MSA-1105355.8

CONTRACT NO. DE-AC06-09RL14728

ATTACHMENT 1

Contract Deliverable CD0182
November 2019

FY 2019 SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT MISSION SUPPORT ALLIANCE

HNF-64240, Rev. 0

Consisting of 177 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) 2019 as required by DE-AC06-09RL14728, *Mission Support Contract*[1], 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 WIDS sites. Of these sites, 1,716 are assigned to the MSA LTS Program, 220 of which are waste sites that have ICs; the remainder WIDS sites are assigned to other organizations within MSA. CHPRC and the Pacific Northwest National Laboratory (PNNL) assess the waste sites and areas for which they are responsible.

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

The IC assessment results in FY 2019 included the following:

- ICs at all 220 waste sites assigned to the LTS Program were observed to be in place.
- The following repairs to fences and signage were completed within FY 2019 (all other signage and fencing were observed to be in place):
  - Replaced approximately 55 missing or damaged "No Trespassing" signs along Route 240 and approximately 160 signs along the Columbia River.

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

  - Replaced damaged Warning Notices signs in two locations.
  - Repaired fencing in eleven locations along Route 240.
- Ten trespassing incidents were reported to the Benton County Sheriff's Office.
- Additional ICs mentioned in decision documents and related to existing Site processes, as described in Section 4.0, were evaluated and observed to be maintained and in compliance.

The FY 2019 assessment includes results from continued evaluation of stormwater drainage, and inspections of 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 within the 300 Industrial Area Complex. The LTS Program was also added as a reviewer to MSA's Planned Significant Water Discharge Form. This allowed the LTS Program to participate in revising flow direction of planned significant water discharges to prevent future drainage towards waste sites that have an IC to prevent enhanced recharge.

The assessments conducted this year also benefited from several process improvements. These included recording results electronically, supplementing walk downs with the use of high-resolution aerial imagery at select sites, and reviewing objectives as needed for accuracy and efficiency to better articulate the intent of the IC.

ICs and waste sites assigned to the LTS Program are managed and assessed throughout the year, striving for continuous improvements made to the methods and processes in place. 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.

CONTENTS

FIGURES

TABLES

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
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
EIS	Environmental Impact Statement
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
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
TCE	Trichloroethylene
TPA	Tri-Party Agreement
Tri-Party Agreement	Hanford Federal Facility Agreement and Consent Order
UIC	underground injection control (well)
UPR	unplanned release
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 fiscal year (FY) 2019 as required by DE-AC06-09RL14728, *Mission Support Contract*[1], 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 for Waste Information Data System (WIDS) sites, within Geographic Decision Areas, and ICs assessed on a Sitewide-level.

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.

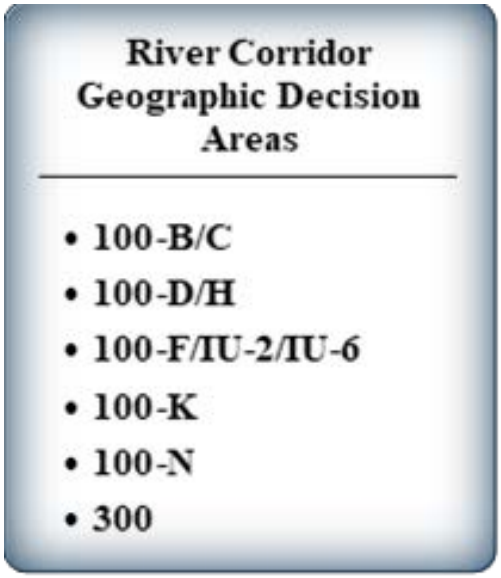

Figure 1-1. Geographic Decision Areas in the 100 and 300 Areas.

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. ICs for which the MSA LTS Program is responsible are defined for individual waste sites, for operable units (OU), and for the entire Site 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] The *Mission Support Contract*, Attachment J-11, Contract Deliverables, requires CD0182, Site-Wide Assessment of Institutional Controls, which is due annually by November 15.

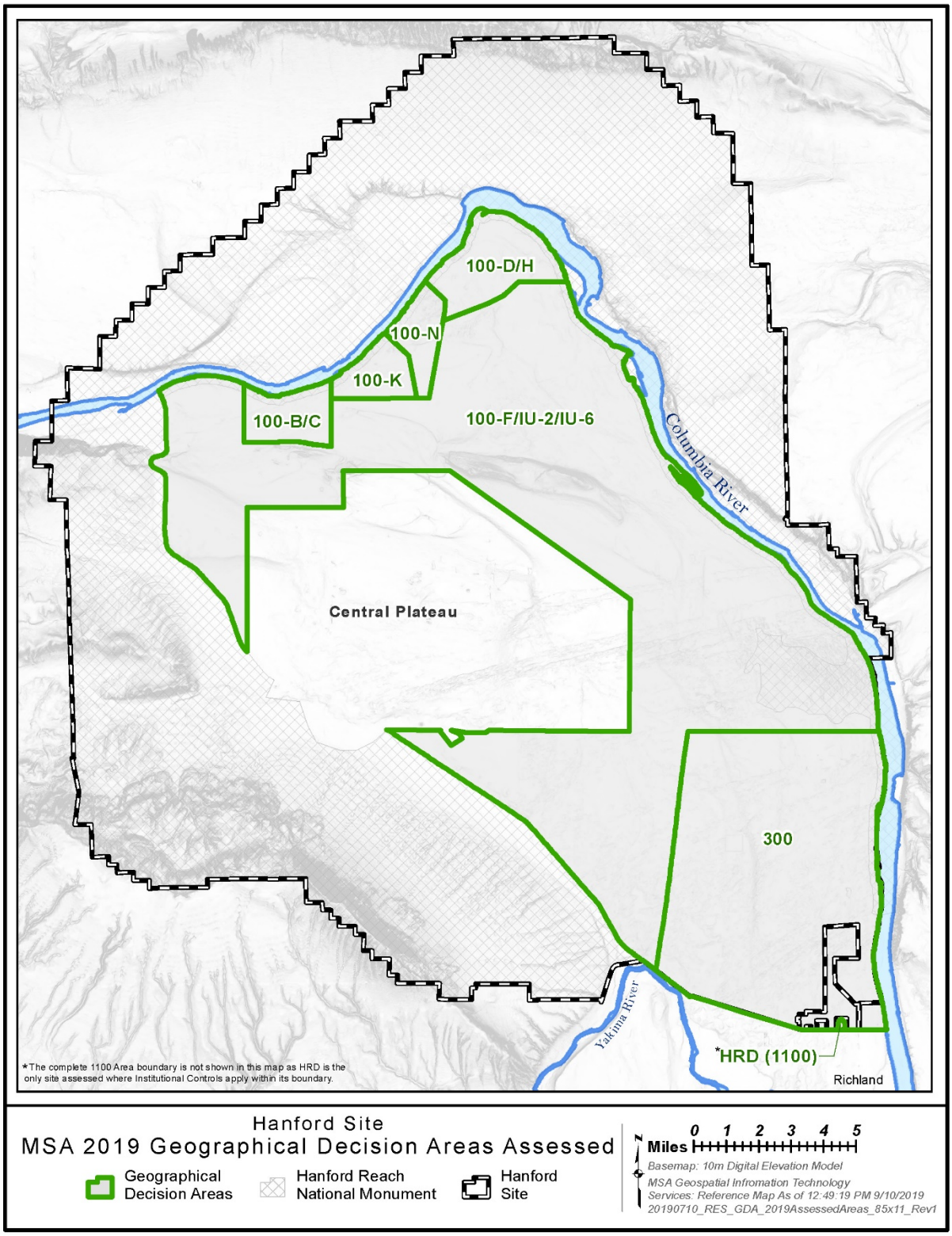

Figure 1-2. Surveillance and Maintenance Geographic Decision Areas.

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 2018, as described in MSA-1105355.7, *2018 Annual Sitewide Institutional Control Assessment Mission Support Alliance*.
- Section 2.0 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 3.0 presents the ICs assigned at a Sitewide-level and the observations made regarding these ICs during the 2019 IC assessment.
- Section 4.0 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 5.0 summarizes the findings and observations of MSA's 2019 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 2019 MSA LTS Program IC assessment. MSA currently has 1,764 assigned WIDS sites of these sites, 1,716 are assigned to the MSA LTS Program, 220 of which are waste sites that have ICs within the 100 and 300 Area GDAs, and one from the 1100 Area; the remaining WIDS sites are assigned to other organizations within MSA. CHPRC and the Pacific Northwest National Laboratory (PNNL) assess the waste sites and areas for which they are responsible. ICs at the Hanford Site are generally divided into categories and then further divided into types (as shown in Figure 1-3).

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

1.4 ASSESSMENT APPROACH

The assessment for FY 2019 was conducted in a manner similar to, and based on the objectives of the assessment conducted in FY 2018, as described in MSA-1105355.7, *2018 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.

Institutional Control	Objectives
Prevent uncontrolled drilling or excavations into the deep zone (below 4.6 m/15 feet)	• A sitewide excavation permit process is in place to control excavations. • No unauthorized excavation is observed in the deep zone.
Prevent uncontrolled drilling or excavations into the shallow zone (above 4.6 m/15 ft)	• A sitewide excavation permit process is in place to control excavations. • No unauthorized excavation is observed in the shallow zone.
Prevent uncontrolled drilling or excavations	• A sitewide excavation permit process is in place to control excavations. • No unauthorized excavation is observed.
Access Controls	• Entry to the site is restricted.

Table 1-1. Objectives for Institutional Controls Assigned to Specific Waste Sites.

Institutional Control	Objectives
Prohibit irrigation	• No periodic or repetitive water or other liquid discharges were requested. • No inadvertent long-term releases were made in the vicinity of the site. • No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation. • No constructed drainage systems that would discharge to the site are observed. • No unauthorized irrigation is observed.
Prevent an inhalation exposure pathway	• No breaching of underground structures (e.g., pipes) is observed. • Access to the system entrances for the underground structures is controlled.
Prevent mobilization of remaining contamination	• A sitewide excavation permit process is in place to control excavations. • No unauthorized excavation is observed in the shallow zone • No periodic or repetitive water or other liquid discharges were requested. • No inadvertent long-term releases were made in the vicinity of the site. • No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/documentation. • No constructed drainage systems that would discharge to the site are observed. • No unauthorized irrigation is observed.
Control access to the Horn Rapids Landfill and maintain the integrity of the cap	• Land use and the land use designation for the HRD remains unchanged. • Access is controlled with a perimeter fence for the HRD per *Explanation of Significant Differences for the USDOE 1100 Area*.[a] • Any gates are locked when unattended. • Warning signs are displayed at all entrances and at intervals of 330 feet or less along the property line. • Warning signs include the statement, "Asbestos Waste Disposal Site Breathing Asbestos Dust May Cause Lung Disease and Cancer." • The integrity of the landfill cap, as described in the 1100 Area Final Closeout Report[b], is maintained at the HRD.
Limited to industrial use only	• All land use requests in this area are limited to industrial uses only. • No non-industrial uses are observed.
Notice in Deed	• Notices in deed are in place, as required.
Prevent enhanced recharge control	• Potential sources of enhanced recharge (e.g., irrigation, landscape watering) are limited. • Drainage is limited (e.g., stormwater, ground cover).
Prohibit residential land use	• All site evaluation and excavation permit requests in this area do not include residential land uses. • No residential land uses are observed.

[a]EPA, 2010b, *Explanation of Significant Differences for the USDOE 1100 Area, Hanford Site, Benton County, Washington,* U.S. Environmental Protection Agency, Region 10, Seattle, Washington.
[b]DOE, 1996, *Superfund Site Final Closeout Report U.S. Department of Energy Hanford 1100 Area, Richland, Washington.*

ECO = environmental compliance officer. 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 2018 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. This is performed in two different ways, generally based on whether a final ROD has been issued for a given GDA, with the exception of the 300 Area. Figure 1-4 provides additional details about how waste sites are assessed within GDAs.

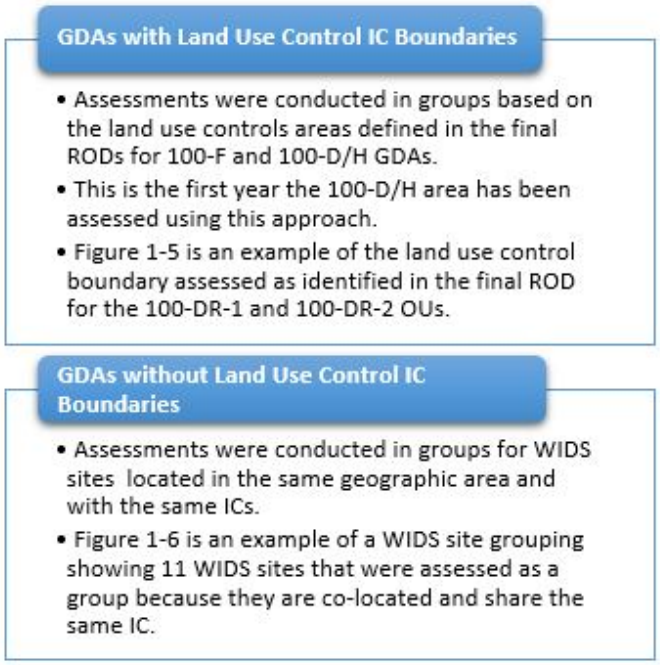

Figure 1-4. Grouping Waste Sites for Assessments.

- Employed a systematic 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 or spatial analyses using high-resolution aerial imagery.
- Assessed signage and access control requirements for ICs at a Sitewide-level and GDAs while conducting site-specific IC assessments. This minimized the number of field visits required. 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.
- Conducted an administrative review of waste sites with an IC related to existing land-use designations, real estate agreements, and other related Site processes. Sitewide Evaluation Application (SEA) requests issued throughout each FY were used to identify and evaluate permitted land-uses.
- Conducted an evaluation for each Hanford Site excavation permit for FY 2019. Hanford Site excavation permits issued throughout the FY are used to identify and evaluate

permitted excavation and drilling. This process includes a Geographic Information System (GIS) spatial analysis using GIS software to compare the boundaries of the waste sites with the boundaries of the excavation permits.

- For areas with the current FY imagery available, supplemented field verification activities with geo-referenced low-altitude vertical aerial imagery (approximately 4.5-inch pixel resolution)[2]. The imagery was used to conduct spatial analyses of waste sites before field visits and to supplement field verification to identify any major changes in the landscape on MSA-assessed areas, such as general ground cover gravel, asphalt, vegetation land-use changes, and excavations. Figure 1-7 illustrates how the imagery was used in a spatial analysis to identify land-use and drainage control analyses over waste sites with the enhanced recharge control.
- Worked with other MSA programs and contractors on Site to confirm that any activities or occurrences at waste sites with ICs did not compromise required post-closure clean-up requirements in place in FY 2019. 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 trespassing, the MSA Safeguards and Security Program was queried to identify and report whether any trespassing events occurred during FY 2019.
- Recorded housekeeping and maintenance issues and the team was prepared to respond to imminent safety hazards if needed. The systematic walk down of waste sites during field assessments provides the opportunity to identify new and track ongoing housekeeping-related issues, such as the presence of deep-rooted, invasive vegetation (noxious weeds); evidence of burrowing insects and animals; ground subsidence or erosion; maintenance issues regarding site-specific signage; and potential safety hazards. Although these observations typically are not directly related to ICs, immediate responses are implemented to address any imminent safety hazards. Observations are then photographed, mapped, logged, and tracked to support overall land management. These results are communicated to appropriate subject matter experts as necessary.
- Documented observations made during the field verification activities (e.g., photographs) and during the administrative reviews on assessment forms. These forms will be reviewed before the assessment conducted for FY 2020.

[2] Aerial imagery was collected on March 21, 2019 when drainage from snow piles was still visible.

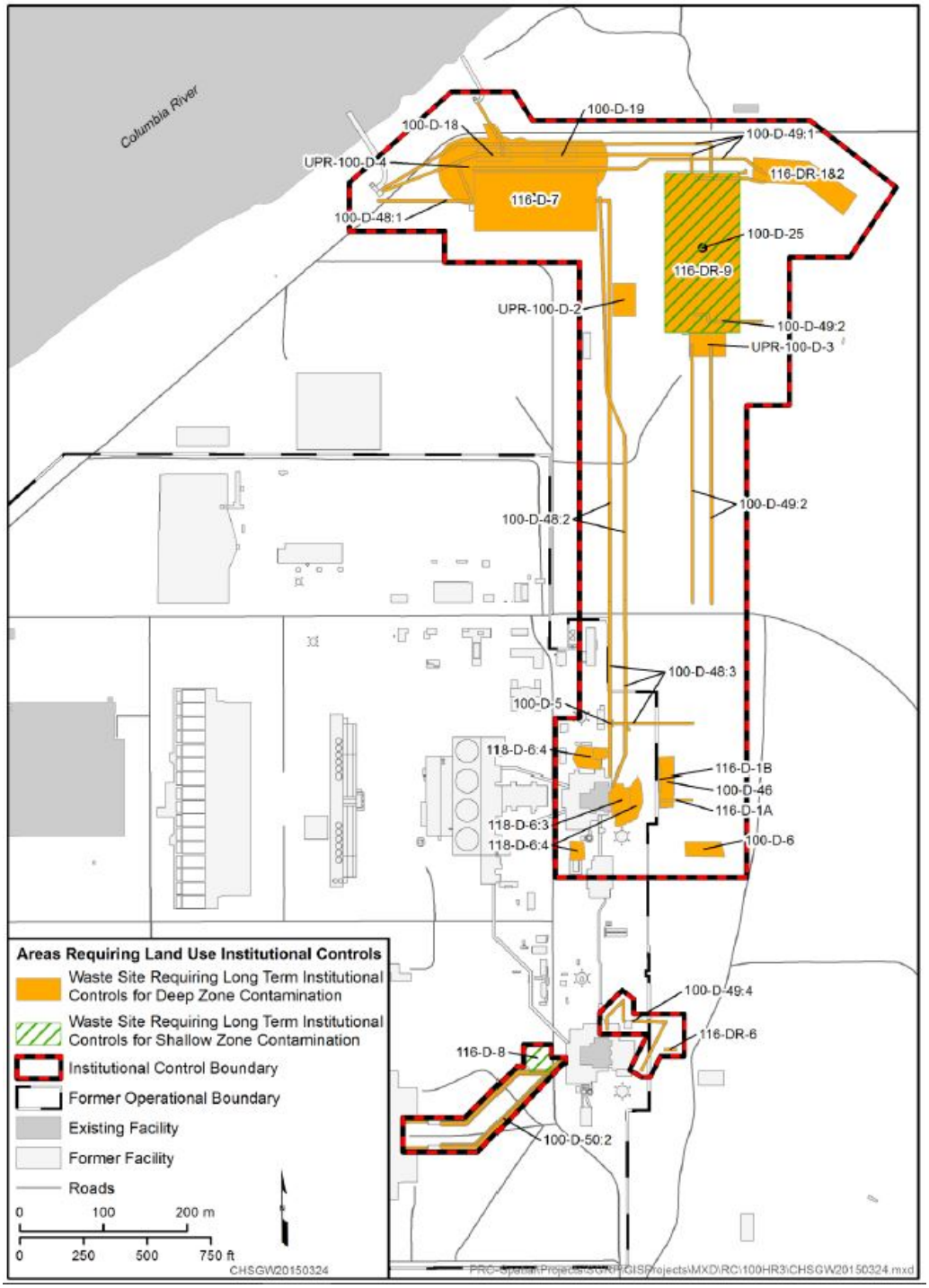

Figure 1-5. 100-DR-1 and 100-DR-2 OUs ICs Boundary as shown in *Record of Decision Hanford 100 Area Superfund Site 100-DR-1, 100-DR-2, 100-HR-1, and 100-HR-3 Operable Units* (EPA, 2018).

