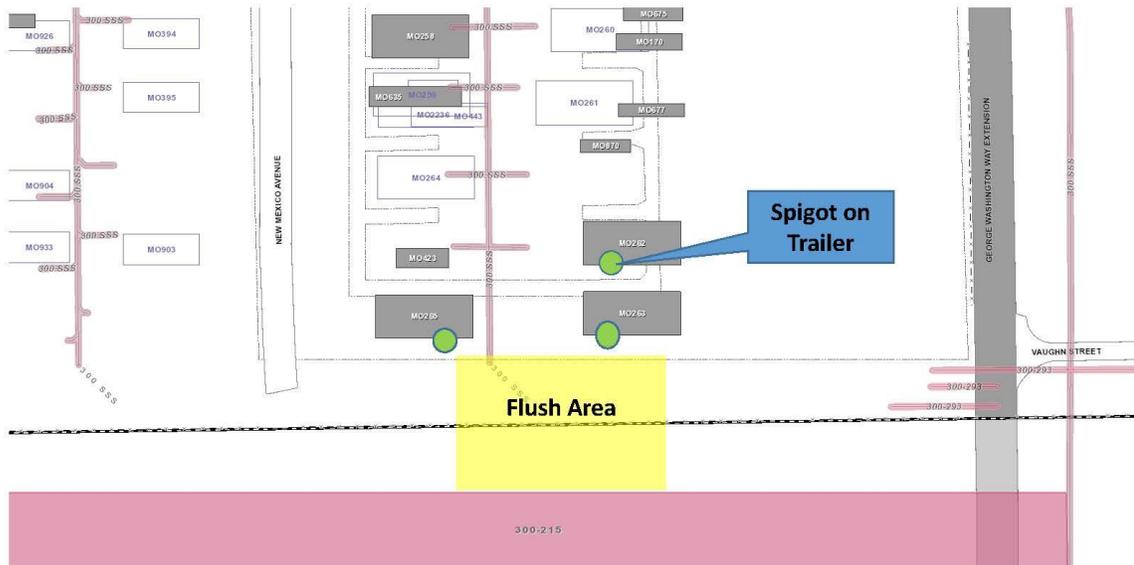




**FIGURE 7**



### FIGURE 8



### 300 Area Drainage Guidance for Enhanced Recharge Institutional Control<sup>a</sup>

Hydrant #	Direction of Water for Flushing or Testing <sup>b</sup>
300-02	Towards west
300-03 <sup>c</sup>	Towards west through the fence with a 100 ft. hose extension
300-04	Towards west
300-27	Towards the east or northeast
300-28	Towards southwest or west
300-29	Any direction south
300-30	Towards the north or northwest
300-43	Towards northwest or northeast
300-44	SE or SW towards parking lot (any direction south)
300-47	Towards northwest
300-48 <sup>c</sup>	Towards northwest with a 50 ft. hose extension
300-49	Towards southeast
300-50	Any direction except south
300-51	Southeast
300-52 <sup>c</sup>	East
300-53	South or west
300-54	North, East or south
300-61	North or West
300-62	Any direction onto the asphalt barrier where drainage system is already in place
300-63	Any direction except north
300-64	Towards northwest (towards 331 Bldg.)
300-65 <sup>c</sup>	Any direction west or south
300-66 <sup>c</sup>	Towards southwest on top on tree line with a 100 ft. hose extension
300-73 <sup>c</sup>	Towards north or northeast with a 100 ft. hose extension
300-78 <sup>c</sup>	Towards the southwest, west, or southeast
300-80	Any direction except east
300-84 <sup>c</sup>	Any direction except east, or with hose extension to approved location <sup>d</sup>
300-85	South, East or West

\*Note: If not listed, any direction is assumed to be acceptable. These include: 300-69, 300-71, 300-74, 300-75, 300-77<sup>c</sup>, 300-79, 300-86<sup>c</sup>

<sup>a</sup>Directional flow is based off of institutional controls as defined in the *Hanford Site 300 Area Record of Decision Amendment for 300-FF-2 and 300-FF-5, and Record of Decision Amendment for 300-FF-1*, and the *Remedial Design Report/Remedial Action Work Plan for 300-FF-2 Soils*, DOE/RL-2014-13-ADD1 Rev. 1.

<sup>b</sup>Periodic observations of drainage flow will be evaluated and revisions for flow direction guidance will be updated as needed.

<sup>c</sup>Locations planned for significant water discharge in 2020 for potable water flushing.

<sup>d</sup>Discharge location approved east with hose extension to catch basin that flows underground via existing stormwater piping, discharging to 300-86 (Active/Rejected) WIDS site basin alongside Cypress Street.