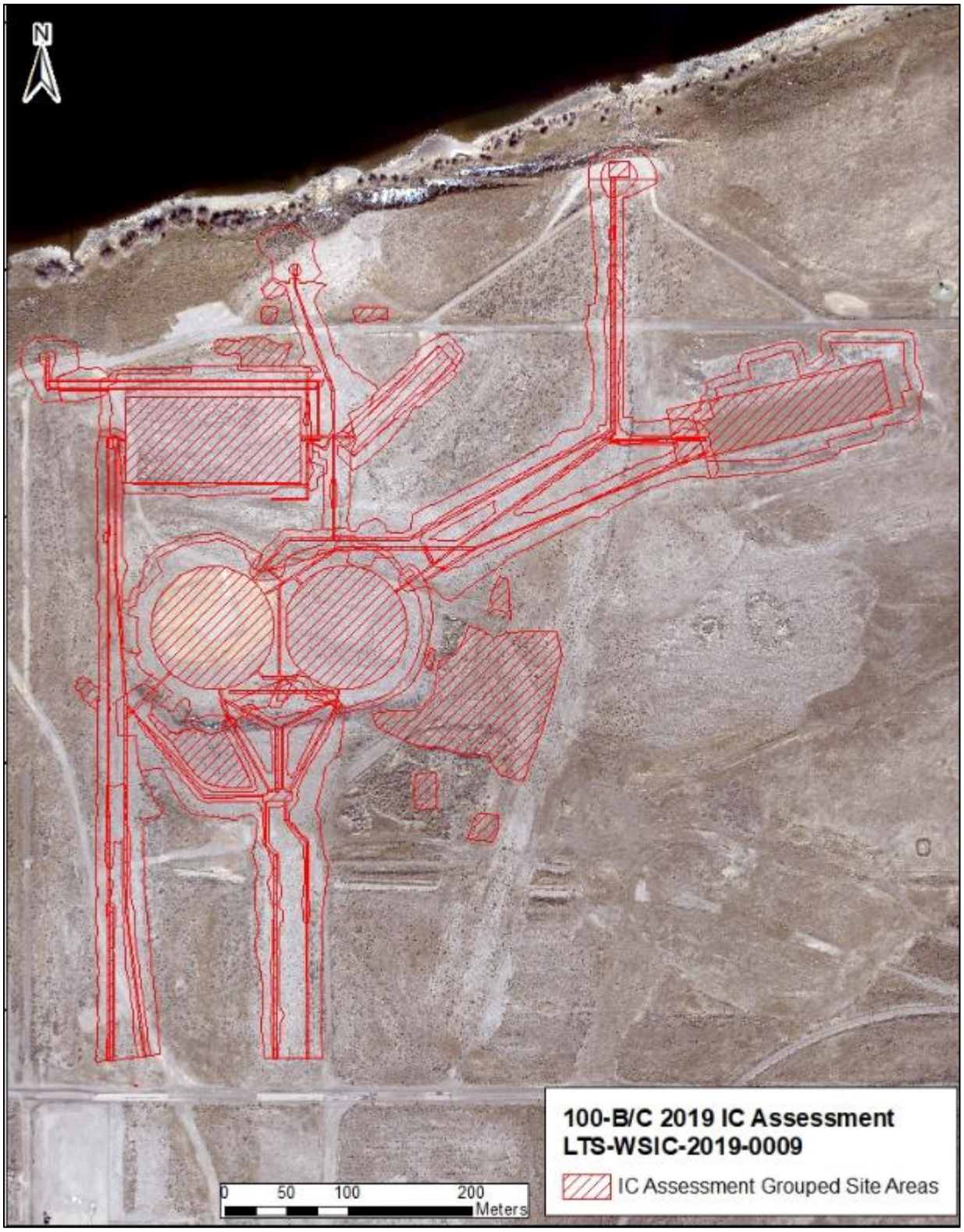

Figure 1-6. Waste sites with similar ICs were grouped together for a single field assessment in the 100-B/C Geographic Decision Area.

Figure 1-7. Example of geo-referenced, high-resolution (1 to 450) vertical aerial imagery from a 3/21/2019 flight used to conduct a spatial analysis for land-use and integrated ongoing activities of the IC assessment area. Runoff and water staining is visible north of the 3709A Hanford Fire Department facility from the fire hydrant 300-03 sanitary water flushing occurrences.

1.4.2 Updates Since 2018 Assessment

As described in Section 1.3, the assessment for FY 2019 was conducted in a manner similar to the assessment conducted in FY 2018. FY 2017 was the first year MSA assessed the entire River Corridor.[3] Therefore, the 2019 assessment was the third year for MSA to complete the River Corridor IC assessment, and the previous two years were used as a baseline to observe changes in conditions to waste sites. The MSA LTS Program made the following updates and refinements to the assessment process during FY 2019:

- The objectives for each type of waste site IC were reviewed and re-evaluated to determine whether they needed to be refined to more clearly articulate the intent of the IC. Minor technical edits were made to the objectives used in the FY 2019 assessment to clarify the intent of the ICs and account for additions from the 100-D/H ROD.

[3] 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.

- In 2019, field walk downs were sometimes 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.
- The assessment process for enhanced recharge control in the 300 GDA was revised to incorporate opportunistic observations of drainage and pooling after inclement weather events near waste sites with the enhanced recharge control. This included the following activities:
  - Visually observe the locations used to manage snow piles after plowing
  - Identify where improvements could be made to support the enhanced recharge IC, such as potential improvements to stormwater drainage and how snow is managed
  - Review visual observations from aerial imagery of snow pile drainage areas.
- Additional potential sources of enhanced recharge, such as facility fire suppression system testing and fire hydrant flow testing and flushing were evaluated. Fire suppression system testing was evaluated by working with facility owners to review flow directions and rates. Fire hydrant testing was evaluated by reviewing flow direction and rates, focusing on active hydrants, and reviewing water discharge permits (see Figure 1-8).

Figure 1-8. Annual hydrant testing.

2.0 INSTITUTIONAL CONTROLS BY GEOGRAPHIC DECISION AREA

This section presents the assessment results for waste-site-specific ICs by GDA. Figure 2-1 shows the number of waste sites that require ICs in each GDA (note that some waste sites may have more than one IC).

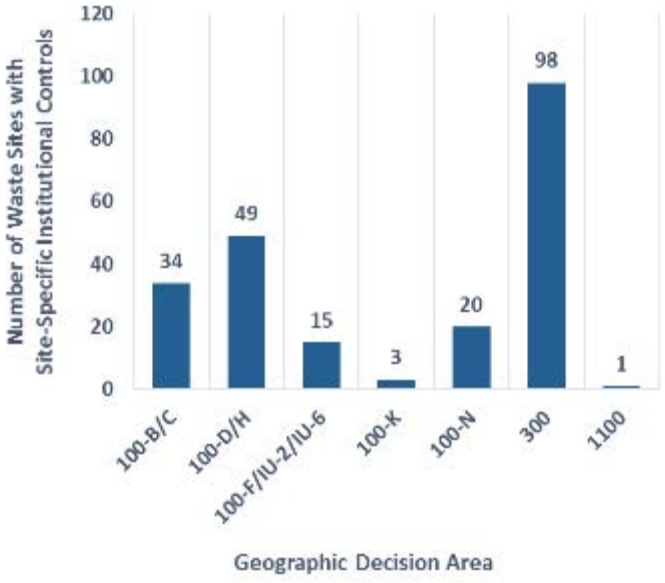

Figure 2-1. Waste Sites with Site-Specific Institutional Controls in each Geographic Decision Area.

2.1 100-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 2019, the LTS Program assessed 34 waste sites with ICs in the 100-B/C GDA as identified in the decision documents listed in Table 2-1.

The types of ICs required at these waste sites are identified in Figure 2-2. Figure 2-3 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.

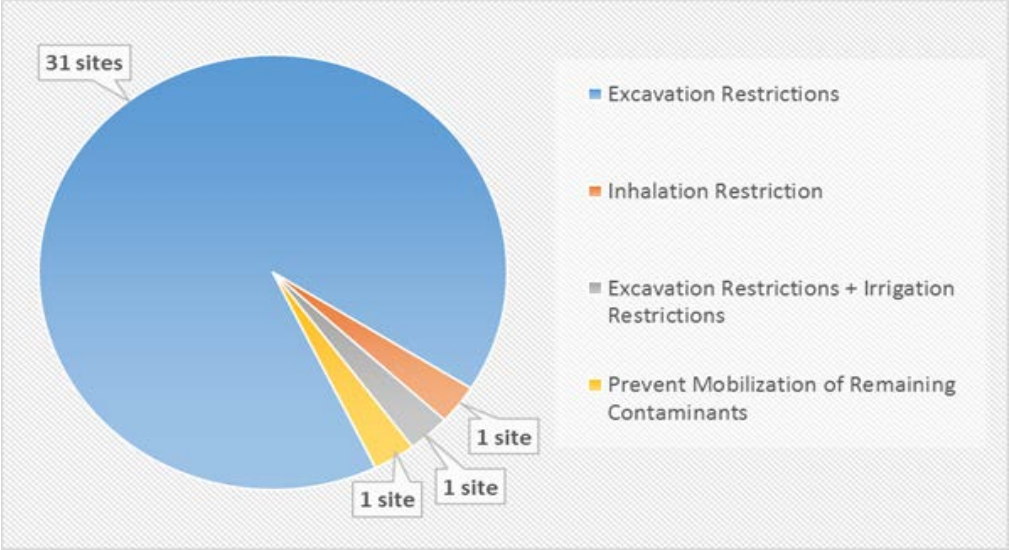

Figure 2-2. Types of Institutional Controls at Waste Sites in the 100-B/C Geographic Decision Area.

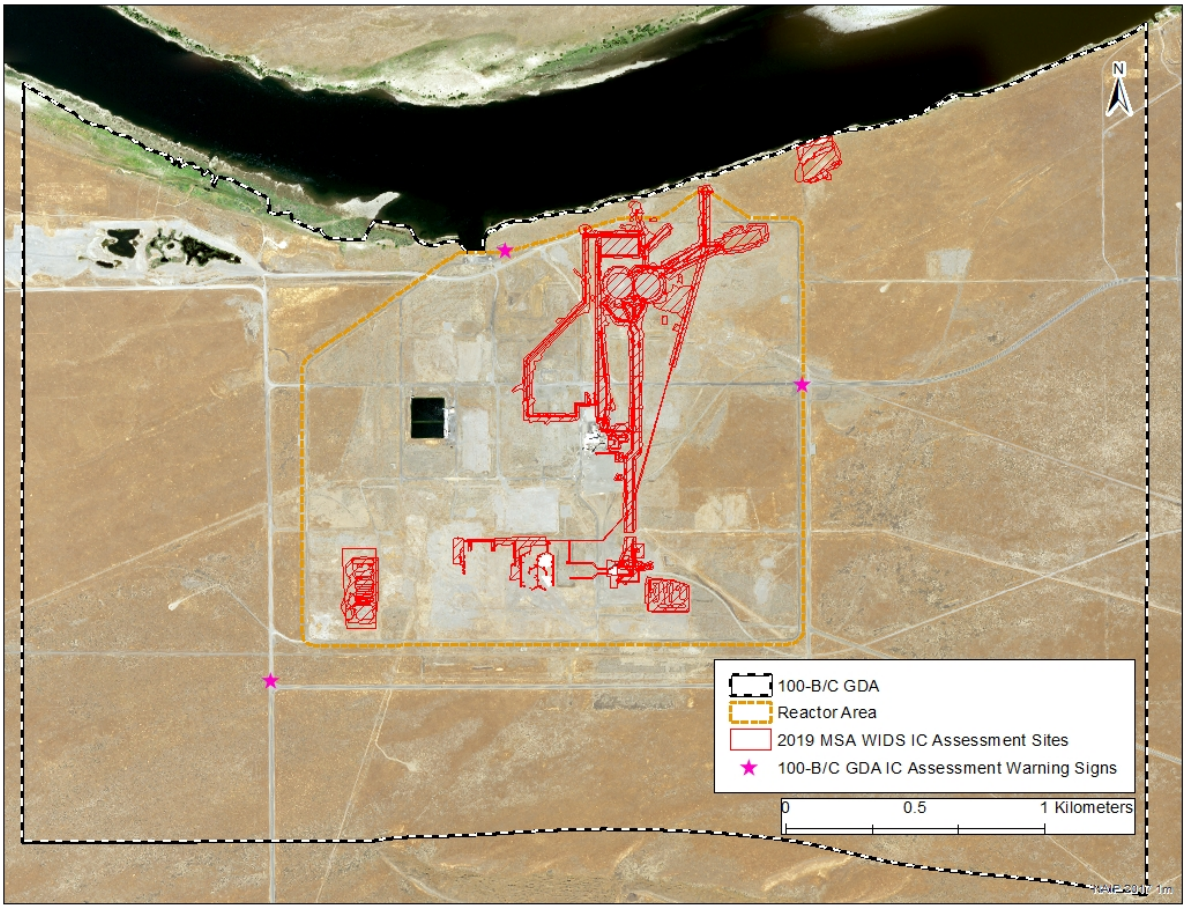

Figure 2-3. Areas Assessed in the 100-B/C Geographic Decision Area.

The following subsections in 2.1 identify the CERCLA decision documents, and the assessment results for ICs applicable to specific waste sites and warning notices are presented in and the warning notices associated with the 100-B/C GDA.

2.1.1 Decision Documents for the 100-B/C Geographic Decision Area

Table 2-1 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 2-1.

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

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment [a]	
	Warning Notices	Other ICs
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).	N/A	Section 4.1

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

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment [a]	
	Warning Notices	**Other ICs**
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).	N/A	Section 4.3
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."	Section 2.1.3	Section 4.4
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).	Section 2.1.3	Section 4.7
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).	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 unit managers meeting.
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).	N/A	Section 4.8
Explanation of Significant Differences for the 100 Area Remaining Sites Record of Decision, Hanford Site, Benton County, Washington (EPA 2009a).	N/A	No other ICs are identified in this document.
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).	N/A	No other ICs are identified in this document.
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).	N/A	No other ICs are identified in this document.

[a]The results of the assessments for ICs specific to waste sites are presented in Section 2.1.2.

IC = institutional control. N/A = not applicable.

2.1.2 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 2-2 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.

Table 2-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (5 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	4/17/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

Table 2-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (5 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
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[a] 2006-005	4/22/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

Table 2-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (5 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
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	4/17/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
118-B-1	Interim Closed Out	2007-032	4/22/2019	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).	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No known period/repetitive water or other liquid discharges to the waste site as confirmed by the ECO. • There were no known inadvertent long-term or significant discharges at or near the waste site. • 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. • No evidence of unauthorized irrigation or water marks were observed during the systematic walk down of the waste site area.

Table 2-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (5 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
100-C-9:4	Interim No Action	2004-015	4/18/2019	Given the demonstrated maximum residual concentration of hexavalent chromium in the feedwater pipes, ICs are required to prevent an inhalation exposure pathway.	• No breaching of the below-grade underground features is apparent from the surface. • Access to the system entrance for the underground structures are controlled by signage or doors and hatches. • All signage was found to be in place, and all hatches and doors were found to be secured, as required.
128-B-3	Interim Closed Out	2006-058	4/17/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the shallow zone. • There were no known period/repetitive water or other liquid discharges to the waste site as confirmed by the ECO. • There were no known inadvertent long-term or significant releases that were reported at the mentioned sites or near the waste site. • 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. • No unauthorized irrigation was observed.
100-C-9:3	Interim No Action	2004-014	4/18/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

Table 2-2. 100-B/C Geographic Decision Area Waste Sites with Institutional Controls. (5 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
118-C-1	Interim Closed Out	2006-063	4/22/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
100-B-14:1	Interim Closed Out	2004-005	4/18/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
100-C-9:1	Interim Closed Out	2004-012	4/18/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

[a]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.

2.1.3 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 2.1.1). 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 2-3 presents the observations resulting from the assessments of these signs, which serve as the warning notices. Table 2-3 also describes the location of each sign, the language used for the verbiage, and the observations. The signs for the 100-B/C GDA were found to be in place at the correct locations (see Figure 2-3) with the proper text. Figure 2-4 presents photographs of the signs.

Table 2-3. 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

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 2-4. Warning Notices for 100-B/C Geographic Decision Area.

2.2 100-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 2019, the LTS Program assessed the 44 waste sites with ICs in the 100-D/H GDA as identified in the final decision document listed in Table 2-4. The types of ICs required at these waste sites are identified in Figure 2-5. Figure 2-6 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.

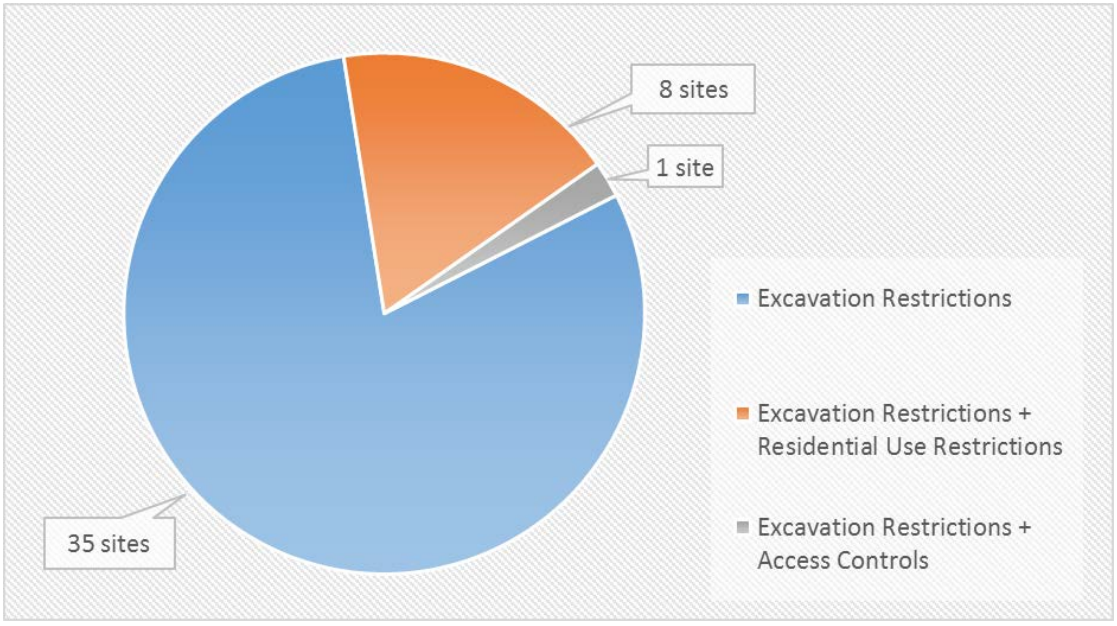

Figure 2-5. Types of Institutional Controls at Waste Sites in the 100-D/H Geographic Decision Area.

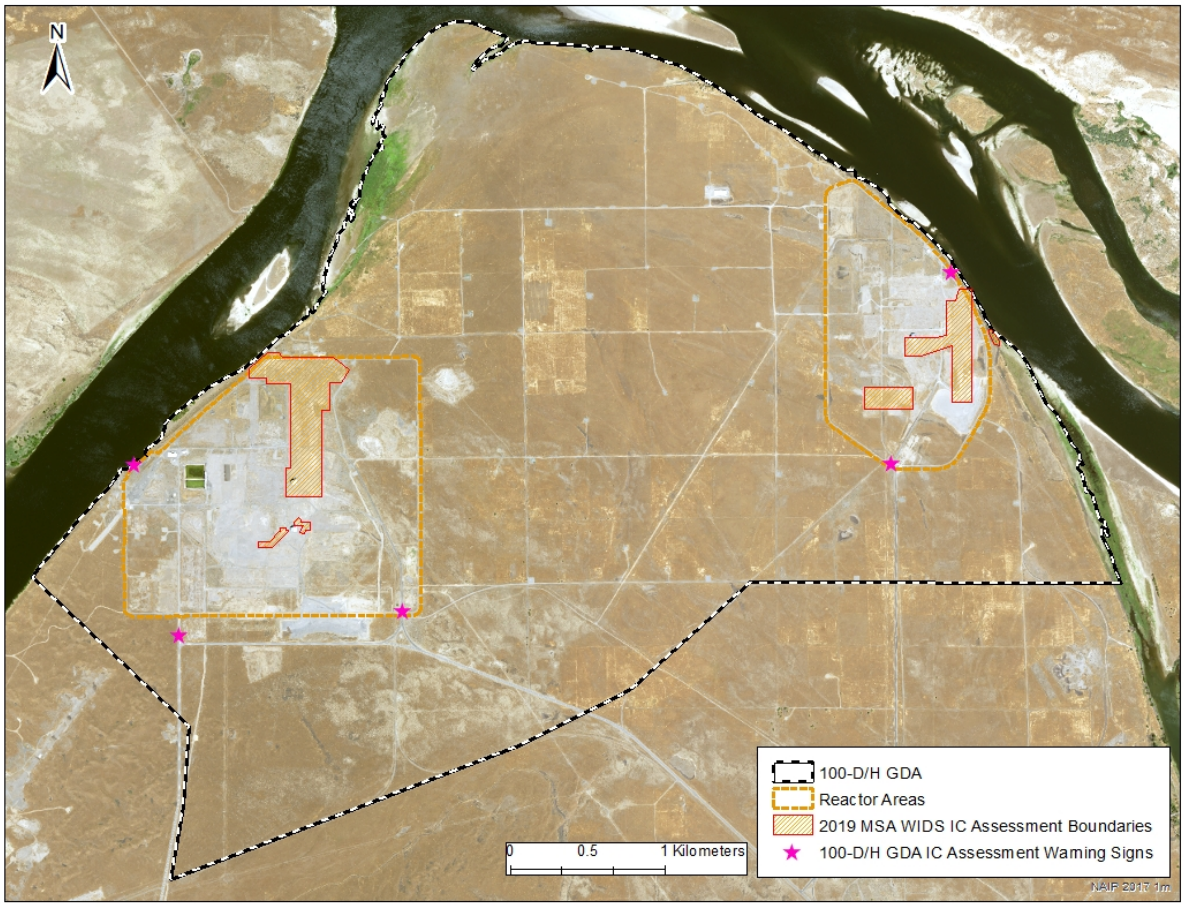

Figure 2-6. Areas Assessed in the 100-D/H Geographic Decision Area.

The following subsections in 2.2 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.

2.2.1 Decision Documents for the 100-D/H Geographic Decision Area

Table 2-4 lists the final ROD associated with the 100-D/H GDA (the interim ROD is not listed in Table 2-4 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 2-4. Decision Documents Associated with the 100-D/H Geographic Decision Area.

Document	Sections Describing the Results of the Decision Area-Wide IC Assessment [a]	
	Warning Notices	Other ICs
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).	Section 2.2.3	Section 4.10

[a]The results of the assessments for ICs specific to waste sites are presented in Section 2.2.2.

IC = institutional control.

2.2.2 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 2-5 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. 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 has been published, the reclassification of the waste sites in this GDA has not yet been completed; they remain "interim closed out." The sites will be reclassified after their final WSRFs are published.

Table 2-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (5 sheets).

Waste Site Assessment Group	Reclassification Status[a]	WSRF	Date Assessed	Institutional Control[c]	Observations/Results
100-D-25 116-DR-9 118-D-6:4	Interim Closed Out	99-106 99-046 2010-071	4/29/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No unauthorized excavation was observed in the shallow zone. • All site evaluation and excavation permit requests in this area do not include residential land uses. • No residential land uses were observed.
118-H-1:1	Interim Closed Out	2011-034	5/13/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No unauthorized excavation was observed in the shallow zone. • All site evaluation and excavation permit requests in this area do not include residential land uses. • No residential land uses were observed.
118-D-2:1	Interim Closed Out	2012-015	4/30/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No unauthorized excavation was observed in the shallow zone. • All site evaluation and excavation permit requests in this area do not include residential land uses. • No residential land uses were observed.

Table 2-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (5 sheets).

Waste Site Assessment Group	Reclassification Status[a]	WSRF	Date Assessed	Institutional Control[c]	Observations/Results
100-D-50:2	Interim Closed Out	--[b]	4/30/2019	ICs are required to control access to the site, and prevent uncontrolled drilling or excavations.	• All related site surface access points are restricted thru signage and rope barrier. • No unauthorized access to the site was observed. • A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed.
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	Interim Closed Out	2000-040 2000-128 2000-115 2000-126 2000-064 2001-004 2000-127 2000-065 2001-022 2001-005 2000-115 2000-115 2000-007 2000-007 2000-068 2005-021 2000-062 2000-063 2000-034	4/29/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

Table 2-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (5 sheets).

Waste Site Assessment Group	Reclassification Status[a]	WSRF	Date Assessed	Institutional Control[c]	Observations/Results
116-D-8	Interim Closed Out	2009-015	4/30/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the shallow zone. • No residential land uses were observed. • All site evaluation and excavation permit requests in this area do not include residential land uses.
100-D-86:3 100-D-50:1 100-D-50:6	Interim Closed Out	2015-016 2012-101 2013-011	5/20/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
116-DR-6 100-D-49:4	Interim Closed Out	2000-104 2003-049	4/30/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
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	Interim Closed Out	2001-007 2006-012 2006-013 2006-014 2001-006 2001-006 2001-013 2000-135 2001-026 2006-009 2006-022	5/2/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

Table 2-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (5 sheets).

Waste Site Assessment Group	Reclassification Status[a]	WSRF	Date Assessed	Institutional Control[c]	Observations/Results
100-H-5	Interim Closed Out	2000-117	5/2/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
126-H-2	Interim Closed Out	2006-006	5/13/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
116-H-5	Interim Closed Out	2011-012	5/2/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No unauthorized excavation was observed in the shallow zone. • All site evaluation and excavation permit requests in this area do not include residential land uses. • No residential land uses were observed.

Table 2-5. 100-D/H Geographic Decision Area Waste Sites with Institutional Controls (5 sheets).

Waste Site Assessment Group	Reclassification Status[a]	WSRF	Date Assessed	Institutional Control[c]	Observations/Results
100-H-54	Interim Closed Out	2013-131	5/13/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No unauthorized excavation was observed in the shallow zone. • All site evaluation and excavation permit requests in this area do not include residential land uses. • No residential land uses were observed.

IC = institutional control.
WSRF = waste site reclassification form.

[a]Sites will be reclassified once final WSRFs are published.
[b]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.
[c]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.

2.2.3 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 2.2.1). 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 2-6 lists the location of each sign, the language used for the verbiage on the sign, and the observations. In FY 2019, the sign in English near the Columbia River in the 100H Reactor Area was observed to have fallen and, was repaired within 30 days. All other signs in the 100-D/H Area were found to be in place at the correct locations (see Figure 2-6) with the proper text. Figure 2-7 shows the signs.

Table 2-6. 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

West Entrance to 100D Reactor Area

East Entrance to 100D Reactor Area

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

Figure 2-7. Warning Notices for 100-D/H Geographic Decision Area (sheet 1).

Figure 2-7. Warning Notices for 100-D/H Geographic Decision Area (sheet 2).

2.3 100-F/IU-2/IU-6 GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

Within the 100-F/IU-2/IU-6 GDA, only the 100F Operational Area contains sites with ICs managed by MSA

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. 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 2019, 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 2-7. The types of ICs required at these waste sites are identified in Figure 2-8. Figure 2-9 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.

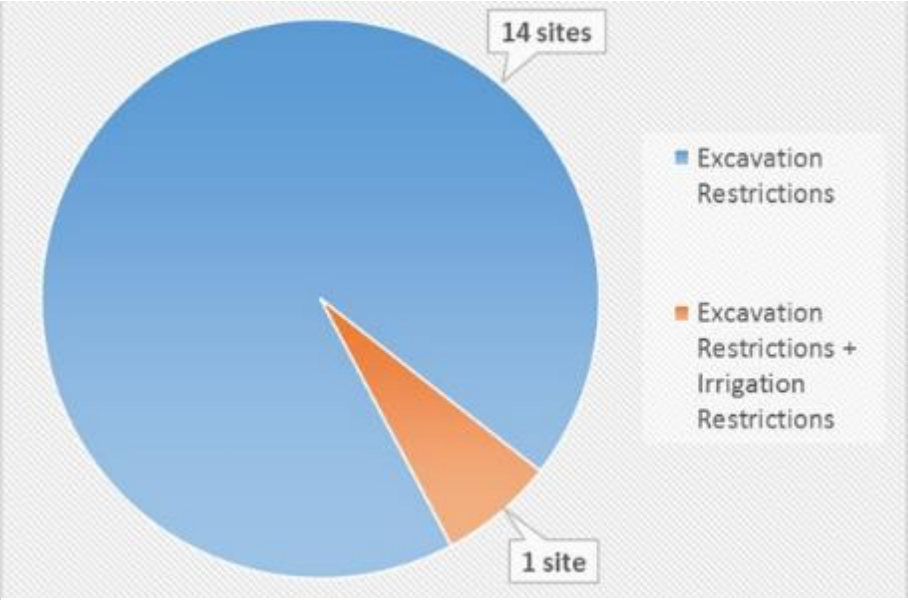

Figure 2-8. Types of Institutional Controls at Waste Sites in the 100-F/IU-2/IU-6 Geographic Decision Area.

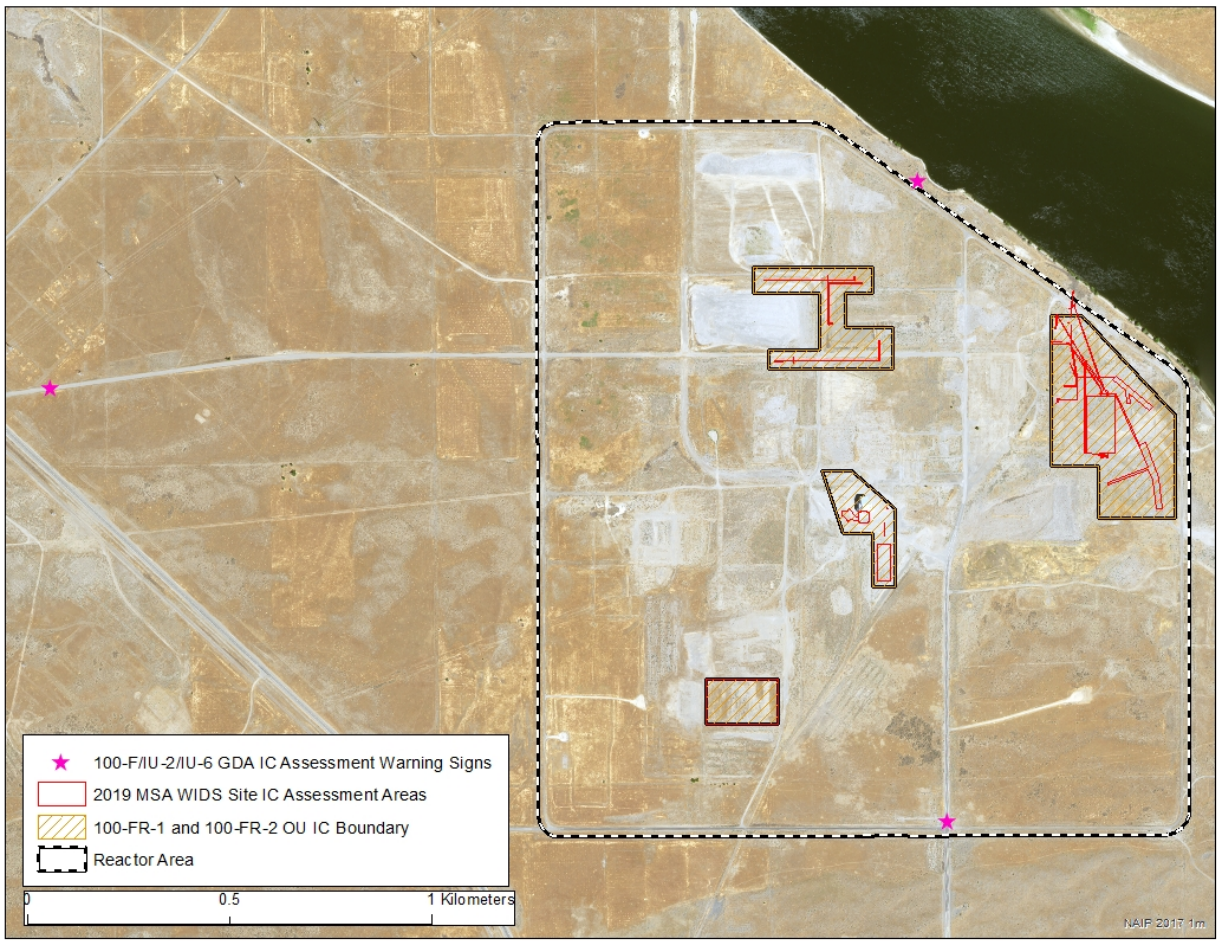

Figure 2-9. Areas Assessed in the 100-F/IU-2/IU-6 Geographic Decision Area.

The following subsections in 2.3 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.

2.3.1 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 2-7. 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 2-7. 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 [a]	
	Warning Notices	Other ICs
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).	Section 2.3.3	Section 4.9
Explanation of Significant Differences for the 100-FR-3 Operable Unit Record of Decision (EPA 2019a).	N/A	No other ICs are identified in this document.

[a]The results of the assessments for ICs specific to waste sites are presented in Section 2.3.2.

IC = institutional control. N/A = not applicable.

2.3.2 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 2-8 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.

Table 2-8. 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	2003-051, 2015-078 2003-022, 2015-078 2003-006, 2015-078 2003-051, 2015-078 2007-027, 2015-078	4/16/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
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	2001-099, 2015-078 2003-022, 2015-078 2001-099, 2015-078 2002-057, 2015-078 2002-056, 2015-078 2001-099, 2015-078 2003-022, 2015-078	4/16/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
100-F-19:3	Final Closed Out	2001-099, 2015-078	4/16/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.
118-F-6	Final Closed Out	2008-018, 2015-079	4/16/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.

Table 2-8. 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	2002-050, 2015-077	4/16/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No constructed drainage systems that would discharge to the site was observed. • No unauthorized irrigation was observed. • No known periodic/repetitive water or other liquid discharges occurred to the 116-F-14 waste site, as confirmed by the ECO. • No known inadvertent long-term or significant releases were reported at the mentioned sites or near the 116-F-14 waste site. • No constructed drainage systems exist that would discharge to the site, as confirmed by appropriate data systems/ documentation.

ECO = environmental compliance officer.
IC = institutional control.
WSRF = waste site reclassification form.

2.3.3 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 2-9). 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 4.3.

Table 2-9 identifies the location of each sign, the language used for the verbiage on the sign, and the observations. All signs for the 100-F/IU-2/IU-6 GDA were found to be in place at the correct locations (see Figure 2-9) and with the proper text. The signs are shown in Figure 2-10.

Table 2-9. 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

Figure 2-10. Warning Notices for 100-F/IU-2/IU-6 Geographic Decision Area.

2.4 100-K GEOGRAPHIC DECISION AREA INSTITUTIONAL CONTROLS

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.

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 2-11 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 2019; 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.

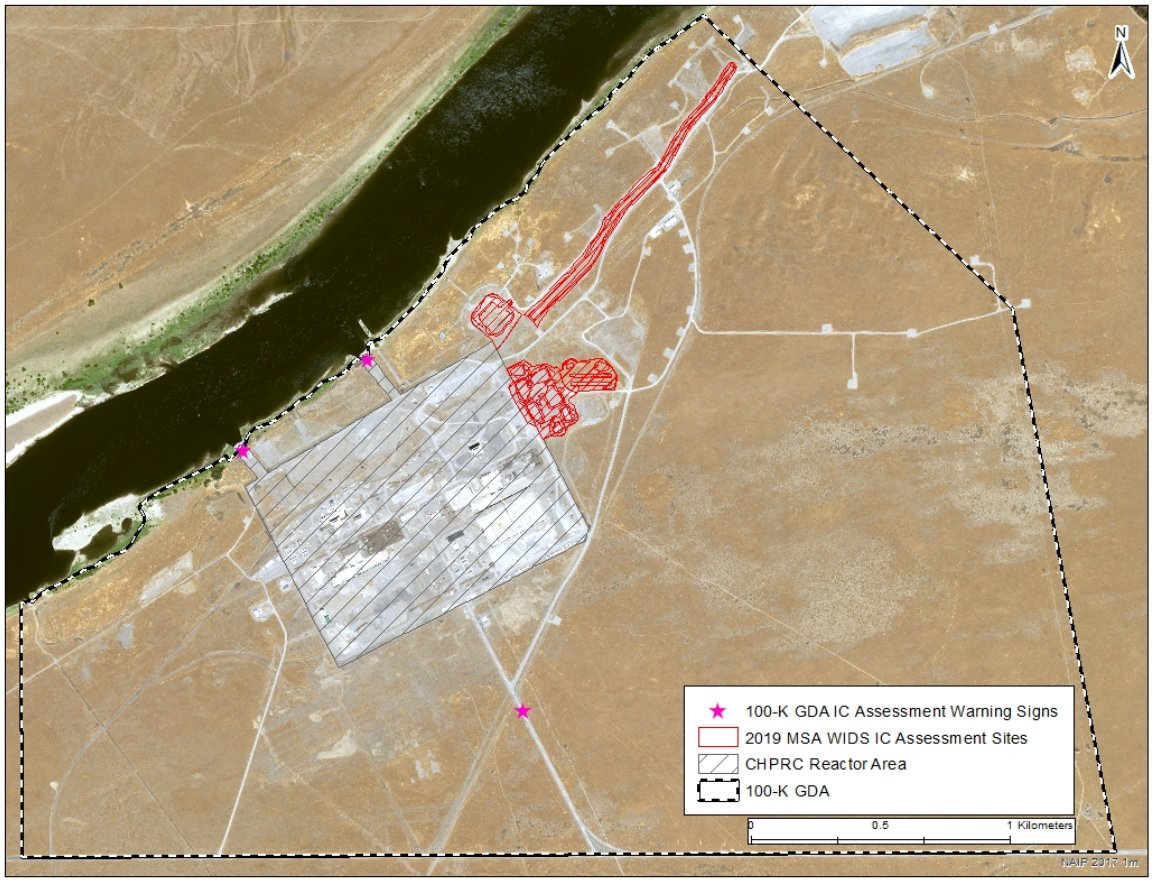

Figure 2-11. Areas Assessed in the 100-K Geographic Decision Area.

The following subsections in 2.4 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.

2.4.1 Decision Documents for the 100-K Geographic Decision Area

Table 2-10 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 2-10.

Table 2-10. Decision Documents Associated with the 100-K Geographic Decision Area.

Decision Documents	Sections Describing the Results of the Decision Area-Wide IC Assessment[a]	
	Warning Notices	**Other ICs**
Interim Action Record of Decision for the 100-HR-3 and 100-KR-4 Operable Units, Hanford Site, Benton County, Washington (EPA 1996a).	N/A	Section 4.2
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).	N/A	Section 4.3
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."	Section 2.4.3	Section 4.4
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).	Section 2.4.3	Section 4.7
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).	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
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).	N/A	Section 4.8
Explanation of Significant Differences for the 100 Area Remaining Sites Record of Decision, Hanford Site, Benton County, Washington (EPA 2009a).	N/A	No other ICs are identified in this document
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).	N/A	No other ICs are identified in this document

Table 2-10. Decision Documents Associated with the 100-K Geographic Decision Area.

Decision Documents	Sections Describing the Results of the Decision Area-Wide IC Assessment[a]	
	Warning Notices	Other ICs
100 Area "Plug In" and Candidate Waste Sites for Calendar Year 2011 – 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 Remaining Sites (DOE-RL 2012).	N/A	No other ICs are identified in this document
Explanation of Significant Differences for the 100-HR-3 and 100-KR-4 Operable Unit Interim Action Record of Decision (EPA 2019b)	N/A	No other ICs are identified in this document

[a]The results of the assessments for ICs applicable to specific to waste sites are presented in Section 2.4.2.

IC = institutional control. N/A = not applicable.

2.4.2 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 2-11 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 2-11. 100-K Geographic Decision Area Waste Sites with Institutional Controls. (2 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
116-K-1	Interim Closed Out	2004-001	4/22/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.
116-K-2	Interim Closed Out	2006-002	4/23/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)]	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.
118-K-1	Interim Closed Out	2013-094	4/23/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)]	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone.

IC = institutional control. WSRF = waste site reclassification form.

2.4.3 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 2.4.1). 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 2-12 describes the location of the sign that serves as the warning notice, 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 2-11) with the proper text; the signs are shown in Figure 2-12.

Table 2-12. 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-KW Intake Structure	2	English and Spanish	In Place
Near Columbia River in 100K Reactor Area at the 100-KE Intake Structure	2	English and Spanish	In Place

Main Entrance to 100K Reactor Area

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

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

Figure 2-12. Warning Notices for the 100K Geographic Decision Area.

2.5 100-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 2-13 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 2019 as identified in the decision documents listed in Table 2-13. 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.

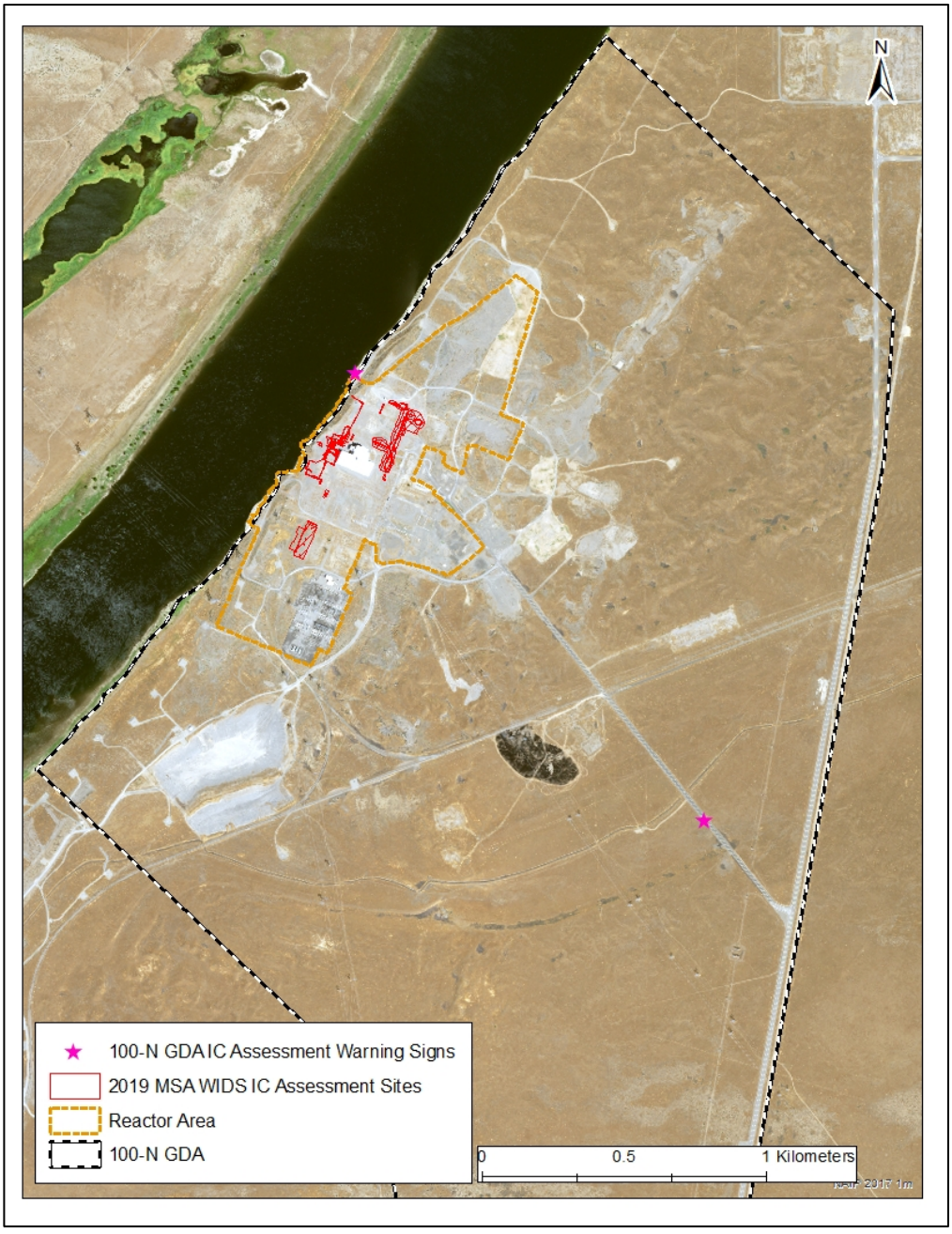

Figure 2-13. Areas Assessed in the 100-N Geographic Decision Area.

The following subsections in 2.5 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.

2.5.1 Decision Documents for the 100-N Geographic Decision Area

Table 2-13 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 2-13.

Table 2-13. Decision Documents Associated with the 100-N Decision Areas.

Decision Document	Sections Describing the Results of the Decision Area-Wide IC Assessment[a]	
	Warning Notices	Other ICs
Interim Action Record of Decision for USDOE 100-NR-1 and NR-2 Operable Unit Hanford Site 100 Area, Benton County, Washington (EPA 1999b).	Section 2.5.3	Section 4.5
Interim Action Record of Decision for the 100-NR-1 Operable Units (TSD) Hanford Site, Benton County, Washington (EPA 2000a).	Section 2.5.3	Section 4.6
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).	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.
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 2010a).	N/A	No other ICs are identified in this document beyond those specified in the original ROD.
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).	N/A	No other ICs are identified in this document beyond those specified in the original ROD.
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).	N/A	No other ICs are identified in this document beyond those specified in the original ROD.
Explanation of Significant Differences for the 100-NR-1 and 100-NR-2 Operable Unit Interim Action Record of Decision (EPA 2019c).	N/A	No other ICs are identified in this document beyond those specified in the original ROD.

[a]The results of the assessments for ICs specific to waste sites are presented in in Section 2.5.2.

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

2.5.2 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 2-14 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.

Table 2-14. 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	4/23/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.
100-N-84:2	Interim Closed Out	2014-088	4/25/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.
116-N-2 UPR-100-N-5 UPR-100-N-25	Interim Closed Out	2013-015 2013-016 2013-017	4/25/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.
124-N-2	Interim Closed Out	2013-030	4/25/2019	ICs are required to prevent uncontrolled drilling or excavation into the deep zone [i.e., below 4.6 m (15 ft)].	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation is observed in the deep zone.
100-N-50 100-N-51 100-N-51B UPR-100-N-37	Interim Closed Out	2004-059 2004-059 2004-059 2004-059	4/25/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No excavation was observed into the lower basement level of the former 185-N building to more specifically address the IC.

Table 2-14. 100-N Geographic Decision Area Waste Sites with Institutional Controls.

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results

IC = institutional control. WSRF = waste site reclassification form.

2.5.3 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 2.5.1). 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-2005-93, *Remedial Design Report/Remedial Action Work Plan for the 100-N Area*, Section 3.8.

Table 2-15 presents the observations resulting from the assessments of these signs, describing the location of each sign, 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 2-13) and with the proper text, as described in Table 2-15. The warning notices are shown in Figure 2-14.

Table 2-15. 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 2-14. Warning Notices for the 100-N Geographic Decision Area.

2.6 300 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 2019, The LTS Program assessed the 98 waste sites with ICs in the 300 GDA as identified in the decision documents listed in Table 2-16. The types of ICs required at these waste sites are shown in Figure 2-15. Figure 2-16 shows the boundaries of the IC assessment areas, as well as the boundaries of the 300 Area Industrial Complex,[4] within which most of the sites are located. Section 2.6.2 presents the assessment results of the site-specific ICs.

All of these waste sites were included in last year's assessment, with the exception of one, the 618-10 waste site, which was recently transitioned into the LTS Program. The 618-10 waste site was transitioned into the LTS Program in September 2018, along with 14 other WIDS sites that do not have assigned ICs, as described in HNF-61989, *Long-Term Stewardship Transition and Turnover Package Segment 5: 618-10 Burial Ground Complex Addendum.* In July 2018, the 618-10 waste site was reclassified as Final Closed Out and assigned ICs to prevent uncontrolled drilling or excavation into the deep zone (i.e., below 4.6m [15 ft]) and to prevent enhanced groundwater recharge. Since the site was not transitioned to LTS until September of 2018, this year is the first year the LTS Program assessed the site.

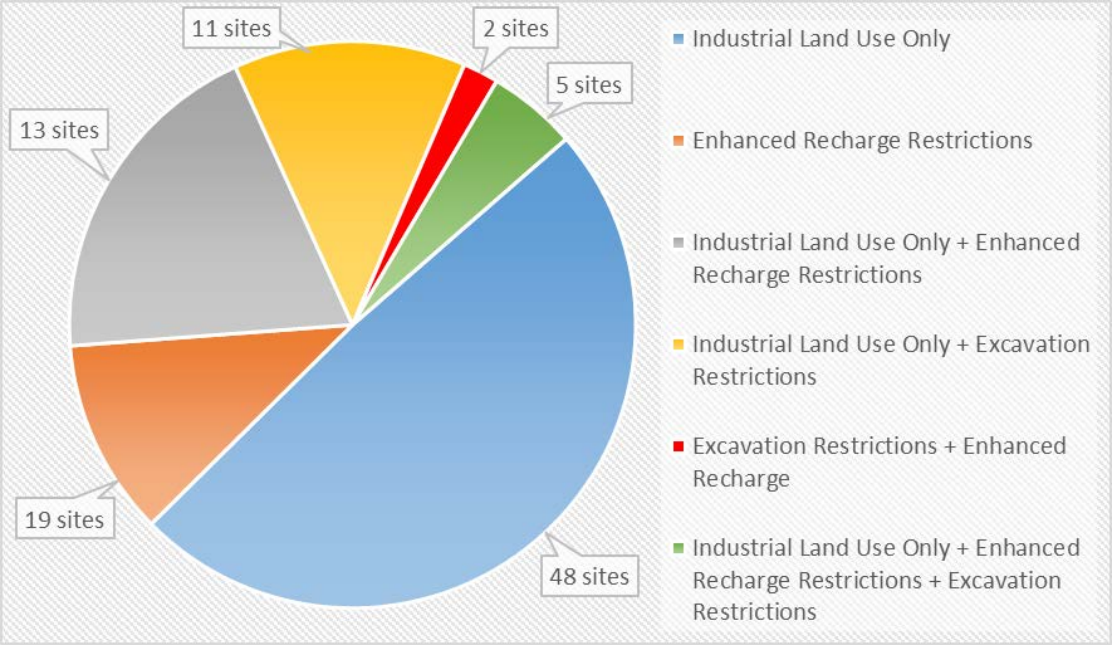

Figure 2-15. Types of ICs at Waste Sites in the 300 Area Geographic Decision Area.

[4] 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.

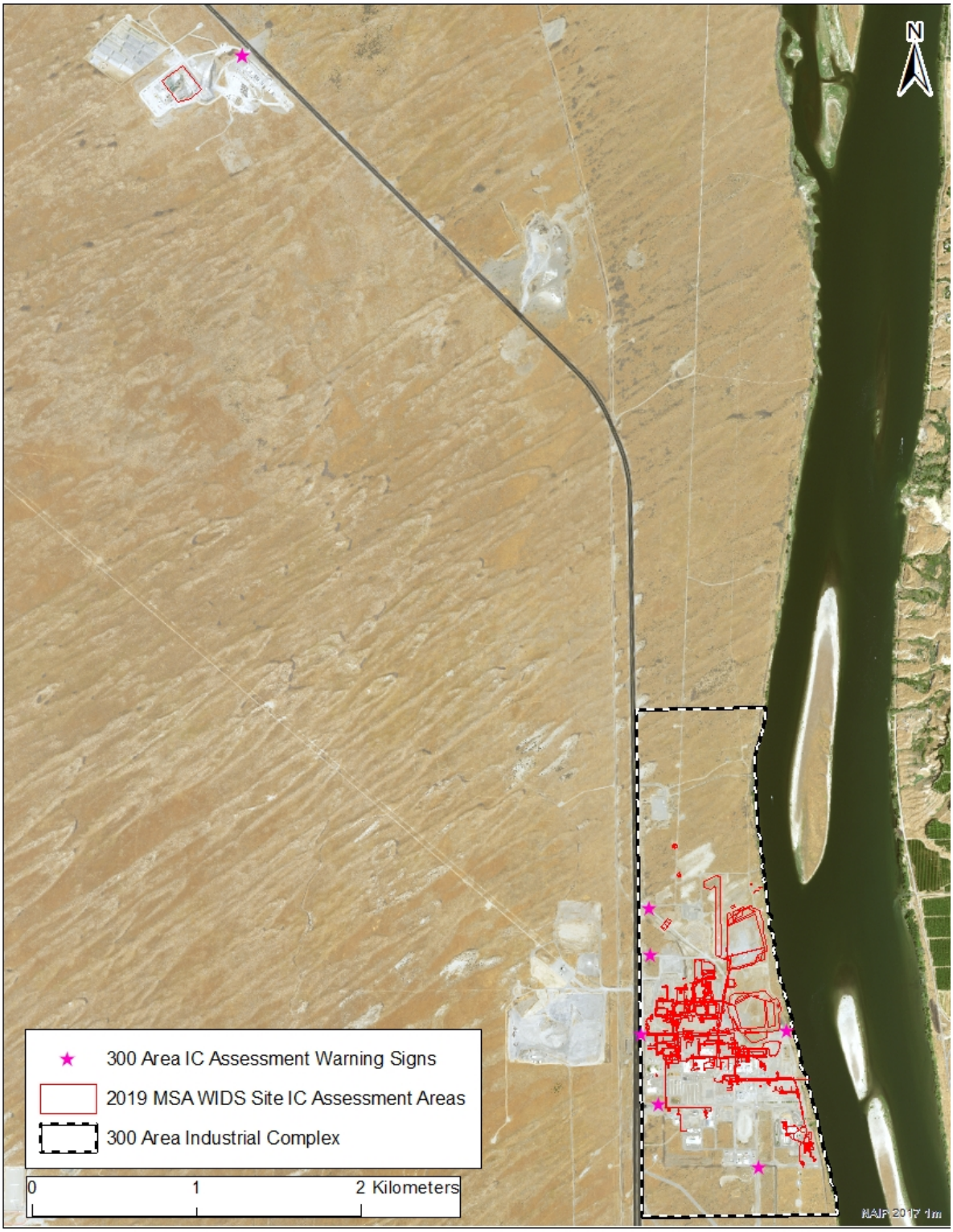

Figure 2-16. IC Assessment Area for 618-10 and the 300 Area Industrial Complex.

Assessments of the 98 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)[5]; 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 2.6.2 and Table 2-17.

In addition to the waste sites listed in Table 2-17, 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 300-01 has been taken out of service.

The following subsections in 2.6 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.

2.6.1 Decision Documents for the 300 Geographic Decision Area

Table 2-16 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 2-16. In addition to the decision documents listed in Table 2-16, 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.

[5]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.

Table 2-16. Decision Documents Associated with the 300 Geographic Decision Area.

Decision Document	Sections Describing the Results of the Decision Area-Wide IC Assessment [a]	
	Warning Notices	Other ICs
Hanford Site 300 Area Record of Decision for 300-FF-1 and 300-FF-5 Operable Units, Hanford Site, Benton County, Washington (EPA 1996b).	N/A	Section 4.11
Explanation of Significant Differences for Hanford 300 Area, 300-FF-1 Operable Unit, Benton County, Washington (EPA 2000c).	N/A	This document identifies no other ICs
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).	Section 2.6.3	Section 4.12
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).	N/A	This document identifies no other ICs
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).	N/A	This document identifies no other ICs
Explanation of Significant Differences for the 300-FF-5 Operable Unit Record of Decision (EPA 2019d).	N/A	This document identifies no other ICs

[a]The results of the assessments for ICs specific to waste sites are presented in section 2.6.2.

IC = institutional control. N/A = not applicable. OU = operable unit.

2.6.2 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 2-17 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.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 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	5/28/2019	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling or excavation.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the site assessment. • A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed within the listed waste site excavation areas.
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	5/22/2019	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling or excavation.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the site assessment. • A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed within the listed waste site excavation areas.
618-1 618-1:1 618-1:2 618-2	Final Closed Out	2010-028, 2015-069 2010-028, 2015-069 2010-028, 2015-069 2006-062, 2015-07l	5/29/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed within the listed waste site excavation areas. • No drainage or irrigation issues were observed at the time of assessment and no opportunities for enhanced recharge were identified.
300-110 303-M SA 303-M UOF 333 ESHWSA	Final Closed Out	2010-024, 2014-017 2010-025, 2014-018 2010-026, 2014-028 2010-027, 2014-018	5/29/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the site assessment. • No drainage or irrigation issues were observed at the time of assessment and no opportunities for enhanced recharge were identified.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
628-4	Final Closed Out	2000-111	5/22/2019	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)].	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the site assessment. • A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed within the listed waste site excavation areas.
300-15:1	Accepted	---[a]	5/22/2019	ICs are required to prevent enhanced recharge.	• No irrigation activities were observed. • 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. • A drainage event occurred in February 2019 when an approved hydrant flushing of drinking water was left on for an additional 120 minutes creating a significant discharge amount of approximately 81,000 gallons. The LTS evaluation for this event concluded appropriate barriers were in place to limit enhanced recharge near the site. A new discharge location has been approved in order to prevent future events, should they occur.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 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	5/22/2019	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling and excavation.[c]	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed within the listed waste site excavation areas.
300 RLWS:3 300 RRLWS:2 300-175 300-214:2 300-265	Accepted	- - -[a]	6/5/2019	ICs are required to prevent enhanced recharge.	• No irrigation activities were observed. • As described in DOE/RL-2014-13-ADD1, the barriers and stabilization measures meet the intent of preventing contamination mobilization and supporting the enhanced recharge control.
UPR-300-10 UPR-300-12 UPR-300-48	Accepted	- - -[a]	6/17/2019	ICs are required to prevent enhanced recharge.	• No irrigation activities were observed. • As described in DOE/RL-2014-13-ADD1, the barriers and stabilization measures meet the intent of preventing contamination mobilization and supporting the enhanced recharge control.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 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	2011-071, 2014-030 2011-071, 2014-030 2011-071, 2014-030 2011-071, 2014-030 99-042, 2014-012	5/28/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No drainage or irrigation issues were observed at the time of assessment and no opportunities for enhanced recharge were identified.
618-3	Final Closed Out	2006-035, 2015-072	5/29/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.
300-270 313 ESSP UPR-300-38	Final Closed Out	2012-006, 2014-039 2012-005, 2014-039 2012-004, 2014-039	5/28/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.
300-15:2	Final Closed Out	2012-120, 2015-081	5/29/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300-15:3	Final Closed Out	2015-047	05/28/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No irrigation sources were observed or discovered during assessment. • 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. • Drainage and pooling in the area of the waste sites was observed during approved drinking water fire hydrant flushing in FY 2019. The location of the drainage source was mitigated as soon as possible and directed away from the waste site into an engineered drainage system 100 feet to the west. Potential sources of enhanced recharge drainage events were evaluated and determined to be of a limited or controlled nature, which meet the intent of the IC.
300-33 300-41 300-53 300-256 300-262	Final Closed Out	2010-058, 2014-017 2010-058, 2014-017 99-014, 2014-011 2010-058, 2014-017 2000-112, 2014-017	5/28/2019	Site restricted to industrial land use, and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.
316-3	Final Closed Out	2015-049	6/5/2019	Site restricted to industrial land use.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300-121	Accepted	- - - [a]	5/29/2019	ICs are required to prevent enhanced recharge.	• The UIC at this site has been grouted and is inactive; the associated facility, 3621D, has been demolished. • No irrigation activities were observed. • As described in DOE/RL-2014-13-ADD1, the barriers and stabilization measures meet the intent of preventing contamination mobilization and supporting the enhanced recharge control.
UPR-300-17	Final Closed Out	2010-014, 2014-018	5/29/2019	Site restricted to industrial land use and ICs are required to prevent enhanced recharge.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No drainage or irrigation issues were observed at time of assessment and no opportunities for enhanced recharge were identified.
300-269	Accepted	- - - [a]	5/30/2019	ICs are required to prevent enhanced recharge.	• 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. • One drainage event occurred in February 2019 when an approved hydrant flushing of drinking water was left on for an additional 120 minutes creating a significant discharge amount of approximately 81,000 gallons. The LTS evaluation for this event concluded appropriate barriers were in place to limit enhanced recharge near the site. A new discharge location has been approved in order to prevent future events, should they occur. • No other drainage or irrigation issues were observed at the time of the assessment.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
300 ASH PITS	Final Closed Out	98-004	6/13/2019	Site restricted to industrial land use and ICs are required to prevent uncontrolled drilling and excavation.[c]	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use; no non-industrial uses were observed during the assessment. • No unauthorized excavation was observed within the listed waste site excavation areas.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 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, 2011-105 2014-029 2011-100, 2014-031 2011-100, 2014-031 2015-048 2011-100, 2014-031 2013-007, 2014-034 2011-100, 2014-031 2015-030 2011-106, 2014-035 2011-106, 2014-035 2011-100, 2014-031 2011-042, 2014-036 2013-033, 2014-037 2015-050 2011-091, 2014-040 2014-100 2012-037, 2014-045 2008-020, 2014-019 2011-106, 2014-035 2012-110, 2014-049 99-050 2010-009, 2014-018	5/22/2019	Site restricted to industrial land use.	• All land-use requests for the 300 Area in FY 2019 were consistent with industrial use. • No non-industrial uses were observed during the assessment.

Table 2-17. 300 Geographic Decision Area Waste Sites with Institutional Controls. (9 sheets)

Waste Site Assessment Group	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observations/Results
618-10		2017-028	4/15/2019	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.	• A permit process is in place requiring review and approval prior to any excavations. • No unauthorized excavation was observed in the deep zone. • No irrigation or engineered drainage systems were observed. No other potential sources of enhanced recharge were observed.

[a]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.
[b]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).
[c] 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.

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. More information on some of the issues addressed are described below:

- Due to the 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 holistic approach allowed for improved drainage control and minimization of enhanced recharge to the respective waste sites.

- 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 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.

- The LTS Program personnel also observed curb damage along the outside of the asphalt parking lot area near the 331 Building, which could cause uncontrolled drainage at that location (see Figure 2-17). The LTS Program worked with PNNL environmental personnel to conduct the assessment of the asphalt barrier near the 331 Building. Ongoing maintenance of the asphalt barrier was confirmed by the observation of asphalt sealing (see Figure 2-17). The potential maintenance issue for the curb damage was discussed with PNNL environmental personnel.

Sealed ashpalt barrier crack located in the PNNL 331 Building parking lot.	Curb damage located along the outside of the PNNL 331 Building asphalt parking lot.

Figure 2-17. Enhanced Recharge IC Assessment Observations.

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 these activities are described below:

- On May 2, 2019, LTS Program personnel observed a discharge during a city water flushing event from fire hydrant 300-03, just north of the 300 Area fire station. During the flush, drainage was observed approximately 100 meters down-gradient over and near the 300-15:3 waste site, which has an IC to prevent enhanced recharge. Working closely with 300 Area contractors, a new discharge location was identified in order to mitigate and prevent any enhanced recharge events (see Figure 2-18). Potential sources of enhanced recharge drainage events were evaluated during the assessment and determined to be of a limited or controlled nature, which meet the intent of the IC.

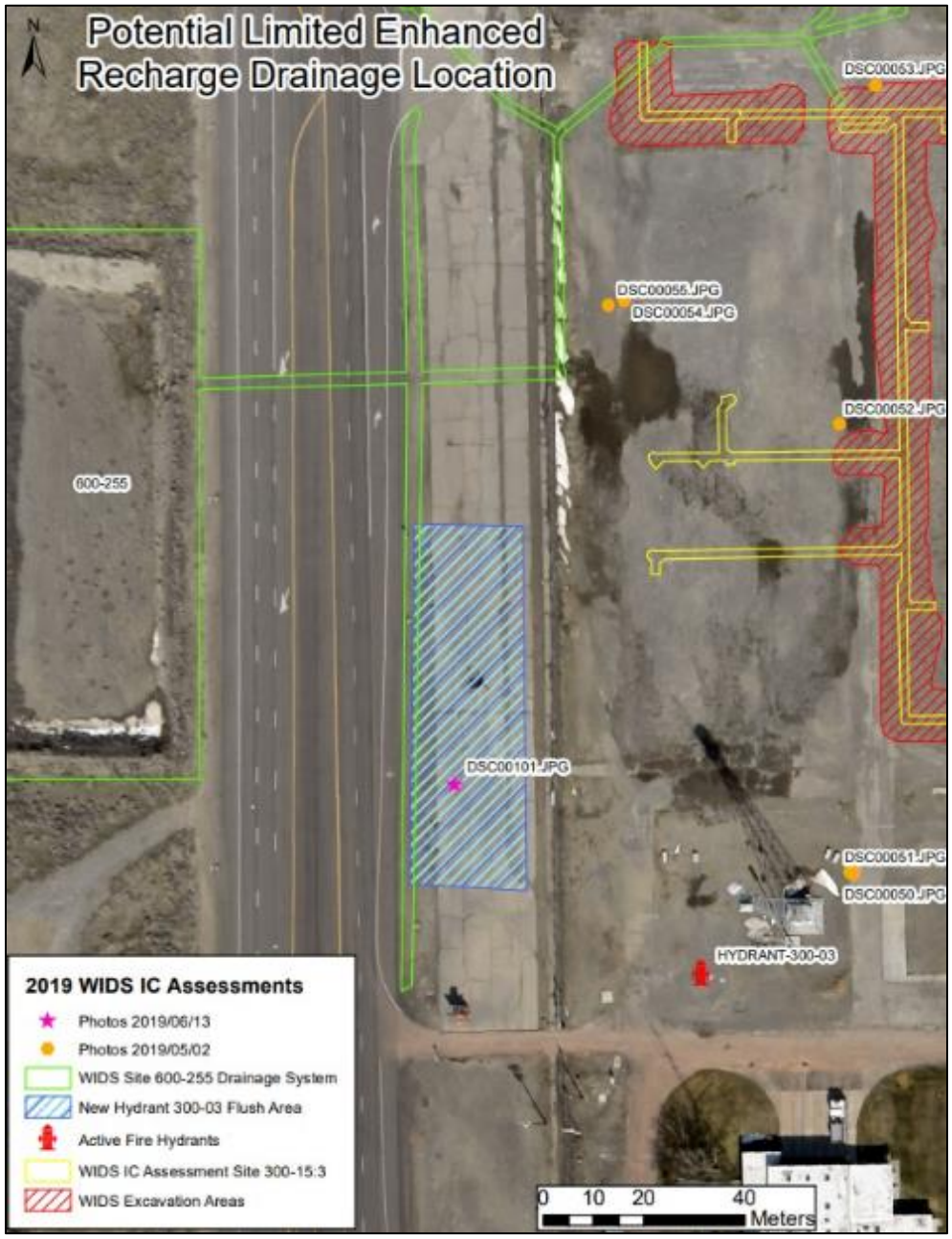

Figure 2-18. Location of the May 2, 2019 Flushing Event.

Note: The dark staining north of Hydrant 300-03 in the aerial imagery shows the extent of the discharge from the hydrant flushing. Located southwest of the original discharge area is a new location identified for discharge for the approved 300 Area drinking water flushing (per State Waste Discharge Permit ST0004511). Water is now discharged 100 ft west of the hydrant onto an asphalt barrier and then drains into the 300 Area Stormwater Percolation Pond drainage system alongside Route 4S.

- Other fire hydrant flushing drainage events were limited and have been mitigated to be prevented in the future by evaluating and observing all 300 area fire hydrant flushing locations and moving any necessary flushing drainage direction and locations to prevent enhanced recharge. 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.

- The LTS Program developed a snow pile staging plan in 2017, which was used to communicate 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. After significant snowfall in February 2019 (a total of 25.3 inches for the month of February), LTS Program personnel opportunistically observed locations of staged snow piles (as a result of plowing roads and parking lots) to confirm the locations were within the parameter of the snow pile staging plan (see Figure 2-19).

Figure 2-19. Minimizing enhanced recharge from snowmelt.

- The LTS Program evaluated the drainage systems at the Active WIDS sites 600-255 and 300-86 during inclement weather to determine performance functionality and to identify any potential maintenance and/or improvements to support the enhanced recharge control. Both drainage systems are inspected regularly and are on an as-needed and routine maintenance schedule. At the 300-86 system, catch basins were unclogged and additional maintenance activities were undertaken to ensure proper drainage and to prevent enhanced recharge from stormwater runoff.

The LTS Program also responded to unplanned releases near waste sites with the enhanced recharge IC to assess the potential of enhanced recharge. Details of these events are described below:

- On February 4, 2019, the DOE Pacific Northwest Site Office provided a noncompliance of the State Waste Discharge Permit ST0004511 letter to the Washington State Department of Ecology. The noncompliance occurred on February 2, 2019 at the 331 Building. Approximately 81,000 gallons were discharged from fire hydrant 300-66 to flush the drinking water system in order to reduce disinfection by-products generated from chlorination of the drinking water. The flushing is authorized as an exempt activity (section S.7B) in the State Waste Discharge Permit ST0004511, which allows a discharge rate greater than 150 gallons per minute (gpm) for up to 60 minutes. During this occurrence; however, the operator inadvertently left the water line on for approximately 180 minutes at an estimated flow rate of 450 gpm. Excessive waters reportedly had migrated eastward, to and within the 331 Building, as well as near two waste sites (300-269 and 300-15:1) that have enhanced recharge ICs. On February 6, 2019, the LTS Program was notified of the occurrence. After considering all details provided by PNNL and performing several independent site-walk downs, the LTS Program concluded that it is unlikely that a significant volume of water reached the soil column to migrate potential contamination at these sites and that appropriate drainage systems and barriers are in place in order to prevent enhanced recharge for these sites.

- On May 22, 2019, PNNL noted that there was a minor leak in the 331 Aquatics Lab piping on the southeast side of the 331 Building (by the southeast entrance). PNNL immediately contacted the MSA LTS Program for assessment of potential enhanced recharge. The estimated 5,000-gallon release occurred approximately sixty feet from the nearest accepted (inactive) waste site. After considering the amount of release and the distance from accepted waste sites, the LTS Program concluded that no enhanced recharge IC waste sites were impacted.

The LTS Program has worked 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 included creating a LTS Spills and Notification email address, updating procedures, adding LTS as a reviewer on the Planned Significant Water Discharge concurrence form, and facilitating regular interface meetings with the 300 Area contractors. These interface meetings have resulted in identifying projects that 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. The LTS Program will continue to work closely with other Hanford contractors in order to receive timely notifications of planned and unplanned occurrences in the future.

2.6.3 Warning Notices in the 300 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 2-18 presents the observations resulting from the assessments of these signs, which serve as the warning notices. Table 2-18 describes the location of each sign, the language used for the verbiage on the sign, and the observations. The former north parking lot entrance sign was found to have fallen in FY 2019. However, the sign was repaired on August 22, 2019. All other signs for the 300 Area were found to be in place at the correct locations (see Figure 2-16) with the proper text and are shown in Figure 2-20.

Table 2-18. Warning Notices for 300 Geographic Decision Area.[a]

Location 1	Number of Signs	Language	Observations
Cypress Street Entrance to 300 Industrial Zone	1	English	In Place
George Washington Way Extension Entrance to 300 Industrial Zone	1	English	In Place
Apple Street Entrance to 300 Industrial Zone	1	English	In Place
Former North Parking Lot Entrance	1	English	In Place
Former 300-FF-1 Remediation Entrance	1	English	In Place
Near Columbia River in 300 Industrial Area	2	English & Spanish	In Place
Near the Entrance to 618-10 waste site	1	English	In Place

[a]Signs in areas managed by CHPRC were not included in this assessment and are not included in this table.

Figure 2-20. Warning Notices for the 300 Geographic Decision Area (sheet 1).

Figure 2-20. Warning Notices for the 300 Geographic Decision Area (sheet 2).

2.7 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.[6] One WIDS site in the 1100 GDA had IC requirements in FY 2019; these are summarized in Figure 2-21. Figure 2-22 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 2-21. Institutional Controls Required in the 1100 Area.

2.7.1 Decision Documents for the 1100 Area

Table 2-19 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 2-19. Decision Documents Associated with the 1100 Area.

Decision Document	Sections Describing the Results of the Decision Area-Wide IC Assessment [a]	
	Warning Notices	Other ICs
Record of Decision for the USDOE Hanford 1100-Area Final Remedial Action, Benton County, Washington (EPA 1993).	N/A	Section 4.13
Explanation of Significant Differences for the USDOE Hanford 1100 Area, Benton County, Washington (EPA 1996c).	N/A	No other ICs are identified in this document.
Superfund Site Final Closeout Report, U.S. Department of Energy Hanford 1100 Area, Richland, Washington (DOE 1996).	N/A	Section 4.14
Explanation of Significant Differences for USDOE Hanford 1100 Area, Benton County, Washington, (EPA 2010b).	Section 2.7.3	Section 4.15

[a]The results of the assessment for the waste site ICs are presented in Section 2.6.2

IC = institutional control. N/A = not applicable.

[6] The 1100 Area NPL site was deleted from the NPL in 1996 after closure requirements were met for the Horn Rapids Landfill in accordance with the *Record of Decision for the USDOE Hanford 1100 Area* (EPA 1993).

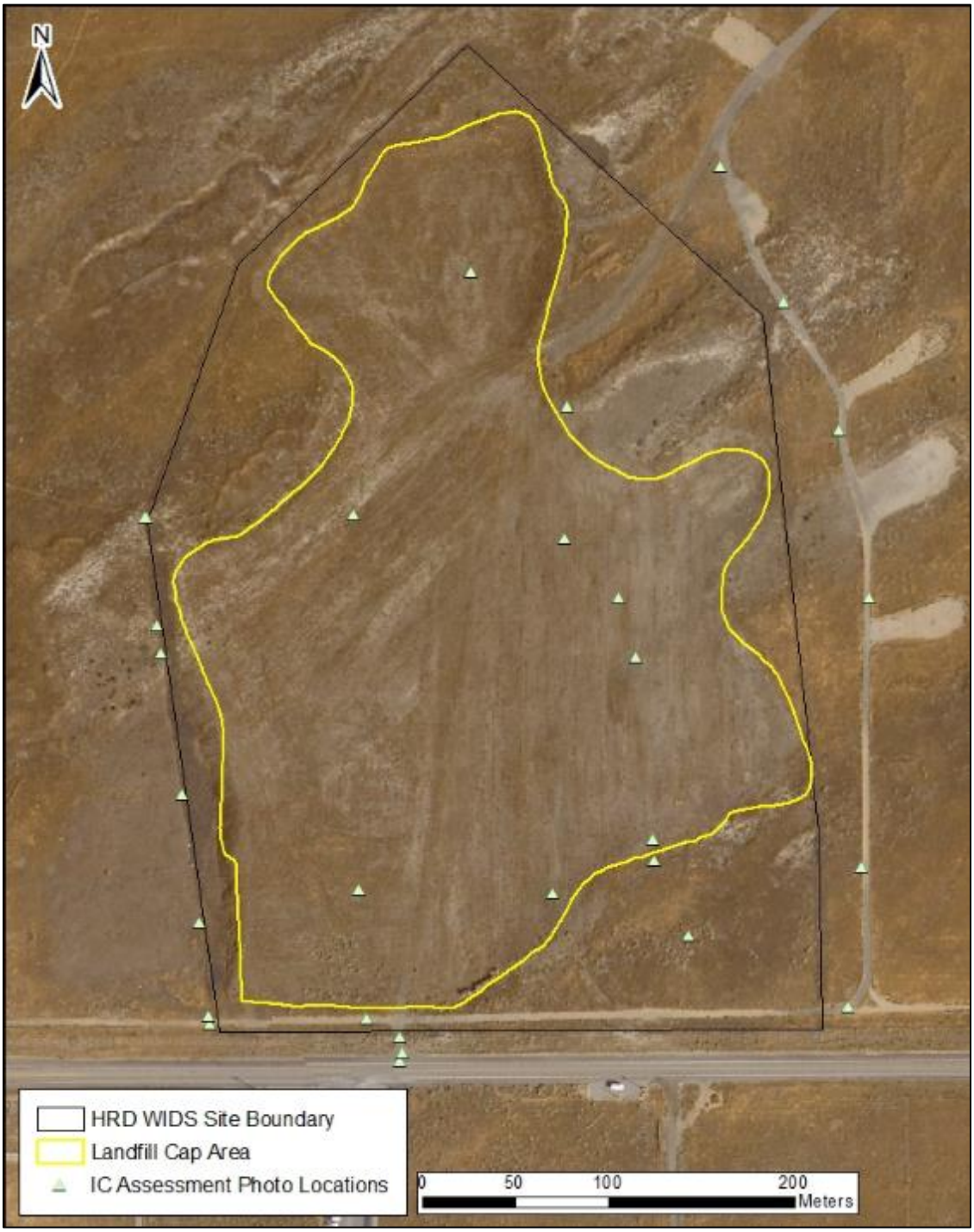

Figure 2-22. Area Assessed in the 1100 Area.

2.7.2 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 2-20 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 2-20. 1100 Area Waste Sites with Institutional Controls.

Waste Site	Reclassification Status	WSRF	Date Assessed	Institutional Control	Observation
HRD	Deleted From NPL	- - -	4/15/2019	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[a] as an asbestos-containing landfill) at the Horn Rapids Landfill [b].	Access is controlled by fencing and gates. Signs are in place and fencing was found to be intact as required (see section 2.7.3).

[a]40 CFR 61.151, "Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations," *Code of Federal Regulations*, as amended.
[b] 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.

2.7.3 Warning Notices in the 1100 Area

The *Explanation of Significant Differences for the USDOE Hanford 1100 Area* (EPA 2010b) 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 2019, 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. No disturbance to the landfill cap was observed. Photographs of the signs, which serve as warning notices, were collected during the FY 2019 field assessment (see Figure 2-23 for a representative sign).

No Trespassing sign near the entrance of Horn Rapids Landfill

Warning Notice at the locked gate entrance of Horn Rapids Landfill

Figure 2-23. Locked Gate Entrance of the Horn Rapids Landfill.

3.0 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.

3.1 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 July 2019 along State Route 240 (Figure 3-1). In these areas, approximately 55 "No Trespassing" signs were found to be illegible or damaged due to a wildland fire on July 18, 2019, and general weathering or vandalism. Damaged fencing was identified in eleven locations. The damaged fencing and signs were replaced in FY 2019.

In FY 2019, the MSA LTS Program completed a project to replace approximately 160 damaged or missing "No Trespassing" signs along the Columbia River (see Figure 3-1).

3.2 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 4. The MSA Safeguards and Security group is responsible for tracking and reporting these incidents. Ten reportable trespassing incidents occurred from October 2018 to September 2019. Information regarding the details of the incidents is considered to be official use only and is not discussed in this report.

Figure 3-1. “No Trespassing” Signs and Fencing.

4.0 DECISION DOCUMENTS THAT INCLUDE INSTITUTIONAL CONTROLS

This section details IC requirements from the decision documents mentioned in previous sections, and includes assessment results from FY 2019. Each decision document listed in this section contains one or more ICs. While Section 2.0 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.

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

Table 4-1 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 2.2.1 and 4.10); therefore, those operable units are not shown in the inset map.

Table 4-1. Assessment of Institutional Controls Listed 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).

Institutional Controls Requirement	Institutional Control Status
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.	Access to the Hanford Site is controlled through barricades and warning notices (see Section 3.1). 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.

IC = institutional control.

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

Table 4-2 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 2.2.1 and 4.10); therefore, the 100-HR-3 operable unit is not shown in the inset map.

Table 4-2. Assessment of Institutional Controls Listed in *Interim Action Record of Decision Hanford 100-HR-3 and 100-KR-4 Operable Units, Hanford Site, Benton County, Washington* (EPA 1996a).

Institutional Controls Requirement	Institutional Control Status
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.	Access to the Hanford Site is controlled through barricades, warning notices, and a badging program (see section 3.1). DOE/EIS-0222, *Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement* (HCP EIS), identifies the institutional controls plan as an implementing control for the HCP EIS. DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*, 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 2019 from the area covered by the ROD.

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.

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

Table 4-3 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 and 100-K GDA**s**, 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, and 100-HR-1 OUs because this interim action ROD amendment has been superseded by a final ROD for these operable units (see sections 2.2.1, 2.3.1, 4.9, and 4.10); therefore, those operable units are not shown in the inset map.

Table 4-3. Assessment of Institutional Controls Listed 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).

Institutional Controls Requirement	Institutional Control Status
Institutional controls and long-term monitoring will be required for sites where wastes are left in place.	ICs have been applied to the individual WIDS sites with waste left in place. Each WIDS site with an IC was assessed in FY 2019. 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.

4.4 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 4-4 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 2.2.1, 2.3.1, 4.9, and 4.10); therefore, those operable units are not shown in the inset map.

Table 4-4. 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-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). (2 sheets)

Institutional Controls Requirement	Institutional Controls Status
DOE will continue to use a badging program to control access to the associated sites for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times.	DOE has an active badging program to control access to Hanford Site. Visitors entering the sites associated with the interim action ROD are escorted at all times.

Table 4-4. 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-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). (2 sheets)

Institutional Controls Requirement	Institutional Controls Status
DOE will use the onsite excavation permit process to control land use (e.g., well drilling or excavation of soil) within the 100 Area operable units.	The DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*.
DOE will maintain existing signs prohibiting public access.	The signage (see sections 2.1.3 and 2.4.3) and the access controls (see section 3.1) are in place and are being maintained.
DOE will provide notification to EPA and Ecology upon discovery of any trespass incidents.	DOE transmits copies of the annual IC assessment report to EPA and Ecology. The assessment includes a report on the trespassing incidents.
Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	Trespassing incidents are reported to the Benton County Sherriff's Office (see section 3.2).
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.	No land was transferred or leased from the area covered by the ROD in FY 2019.
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.	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2019.
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.	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the unit managers meeting.

DOE = U.S. Department of Energy.
Ecology = Washington State Department of Ecology.
EPA = U.S. Environmental Protection Agency.
IC = institutional control.
LTS = long-term stewardship.
MSA = Mission Support Alliance, LLC.
ROD = record of decision.
UMM = unit managers meeting.

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

Table 4-5 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.

Table 4-5. Assessment of Institutional Controls Listed 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).

Institutional Controls Requirement	Institutional Controls Status
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.	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.
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.	The DOE excavation permit program, as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*, is in place.
DOE will maintain existing signs prohibiting public access.	The signage (see Section 2.5.3) and the access controls (see Section 3.1) are in place and are being maintained.
DOE will provide notification to Ecology upon discovery of any trespass incidents.	DOE transmits copies of the annual IC assessment report to EPA and Ecology. The assessment includes a report on the trespassing incidents.
Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 3.2).
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.	No land was transferred or leased from the area covered by the ROD in FY 2019.
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.	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2019.

Table 4-5. Assessment of Institutional Controls Listed 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).

Institutional Controls Requirement	Institutional Controls Status
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.	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the unit managers meeting.

.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.

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

Table 4-6 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.

Table 4-6. 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
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.	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.
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.	The DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure.*

Table 4-6. 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
DOE will maintain existing signs prohibiting public access.	The signage (see Section 2.5.3) and the access controls (see Section 3.1) are in place and are being maintained.
DOE will provide notification to Ecology upon discovery of any trespass incidents.	DOE transmits copies of the annual IC assessment report to EPA and Ecology. The assessment includes a report on the trespassing incidents.
Trespass incidents will be reported to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	Trespassing incidents are reported to the Benton County Sherriff's Office (see section 3.2).
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.	No land was transferred or leased from the area covered by the ROD in FY 2019.
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.	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2019.
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.	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the unit managers meeting.

DOE = U.S. Department of Energy.
IC = institutional control.
MSA= Mission Support Alliance, LLC.
UMM = unit managers meeting.

4.7 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 4-7 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

because this interim action ROD has been superseded by a final ROD for those OUs (see sections 2.2.1, 2.3.1, 4.9, and 4.10); therefore, these OUs are not shown in the inset map.

Table 4-7. 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
DOE will continue to use a badging program to control access to the associated sites for the duration of the interim action. Visitors entering the sites associated with the Interim Action ROD are required to be escorted at all times.	DOE has an active badging program to control access to the Hanford Site. Visitors entering the sites associated with the interim action ROD are escorted at all times.
Well drilling is prohibited, except for monitoring or remediation wells authorized in documents approved by EPA and/or the Ecology. Groundwater use is prohibited, except for monitoring and treatment, as approved by EPA or Ecology.	The DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*. This program prevents unauthorized well drilling. Groundwater use is managed by CHPRC.
No intrusive work is allowed on or near the waste sites covered in this ROD without prior approval of EPA or Ecology.	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.
DOE shall maintain signs that warn river users of potential hazards along the shoreline from 100 Area waste sites.	The signage is in place and being maintained (see sections 2.1.3 and 2.4.3).
DOE shall post and maintain in good condition "No Trespassing" signs along the 100 Area shoreline.	The "No Trespassing" signs are in place and being maintained (see Section 3.1).
DOE shall maintain signs along access roads that warn Site visitors and workers of potential hazards from 100 Area waste sites.	The signage is in place and being maintained (see sections 2.1.3 and 2.4.3).
DOE shall report trespass incidents to the Benton County Sheriff's Office for investigation and evaluation for possible prosecution.	Trespassing incidents are reported to the Benton County Sheriff's Office, (see Section 3.2).

Table 4-7. 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
DOE shall submit a Sitewide IC plan that includes the applicable ICs for the 100 Area OUs. This Sitewide plan will be submitted to EPA and Ecology for approval as a primary document under the Tri Party Agreement by July 2001. This plan shall be updated by DOE periodically at the request of EPA or Ecology. At a minimum, the plan shall contain the following: *A comprehensive facility wide list of all areas or locations covered by any and all decision documents at the Hanford Site that have or should have ICs for protection of human health or the environment. The information on the list will include, at a minimum, the location of the area, the objectives of the restriction or control, the timeframe that the restrictions apply, and the tools and procedures DOE will use to implement the restrictions or controls and to evaluate the effectiveness of these restrictions or controls.* *Cover, and legally bind where appropriate, all entities and persons, including, but not limited to, employees, contractors, lessees, agents, licensees, and visitors. In areas where DOE is aware of routine trespassing, trespassers also must be covered.* *Cover all activities, and reasonably anticipated future activities, including, but not limited to, any future soil disturbances, routine and non-routine utility work, well placement and drilling, recreational activities, Hanford Reach National Monument related uses, groundwater withdrawals, paving, construction, renovation work on structures, Tribal use, or other activities.* *Include a tracking mechanism that identifies all land areas under restriction or control.* *Include a process to promptly notify 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.*	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.
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.	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 2019.

Table 4-7. 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
DOE will identify a point of contact for implementing, maintaining, and monitoring ICs for the 100 Area, as well as for the Hanford Site.	DOE has a person responsible for maintaining and monitoring ICs in the 100 Areas.
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.*	Funding is requested for maintaining and monitoring ICs through the DOE Long-Term Stewardship Program.
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.	No land has been transferred or leased from the area covered by the ROD in FY 2019.
DOE will not delete or terminate any ICs unless EPA and Ecology have concurred in the deletion or termination.	None of the IC requirements established in this interim action ROD were deleted or terminated in FY 2019.
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.*	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the unit managers meeting.

Table 4-7. 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
EPA and Ecology review of the IC monitoring report will follow existing procedures for agency review of primary documents.	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.

4.8 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 4-8 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 2.2.1, 2.3.1, 4.9, and 4.10); therefore, these OUs are not shown in the inset map.

Table 4-8. 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).

Institutional Controls Requirement	Institutional Controls Status
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.	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, *Hanford Site Fourth CERCLA Five-Year Review Report*.

Table 4-8. 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).

Institutional Controls Requirement	Institutional Controls Status
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]).	The ICs are maintained as required by DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions*, Rev. 9.

DOE = U.S. Department of Energy.
IC = institutional control.
MSA = Mission Support Alliance, LLC.
UMM = unit managers meeting.

4.9 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 4-9 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 4-9. 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
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.	ICs required to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure are in place.

Table 4-9. 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
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.	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.
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.	No land was transferred from the area covered by the ROD in FY 2019.
In the event of any unauthorized access (e.g. trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	Trespassing incidents are reported to the Benton County Sheriff's Office (see section 3.2).
Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.	No activities that would disrupt or lessen the performance of any remedy component have taken place.
Signage and access control to waste sites with contamination above cleanup levels will be provided.	The signage (see section 2.3.3) and the access controls (see section 3.1) are in place and are being maintained.
Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells.	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.
Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds until cleanup levels are met.	No development or use for residential purposes in the area covered by this ROD occurred in FY 2019.
DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.	The DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*.
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.	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the unit managers meeting.

Table 4-9. 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
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.	No land was transferred from the area covered by the ROD in FY 2019.
DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.	No activities inconsistent with the ICs have been discovered.
Institutional Controls Component Unique to 100-FR-1 and 100-FR-2 Operable Units	
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.	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 2.3.2 for more information.
Prohibit irrigation over or near waste site 116-F-14 that represents an unacceptable surface water protection risk.	The irrigation restriction at the 116-F-14 site remains in place. No irrigation activities occurred at the site in FY 2019. Refer to Section 2.3.2 for more information.
Institutional Controls Component Unique to 100-FR-3 Operable Unit	
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).	DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*. Excavation at the locations with ICs is controlled by the excavation permitting process.

Table 4-9. 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
Prevent access or use of the groundwater for drinking water purposes until cleanup levels are met.	Access to groundwater is controlled through the excavation permitting process. Access and use of existing groundwater wells is managed by CHPRC.

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*.

4.10 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 4-10 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.

Table 4-10. 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
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.	ICs required to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure are in place.

Table 4-10. 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
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.	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.
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.	No land was transferred from the area covered by the ROD in FY 2019.
In the event of any unauthorized access (e.g. trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	Trespassing incidents are reported to the Benton County Sheriff's Office (see Section 3.2).
Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.	No activities that would disrupt or lessen the performance of any remedy component have taken place.
Signage and access control to waste sites with contamination above cleanup levels will be provided.	The signage (see Section 2.2.3) and the access controls (see Section 3.1) are in place and are being maintained.
Maintain the integrity of any current or future remedial or monitoring system such as monitoring wells.	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.
Prohibit the development and use of property for residential housing, elementary and secondary schools, child care facilities and playgrounds until cleanup levels are met.	No development or use for residential purposes in the area covered by this ROD occurred in FY 2019.
DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.	The DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*.
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.	DOE conducts an annual assessment on the implementation and effectiveness of the ICs. The annual IC assessment is reported every September at the unit managers meeting.

Table 4-10. 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
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.	No land was transferred from the area covered by the ROD in FY 2019.
DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.	No activities inconsistent with the ICs have been discovered.
Institutional Controls Component Unique to 100-HR-3	
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.	DOE excavation permit program is in place as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*. Excavation at the locations with ICs is controlled by the excavation permitting process.
Prevent access or use of the groundwater for drinking water purposes until cleanup levels are met.	Access to groundwater is controlled through the excavation permitting process. Access and use of existing groundwater wells is managed by CHPRC.
Institutional Controls (deep zone) at Waste Sites in 100-DR-1, 100-DR-2, and 100-HR-1	
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.	The deep zone ICs for these WIDS sites are maintained by DOE. See Section 2.2.2 for more information.
Institutional Controls (shallow zone) at waste sites in 100-DR-1, 100-DR-2, 100-HR-1, and 100-HR-2	

Table 4-10. 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
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.	The shallow zone ICs for these WIDS sites are maintained by DOE. See Section 2.2.2 for more information.

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

Table 4-11 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 4-11. 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, *Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement* (HCP EIS). Access to the 300 Area is controlled by signage and/or fences (see sections 2.6.3 and 3.1).

Table 4-11. 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 include placing written notification of the remedial action in the facility land-use master plan.	The HCP EIS identifies the institutional controls plan as an implementing control for the HCP EIS. The institutional controls plan, DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*, Rev. 9, lists the CERCLA decision documents for the remedial actions, along with their associated ICs.
DOE will prohibit any activities that would interfere with the remedial activity without EPA concurrence.	No activities that interfere with the remedial activity have been identified.
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.	No land was transferred or leased from the area covered by the ROD in FY 2019.

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

4.12 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 4-12 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 4-12. 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
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.	ICs required to control access to residual contamination in soil and groundwater above standards for unlimited use and unrestricted exposure are in place.
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.	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.
Activities that would disrupt or lessen the performance of any component of the remedies are prohibited.	No activities that would disrupt or lessen the performance of any remedy component have taken place.
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.	No land was transferred out of federal ownership from the area covered by the ROD in FY 2019.
In the event of any unauthorized access (e.g. trespassing), DOE shall report such incidents to the Benton County Sheriff's Office for investigation and evaluation of possible prosecution.	Trespassing incidents are reported to the Benton County Sheriff's Office (see section 3.2).
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.	DOE conducts an annual assessment on the implementation and effectiveness of the ICs, which is reported every September at the unit managers meeting.

Table 4-12. 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
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.	Land-use requests for the Hanford Site are managed in accordance with DOE/EIS-0222, *Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement* (HCP EIS). Use of the Hanford Site is controlled through the site evaluation and excavation permitting processes. DOE/RL-2001-41, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions and RCRA Corrective Actions*, Rev. 9, maintains the list of ICs.
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.	No land was leased or transferred from the area covered by the ROD in FY 2019.
DOE shall notify EPA and Ecology immediately upon discovery of any activity inconsistent with the specific ICs.	No activities inconsistent with the ICs have been discovered.
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.	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 2019. See Section 2.6.2 for more information.
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.	Land-use requests for the Hanford Site are managed in accordance with DOE/EIS-0222, *Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement* (HCP EIS). All site evaluation requests for the 300 Area in FY 2019 were consistent with industrial land uses.

Table 4-12. 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
Signage and access control to waste sites with contamination above CULs will be provided.	The signage (see Section 2.6.3) and the access controls (see Section 3.1) are in place and are being maintained.
DOE shall employ and maintain an excavation permit program for protection of human health against unacceptable exposure, and protection of environmental and cultural resources.	The DOE excavation permit program, as defined in DOE-0344, *Hanford Site Excavating, Trenching and Shoring Procedure*, is in place.
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.	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.
Administrative controls limiting 300-FF-5 groundwater access and use in a manner that is protective of human health where groundwater is above CULs.	Access to groundwater is controlled through the excavation permitting process. Access and use of groundwater wells is managed by CHPRC.

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.

4.13 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 4-13. 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 4-13.

Table 4-13. Assessment of Institutional Controls Listed in *Record of Decision for the USDOE Hanford 1100 Area* (EPA 1993).

Institutional Controls Requirement	Institutional Controls Status
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.	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 thirteen 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").
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.	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).

TCE = Trichloroethylene.

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

Table 4-14 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 4-14. 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
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.	The integrity of the cap and fencing at the Horn Rapids Landfill is inspected on an annual basis.
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.	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.

4.15 EXPLANATION OF SIGNIFICANT DIFFERENCES, USDOE HANFORD 1100 AREA

Table 4-15 lists the ICs identified in *Explanation of Significant Differences, USDOE Hanford 1100 Area, Hanford Site, Benton County, Washington* (EPA 2010b). These ICs apply to the HRD site, which is shown in green in the inset map in the table.

Table 4-15. Assessment of Institutional Controls Listed in *Explanation of Significant Differences, USDOE Hanford 1100 Area, Hanford Site, Benton County, Washington* (EPA 2010b). (2 sheets)

Institutional Controls Requirement	Institutional Controls Status
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.	DOE currently maintains ownership of the Horn Rapids Landfill and all associated responsibilities.
DOE shall comply with the Sitewide Institutional Controls Plan as approved by EPA and Ecology.	The ICs are maintained as required by DOE/RL-2001-41, *Sitewide Institutional Control Plan*, Rev. 9, approved by EPA and Ecology.
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.	Access to the landfill is controlled. The fencing and signs are assessed on an annual basis (see Section 2.7.3). The ICs continue to be maintained at the fenced area.
DOE will prevent the development and use of the landfill property for residential housing, elementary and secondary schools, or childcare facilities.	Land-use requests for the Hanford Site are managed in accordance with DOE/EIS-0222, *Hanford Comprehensive Land Use Plan (CLUP) Final Environmental Impact Statement* (HCP EIS). No development or use for residential purposes in the landfill property occurred in FY 2019.
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.*	No land has been transferred or leased from the landfill property in FY 2019.

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.

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 2019.

5.1 METHODS AND RESULTS

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

- Reviewing and revising objectives as needed for accuracy and efficiency to better articulate the intent of the IC,
- Supplementing field assessment with spatial analyses using the most recent rectified geo-referenced aerial imagery, and vehicular surveys in order to increase efficiency depending on the location of the site, type of topography, and weather conditions,
- Further evaluating potential sources of enhanced recharge in the 300 Area, and
- Documenting third-year results of housekeeping items.

Figure 5-1. Categories and Types of ICs Assessed by the Long-Term Stewardship Program in FY 2019.

As described in Section 2.0, 220 waste sites with site-specific ICs assigned to MSA LTS were assessed in FY 2019. Repairs were completed in FY 2019 as needed (discussed in Sections 2.2.3, 2.6.3, and 3.1); all other ICs were observed to be in place as required for FY 2019. Additional results include:

- Site-specific ICs at all 220 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 2019:
    - Two warning signs, one in the 100-H GDA and one in the 300 GDA, were observed to be in poor condition and were replaced in FY 2019 (see Figure 5-2).

Figure 5-2. Signs repaired during the FY 2019 Sitewide assessments.

As described in Section 3.0, the ICs required at a Sitewide-level were either repaired as needed and/or observed to be in place as required.

- Approximately 55 “No Trespassing” signs were replaced along State Route 240.
- Approximately 160 damaged or missing “No Trespassing” signs along the Columbia River were replaced.
- Fencing along State Route 240 was repaired in eleven locations.
- Ten reportable trespassing incidents occurred between October 2018 and September 2019.

Other ICs defined in CERCLA Decision Documents listed in Section 4.0 (which may affect one or more GDAs) were found to be in place as required.

5.2 ONGOING EFFORTS

As part of ongoing efforts to evaluate potential sources of enhanced recharge in the 300 Area, LTS Program field personnel worked closely with PNNL, who facilitates flushing the drinking water lines for the 300 Area. Together, LTS and PNNL personnel were able to relocate discharge locations if needed to control drainage to the extent possible in order to prevent enhanced

recharge over waste sites with that IC. Figure 5-3 shows examples of enhanced recharge-related observations from the FY 2019 assessment.

Relocated discharge location for fire hydrant 300-03. The purpose of the relocation was to direct drainage away from any sites with the enhanced recharge IC and towards a stormwater runoff drainage system that runs along Route 4S. The new location is approximately 100 feet west of hydrant 300-03, and north of the fire station.	Relocated discharge location for fire hydrant 300-66. The purpose of the relocation was to direct drainage away from any waste sites with the enhanced recharge IC. The new location is approximately 100 feet southwest of the 300-66 hydrant on the tree line west of the 331 Building.	The discharge location for fire hydrant 300-73 was observed to be located 100 feet northeast of the hydrant. This location ensures drainage is controlled away from the 300-15:1 waste site, which has the enhanced recharge IC.

Figure 5-3. FY 2019 Enhanced Recharge Related Observations.

The MSA LTS Program will continue to work with 300 Area facility owners to identify additional improvements to be implemented for fire hydrant drinking water flushing, drainage control, stormwater management, and ongoing surface barrier maintenance that will help minimize enhanced recharge drainage occurrences. These improvements will continue to be evaluated each fiscal year and implemented, if needed.

In addition, housekeeping items (e.g., occupational hazards, vegetation, 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 has been working with the MSA Ecological Monitoring and Environmental Surveillance department to determine a path forward for managing noxious weeds and monitoring habitats on LTS waste sites with ICs.

Waste sites with ICs assigned to the LTS Program are managed and assessed throughout the year with continuous improvements made to the methods and processes in place. 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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6.0 REFERENCES

40 CFR 61.151, "Standard for Inactive Waste Disposal Sites for Asbestos Mills and Manufacturing and Fabricating Operations," *Code of Federal Regulations*, as amended.

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.

CVP-99-00011, 2000, *Cleanup Verification Package for the 116-B-6A Crib and 116-B-16 Fuel Examination Tank*, Rev. 0, Bechtel Hanford, Inc., Richland, Washington.

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

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Waste Site Reclassification Form 2006-062, 2006, 618-2, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2006-063, 2007, 105-C Burial Ground, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2007-027, 2008, 118-F-8:4 Unplanned Release -Fuel Storage Basin West Side Adjacent and Side Slope Soils, Waste Site Code 118-F-8:4, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2007-032, 2008, 105-B Solid Waste Burial Ground, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2008-002, 2008, with attachment, *Remaining Sites Verification Package for the 116-C-3, 105-C Chemical Waste Tanks,* U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2008-018, 2008, 118-F-6 Burial Ground, Waste Site Code 118-F-6, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2008-020, 2008, with attachment, *Remaining Sites Verification Package for the 331 Life Sciences Laboratory Drain Field Septic System,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2009-015, 2011, with attachment, *Remaining Sites Verification Package for the 116-D-8, 100-D Cask Storage Pad*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2009-041, 2010, with attachment, *Remaining Sites Verification Package for the100-B-21:4 Pipeline from the 105-C Reactor to the 116-C-2B Sump*, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-009, UPR-300-46, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-014, 2010, with attachment, *Remaining Sites Verification Package for the UPR-300-17, UN-300-17, Metal Shavings Fire Waste Site*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-024, 2010, 300-110, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-025, 2010, 303-M SA, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-026, 2010, 303-M UOF, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-027, 2010, 333 ESHWSA, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-028, 2010, 618-1, 618-1:1, 618-1:2, 333 LHWSA, UPR-300-13, and UPR-300-14, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2010-058, 2010, with attachment, *Remaining Sites Verification Package for the 300-33, 306W Metal Fabrication Development Building Releases; the 300-256, 306E Fabrication and Testing Laboratory Releases; and the 300-41, 306E Neutralization Tank, Underground Lime Tank and Valve Pit*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2010-071, 2011, with attachment, *Remaining Sites Verification Package for the 118-D-6:4, Northern Decontamination Pad and 105-D Fuel Storage Basin Side Slope Soils*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-012, 2011, with attachment, *Remaining Sites Verification Package for the 116-H-5, 1904-H Outfall Structure,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-034, 2011, 118-H-1:1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-042, 2011, with attachment, *Remaining Sites Verification Package for the 300-251, Unplanned Release Outside the 303-K Building,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-071, 2011, 300-16:2; 300-24; 300-80, and 300-218, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-091, 2013, with attachment, *300-274 Surface Debris,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-100, 2011, with attachment, *Remaining Sites Verification Package for the 300-28, 300-43, 300-48, 300-249, and 300-16:3 Waste Sites,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-105, 2012, with attachment, *Remaining Sites Verification Package for the 300-16:1, Utility Pole Northwest of 314 Building,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2011-106, 2011, with attachment, *Remaining Sites Verification Package for the 300-219, 300 Area Waste Transfer Line; 300-224, WATS and U-Bearing Piping Trench; and 333 WSTF, West Side Tank Farm,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Forms 2012-004, 2012-005, and 2012-006, 2012, with attachment, *Remaining Sites Verification Package for the UPR-300-38 Soil Contamination Beneath the 313 Building, the 313 ESSP, 313 East Side Storage Pad, and the 300-270, Unplanned Release at 313 Building,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2012-015, 2012, 118-D-2:1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2012-037, 2012, with attachment, *Remaining Sites Verification Package for the 300-286, Three 300 Area Potentially Contaminated French Drain/Drywells,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2012-101, 2013, with attachment, *Remaining Sites Verification Package for the 100-D-50:1 Emergency Discharge Pipeline*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2012-110, 2013, with attachment, *Remaining Sites Verification Package for the UPR-300-4, UN-300-4, Contaminated Soil Beneath the 321 Building Waste Site,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2012-120, 2013, with attachment, *Remaining Sites Verification Package for the 300-15:2, 300 Area Process Sewer North of Apple Street,* Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2013-007, 2013, with attachment, *Remaining Sites Verification Package for the 300-46, Soil Contamination and French Drains Surrounding 3706 Building Waste Site*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2013-011, 2013, with attachment, *Remaining Sites Verification Package for the 100-D-50:6, 183-DR Clearwell Pipelines*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Numbers 2013-015, 2013-016, and 2013-017, 2013, with attachment, *Remaining Sites Verification Package for the 116-N-2; 1310-N Chemical Waste Storage Tank; 1310-N Waste Storage Area; The Golf Ball, UPR-100-N-5; 116-N-2 Radioactive Chemical Waste Treatment Storage Facility; 1310-N Chemical Waste Storage Tank Leak; UN-100-N-5, UPR-100-N-25; UN-100-N-25; Uncontrolled Venting of 1310-N Tank Waste Sites*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2013-030, 2013, with attachment, *Remaining Sites Verification Package for the 124-N-2, 124-N-2 Septic Tank; 100-N Sanitary Sewer System No. 2 Waste Site,* Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2013-033, 2013, with attachment, *Remaining Sites Verification Package for the 300-257, 309 Process Sewer to River*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Numbers 2013-065, 2013-066, 2013-067, 2013-068, 2013-069, 2013-070, 2013-071, 2013-072, 2013-073, 2013-074, and 2013-075, 2013, with attachment, *Remaining Sites Verification Package for the 100-N-31, 100-N-32, 100-N-38, 100-N-61:3, 100-N-64:3, 100-N-68, UPR-100-N-3, UPR-100-N-7, UPR-100-N-10, UPR-100-N-12, and UPR-100-N-39 Waste Sites*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2013-076, 2013, with attachment, *Remaining Sites Verification Package for the 118-N-1, 1303-N Spacer Silos Waste Site*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2013-094, 2014, 118-K-1 Burial Ground, Waste Site Code 118-K-1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2013-117, 2015, with attachment, *300-15:4, 3906 North Side and 3906-B Lift Stations Subsite*, Rev. 0, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

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.

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.

Waste Site Reclassification Form 2014-034, 2014, 300-46, Soil Contamination and French Drains Surrounding 3706 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 2014-035, 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.

Waste Site Reclassification Form 2014-036, 2014, 300-251, Unplanned Release Outside the 303-K 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 2014-037, 2014, 300-257, 309 Process Sewer to River, 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 2014-039, 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.

Waste Site Reclassification Form 2014-040, 2014, 300-274, Surface Debris, 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 2014-045, 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.

Waste Site Reclassification Form 2015-010, 2015, 300-9, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form, Control Number 2015-016, 2015, with attachment, *Remaining Sites Verification Package for the 100-D-86:3, 105-DR Fan Room Sewer Pipelines Subsite*, Rev. 0, Washington State Department of Ecology and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-030, 2015, 300-214:1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-031, 2015, 300 RLWS:1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-032, 2015, 300 RLWS:2, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-033, 2015, 300 RRLWS:1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-047, 2015, 300-15:3, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-048, 2015, 300-34, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-049, 2015, 316-3, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-050, 2015, 300-263, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-054, 2015, 300-15:6, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-069, 2015, 618-1, Solid Waste Burial Ground No. 1, 318-1, 300 Area Burial Ground No. 1, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-071, 2015, 618-2, Solid Waste Burial Ground No. 2, 318-2, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-072, 2015, 618-3, Solid Waste Burial Ground No. 3, 318-3, Dry Waste Burial Ground No. 3, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-077, 2015, 16-F-14, 107-F Retention Basin, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-078, 2015, 100-F-10, French Drain at East End of 105-F Storage Room (Southeast Corner); 100-F-19:1, 100-F Reactor Cooling Water Effluent Underground Pipelines (North Group); 100-F-19:2, 100-F Reactor Cooling Water Effluent Underground Pipelines (South Group); 100-F-19:3, 100-F Reactor Cooling Water Effluent Underground Pipelines (West Group); 100-F-29, 100-F Experimental Animal Farm Process Sewer Pipelines; 100-F-34, Biology Facility French Drain; 116-F-2, 107-F Liquid Waste Disposal Trench; 116-F-6, 1608-F Liquid Waste Disposal Trench; 116-F-9, Animal Waste Leaching Trench; 116-F-12, 148-F French Drain; 118-F-8:3, 105-F Reactor Fuel Storage Basin Underlying Soils; 118-F-8:4, 105-F Fuel Storage Basin West Side Adjacent and Side Slope Soils; UPR-100-F-1, 141 Building Sewer Line Spill, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-079, 2015, 118-F-6, PNL Solid Waste Burial Ground, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2015-081, 2015, 300-15:2, 300 Area Process Sewer North of Apple Street, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Waste Site Reclassification Form 2017-028, 2018, 618-10 Burial Ground, U.S. Environmental Protection Agency and U.S. Department of Energy, Richland Operations Office, Richland, Washington.

APPENDIX A. EXAMPLE OF COMPLETED ASSESSMENT FORM

Appendix A consists of an example of a completed assessment form of a waste site within the 300 Area with the enhanced recharge institutional control.

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WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

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

Status: Complete

Assessor: Collom, Landon (MSA) **Assessment Date:** 05/28/2019

WIDS Sites:

Name	Site Names	Turnover Area	Hanford Area	Classification Status	Reclassification Status	Status
300-15:3	300-15:3, 300 Area Process Sewer South of Apple Street	300	300	Accepted	Final Closed Out	Partially Removed

Attendees:

Name	Organization/Role
Lucas, Jonathan G (MSA)	GPS/Mapping
Rohlfing, Deanna B (MSA)	Assessment Team Member

IC Observation:

Institutional Control: Limited to industrial use only

Performance Objective: All land use requests in this area are limited to industrial uses only.

Objective Met: Yes

Observation: All land use requests for the 300 Area in FY 2019 were consistent with industrial use. Hanford environmental procedures (MSC-PRO-EI-15333 Environmental Protection Processes) require all land use requests be reviewed by all Hanford prime contractors.

Additional Notes: MSC-PRO-FPROP-46449, Site Evaluation Procedure is required for all land use requests. All requests are reviewed to confirm compliance with the CLUP, which includes industrial use in this area.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 03/21/2019 **Historical Photo Number:** DSC_1240

Description: Geo-referenced 3/21/2019 vertical high resolution (1 to 450) aerial imagery was used to conduct a spatial analysis. No non-industrial uses of the IC assessment area was apparent or observed. See attached 3/21/2019 aerial imagery map, LTS-WSIC-2019-0047_map1.

Water and water staining is visible from fire hydrant 300-03 sanitary water flushing occurrences just north of the 3709A Fire Department facility. See aerial imagery map, LTS-WSIC-2019-0047_map1, to review the relationship to 300-15:3 WIDS site IC area.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

IC Observation:

Institutional Control:	Limited to industrial use only
Performance Objective:	No non-industrial uses are observed.
Objective Met:	Yes
Observation:	Geo-referenced 3/21/2019 vertical high resolution (1 to 450) aerial imagery was used to conduct a spatial analysis. No non-industrial use of the IC assessment area was apparent or observed. See attached 3/21/2019 aerial imagery map, LTS-WSIC-2019-0047_map1. The IC assessment team systematically traversed/walked and/or vehicular surveyed the entire IC site and no non-industrial land use was observed.

IC Observation:

Institutional Control:	Prevent enhanced recharge
Performance Objective:	Potential sources of enhanced recharge (irrigation, landscape watering, etc.) are limited.
Objective Met:	Yes
Observation:	Potential sources of enhanced recharge drainage events were evaluated during the assessment and determined to be of a limited or controlled nature, which meet the intent of the institutional control. Fire Hydrant flushing drainage events were limited and have been mitigated to be prevented in the future by evaluating and observing all 300 area fire hydrant flushing locations. This included moving the 300-03 flushing drainage direction and location. See attached 300 Area drinking water flushing - discharge approval completed form.
Additional Notes:	Due to the extent of the assessment area, the site was opportunistically assessed over a period of days and in conjunction with other site assessments. See attached 2019 aerial imagery map. The pipeline site traverses over 4,930 meters (3.06 miles) in length. The 300-15:3 pipeline site was partially excavated and removed during the remediation process. Fractions of the assessment area extend within active facility operational areas with sources for potential enhanced recharge drainage occurrences. Stormwater run-off and planned snow pile locations have been developed to minimize the potential for enhanced recharge drainage events. The Planned Significant Water Discharge Review And Concurrence for Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones form is reviewed and approved by multiple Hanford prime contractors prior to any significant planned discharge on Site, and the 300 Area, which addresses any enhanced recharge IC concerns on a site-by-site basis. MSA LTS has been added to this process for review and approval. Hanford Sitewide procedural requirements for site evaluation requests for new land uses, processes or facilities are reviewed by subject matter experts to mitigate opportunities and prevent potential enhanced recharge drainage events (e.g., PRO-FPROP-46449, Site Evaluation Procedure). Hanford environmental procedures (MSC-PRO-EI-15333 Environmental Protection Processes) require modifications to facilities and drainage systems be reviewed when discharging wastewater to land surfaces.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 05/02/2019 **Historical Photo Number:** DSC00054

Description: This ponding was observed during a city water flushing event from fire hydrant 300-03 during the 59-minute flush cycle. The water flow rate was approximately 325 gpm. See attached aerial imagery map (LTS-WSIC-2019-0047_map1) for water pooling/water staining in relation to the 300-15:3 WIDS site with the enhanced recharge drainage control/limit area.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 05/02/2019 **Historical Photo Number:** DSC00053

Description: This ponding was observed during a city water flushing event from fire hydrant 300-03, during the 59-minute flush cycle. The water flow rate was approximately 325 gpm. See attached aerial imagery map (LTS-WSIC-2019-0047_map1) for water pooling in relation to the 300-15:3 site with the enhanced recharge drainage control/limit IC area. This is viewing south down the gravel road at the 3709A fire station facility. The pooling is along the 300-15:3 site assessment area. The flushing events occur twice a week at this location.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 05/02/2019 **Historical Photo Number:** DSC00050

Description: This ponding was observed during a city water flushing event from fire hydrant 300-03, during the 59-minute flush cycle. The water flow rate was approximately 325 gpm. See attached aerial imagery map, (LTS-WSIC-2019-047_map1) for water pooling in relation to the 300-15:3 site with the enhanced recharge drainage control/limit IC area. This is viewing south down the gravel road at the 3709A fire station facility. The pooling is along the 300-15:3 site assessment area. The flushing events occur twice a week at this location.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 05/02/2019 **Historical Photo Number:** DSC00049

Description: Fire Hydrant 300-03 city water 5/2/2019 flushing event. This photo was taken prior to moving the discharge location west 75 more feet to prevent drainage to the 300-15:3 site.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 06/13/2019 **Historical Photo Number:** DSC00101

Description: Fire hydrant 300-03 sanitary water flushing was moved to this new discharge location to limit/prevent enhanced recharge drainage on or around WIDS sites with this institutional controls. The previous location was within the 300 Area fenced industrial area, about 100 feet due north of fire hydrant 300-03 location. The new location is approximate 100 feet west of the 30-03 hydrant outside the 300 industrial area fence as seen in this geo-tagged photograph. The new location directs drainage to the southwest into the drainage ditch of the 300 Area Stormwater Percolation Pond. This is the Rejected 600-255 WIDS site, a stormwater runoff drainage system that drains along the east side of Route 4 South and crosses under to a stormwater catch basin with two 15- inch culverts into a percolation pond on the west side of Route 4 South. See attached 3/21/2019 vertical aerial imagery map (LTS-WSIC-2019-0047_map1) for the new 300-03 fire hydrant flushing discharge location.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

IC Observation:

Institutional Control:	Prevent enhanced recharge
Performance Objective:	Drainage is limited (stormwater, ground cover, etc.).
Objective Met:	Yes
Observation:	The pipeline site extends 3.06 linear miles thru several types of site conditions (active to inactive) and ground covers (vegetated to asphalt). The site was assessed using several techniques; systematic walk down of select areas (based on 2017 and 2018 assessments spatial analysis), 2019 imagery spatial analysis and inspection of targeted areas during inclement weather (rain and snow) events. During the assessments, all observed drainage events were of a limited nature. A staged snow pile was over the 300-15:3 WIDS site area which could have caused enhanced recharge drainage when the snow melted (see photo DSC00002). On 2/20/2019 the MSA Roads and Grounds group moved the snow pile to the area in the 3-21-2019 geo-tagged photograph which about 10 meters down gradient of the 300-15:3 WIDS which should limited any enhanced recharge drainage event from the snow melt.
Additional Notes:	See attached example of potential enhanced recharge from fire hydrant 300-03 sanitary water flushing and drainage event spatial analysis map, LTS-WSIC-2019-0047_map1). See attached site extent map on 3/21/2019 vertical aerial imagery for pipeline segment locations verses active facility locations, LTS-WISC-2019-0047. The site was assessed over a period of days and events (weather and mechanical). A total of 2 potential occurrences for enhanced recharge drainage events were observed. See geo-tagged photographs of the potential source for each event and location. See aerial imagery photograph map of site for labeled photo locations, LTS-WISC-2019-0047.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 02/19/2019 **Historical Photo Number:** DSC00002

Description: This snow staging pile was over the 300-15:3 WIDS site area which could have caused enhanced recharge drainage when the snow melted.

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Image:

Date Taken: 02/21/2019 **Historical Photo Number:** DSC00002

Description: On 2/20/2019 the MSA Roads and Grounds group moved the snow pile (shown in DSC00002 on 2/1/19) about 10 meters down gradient of the 300-15:3 WIDS, which should limited any enhanced recharge drainage event from the snow melt.

WIDS Site Institutional Control Assessment 10/21/2019

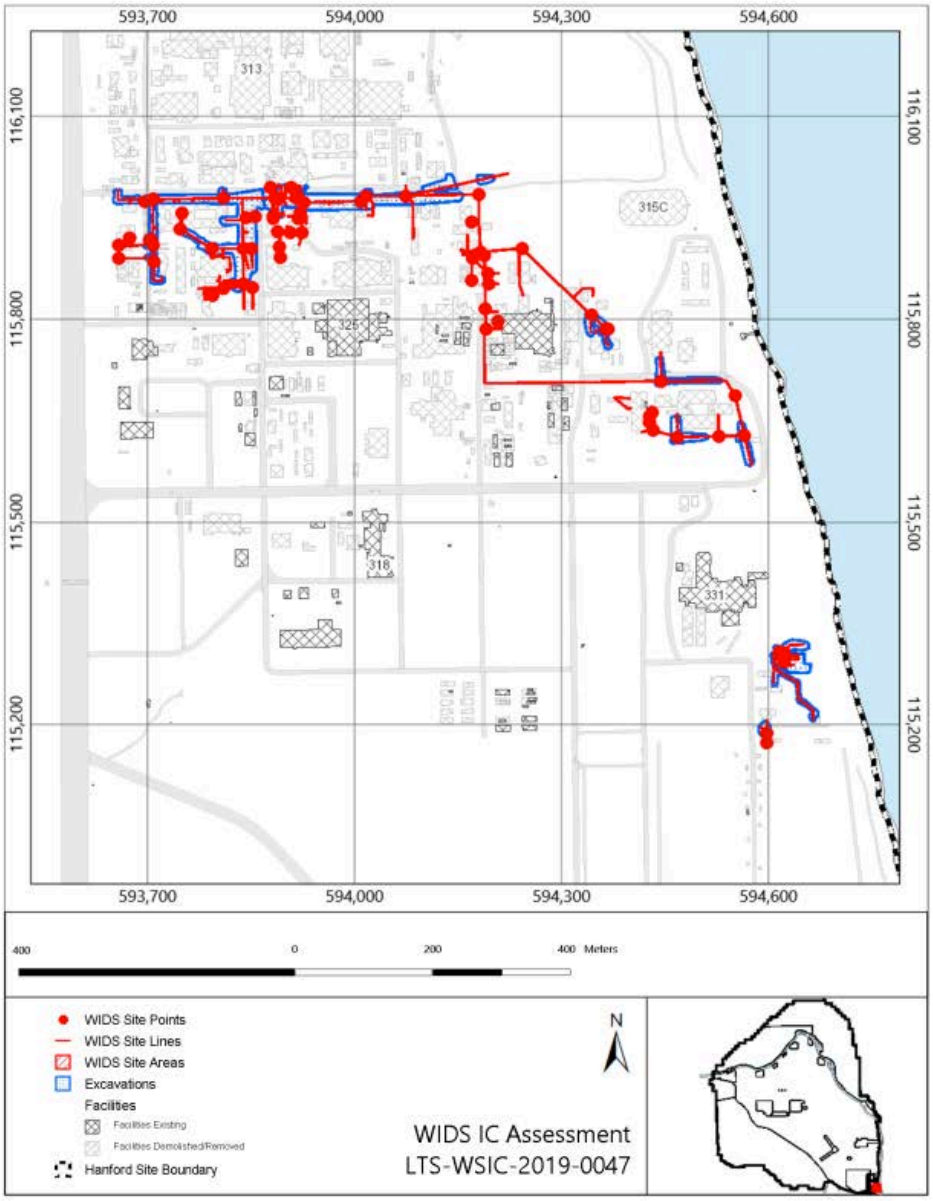
Number: LTS-WSIC-2019-0047

General Observations:	No significant changes to the 300 Industrial Area or the 300-15:3 WIDS site have occurred since the 2018 IC assessment was completed. No new sources for enhanced recharge are suspected or were identified during the 2019 IC assessment. All identified potential sources of enhanced recharge drainage were evaluated in 2018 and found to be of a controlled or limited extent and nature. These results were the same in 2019 and were not documented again; only the 2 (snow pile and 300-03 fire hydrant) potential occurrences and mitigation actions are included in this assessment report.
Comments:	Presently there is not a definition of an Enhanced Recharge drainage event or occurrence; no quantitative volume, discharge rate or event duration has been identified, determined or documented; no objective evaluation can be conducted without these parameters. Sources of enhanced recharge and drainage events are limited to the extent possible and practical when identified.
Certifier:	Collom, Landon (MSA) **Date Certified:** 10/21/2019

WIDS Site Institutional Control Assessment 10/21/2019

Number: LTS-WSIC-2019-0047

Location Map:



Discharge to Ground Approval for 300 AREA WATER LINE FLUSHING

Comments: Discharges to Ground from **300 AREA WATER LINE FLUSHING** activities have been approved for another year. This approval governs the discharge of potable water to the ground in the 300 Area from fire hydrants or hoses used to flush drinking water lines. Water line flushing is performed in order to maintain the quality of drinking water in the 300 Area.

Please note: This approval identifies the authorized discharge locations for each fire hydrant and hose bib as provided to us by the MSA Longterm Stewardship group and includes review and concurrence by the CHPRC Groundwater Vadose Zone group.

Discharges to ground on the Hanford Site are governed by Washington State Waste Discharge Permit ST 4511 and as such you must follow the permit conditions and pollution prevention and best management practices (P2/BMPs) listed in the approval below. In particular, your main actions are as follows:

- Discharges may only occur to areas authorized by the MSA LTS and CHPRC Vadose Zone group (see attached forms for those locations).
- A "responsible party" must be assigned to these discharges. Per previous agreement, the 300 Area Building Manager or delegate will act in this role as the person knowledgeable of the work being performed and of the requirements contained in this discharge approval. Please let all staff performing work know who the responsible party is should any questions about the activity arise. Staff may also direct any questions to Effluent Management (Liz Raney 531-8987 or Dave Warren 371-7772).
- Discharge approval is only for Clean Potable Water.
- Discharges must be recorded on the attached 300 Area Water Line Flushing Significant Discharge Log.
- Discharges from fire hydrants may not exceed 60 minutes (due to the high flow rate). Discharges from hose bibs (< 150 gpm) do not have this time restriction, but still must be recorded on the Log.

EXPIRES: August 31, 2020

Generator	Field Service Representative	Building/Room	Sewer System
Sanjay Sanan	Dan Edwards	300 Area - see attached for authorized locations	Discharge to Ground

Waste Stream Constituents

Constituents	Wt %	mg/L
Water	100.00	

Waste Stream Characteristics

Parameter	
pH	7
Volume	< 30,000 gallons per location

Waste Stream Conditions

Parameter

Discharge Conditions:

- Water line flushing discharges must only occur to areas approved by MSA LTS and CHPRC Vadose Zone staff. Contact the 300 Area Building Manager or Effluent Management to receive approval for discharge outside these areas.
- Discharges must be recorded on the 300 Area Water Line Flushing Significant Discharge Log.
- Discharge approval is for potable water only. Addition of any chemicals or products must be reviewed and approved prior to discharge.
- Maximum total volume discharged from water line flushing activities may not exceed 200,000 gallons/day.
- Discharge rate must be ≤ 150 gpm (hose bibs) OR, if it exceeds 150 gpm (fire hydrants), you may not discharge more than 60 minutes. At no time may discharges exceed 1,000 gpm
- Let staff performing work know who the responsible party is should any questions arise.
- Direct discharges (or runoff from discharges) to the river or property not owned by DOE are prohibited.

APPROVED FOR DISCHARGE TO GROUND

Internal Use Only:

SS:	Ground	**Building:**	300 Area	**In:**	7/23/2019
Date:	8/8/19	**Initials:**	EAR	**Out:**	7/6/2018
Expiration Date:		8/31/2020			

300 Area Water Line Flushing – Significant Discharge Log

REQUIRED							OPTIONAL			
Date	**Flushing Source or Location (e.g., FH #86)** See Note #1	**Discharge Rate (gpm)** See Note #2	**Discharge Duration (minutes)** See Note #2	**Total Volume Discharged (gallons)** See Note #3	**Estimated Discharge Area (sq. ft.)**	**Staff Name**	**Start Time**	**Start Residual Chlorine (mg/L)**	**Stop Time**	**Stop Residual Chlorine (mg/L**

This approval governs the discharge of potable water to ground in the 300 Area from fire hydrants or hoses used to flush drinking water lines. Discharges must follow the limits and pollution prevention and best management practices (P2/BMPs) from Washington State Waste Discharge Permit ST 4511 listed below:

- Note #1: Water line flushing discharges must only occur to areas approved by MSA LTS and CHPRC Vadose Zone staff. Contact the 300 Area Building Manager for approval to discharge outside these areas.
- Note #2: Discharges must either be ≤ 150 gpm at all times (hose bibs) OR may occur for no more than 60 minutes with a flow rate that may not exceed 1,000 gpm (fire hydrants).
- Note #3: The total volume discharged from all 300 Area water flushing locations must not exceed 200,000 gallons/day.
- Discharge approval is for potable water only. The addition of any chemicals or products must be reviewed and approved prior to discharge.
- Direct discharge, or runoff from discharges, to the Columbia River or a property not owned by DOE is prohibited.

8/8/19

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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-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	8000	300-15:1	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

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE

To be completed ONLY if planned discharge will exceed a volume of 2,000 gallons or application rate of 10 gal/ft²/day (MSC-PRO-EI-15333, Sections 4.7 and 4.87)

TO BE FILLED OUT BY THE REQUESTOR

1. Requestor:	2. Organization:	3. Date of Request:
Daniel L. Edwards	PNNL - 300A Core Team	7/11/2019

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)*:	6. Duration *(weeks/days/hours)*:
~2x/week for each hydrant/location	Up to 60 minutes per each hydrant flushed

7. Total Volume *(gal)*:	8. Discharge Rate *(gal/min)*:	9. Point Source *(check one)*:
Up to 30K gallons/location	See attached.	☒ Yes ☐ 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 ft², 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)*:	☐	☐
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.		
13. Groundwater Contaminate Plumes *(from annual groundwater report)*:	☐	☐
14. Groundwater Remedial Actions *(from annual operations summary reports)*:	☐	☐

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 contmination? *(if yes, list applicable sites affected)*:	☒	☐

See attached files and the attached document titled, "300 Area Drainage Guidance for Enhanced Recharge Institutional Control."

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE (Continued)

Review/Concurrence		
16. GVZ Environmental Compliance Officer (ECO):		
Print First and Last Name	*Signature*	*Date*
17. Requesting Organization ECO:		
Daniel L. Edwards	D L Edwards	7-17-19
Print First and Last Name	*Signature*	*Date*
18. GVZ Technical Lead:		
Print First and Last Name	*Signature*	*Date*
19. Long-Term Stewardship POC:		
Landon Callom		7-18-19
Print First and Last Name	*Signature*	*Date*
20. Comments:		

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE

To be completed ONLY if planned discharge will exceed a volume of 2,000 gallons or application rate of 10 gal/ft²/day *(MSC-PRO-EI-15333, Sections 4.7 and 4.87)*

TO BE FILLED OUT BY THE REQUESTOR

1. Requestor:	2. Organization:	3. Date of Request:
Daniel L. Edwards	PNNL - 300A Core Team	7/11/2019

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)*:	6. Duration *(weeks/days/hours)*:
~2x/week for each hydrant/location	Up to 60 minutes per each hydrant flushed

7. Total Volume *(gal)*:	8. Discharge Rate *(gal/min)*:	9. Point Source *(check one)*:
Up to 30K gallons/location		☒ Yes ☐ 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 ft², 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)*:	☒	☐

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.

FH03: 300-293, UPR-300-4, 300-28, 300-5, 300-86
FH48: 316-3, 300-25, 300-214, UPR-300-12, 300-274, 300 FBP, 300 RFBP, 300-6, 300-283, 300-2, 300-39, 300-255, 300-22, 300-257, 300 RLWS
FH66: 300-278, 300-215, 300-15, 300-14, 300-280, 300-269, 300-283
FH73: 300-294, 300-86, 300-291, 300-215
FH78: 300-215, 300-294, 300-283
FH84: 300-86, UPR-300-4, 300-46, 300-293
FH86: 300-215, 300-291
Trailers: 300-215, 300-293

13. Groundwater Contaminate Plumes *(from annual groundwater report)*:	☒	☐
Nitrate, Uranium		
14. Groundwater Remedial Actions *(from annual operations summary reports)*:	☐	☐
300-FF-5 Record of Decision		

TO BE FILLED OUT BY LTS REVIEWER

Institutional Controls in the Potentially Affected Areas of Contamination

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE (Continued)

15. Are there any WIDS sites with institutional controls within 100 ft. of the potentially affected areas of contmination? *(if yes, list applicable sites affected):*	☒	☐

See attached files and the attached document titled, "300 Area Drainage Guidance for Enhanced Recharge Institutional Control."

Review/Concurrence

16. GVZ Environmental Compliance Officer (ECO):		
Sean M. Sexton *Print First and Last Name*	 *Signature*	7/22/2019 *Date*
17. Requesting Organization ECO:		
Daniel L. Edwards *Print First and Last Name*	*Signature*	*Date*
18. GVZ Technical Lead:		
Print First and Last Name	*Signature*	*Date*
19. Long-Term Stewardship POC:		
Print First and Last Name	*Signature*	*Date*
20. Comments:		

FIGURE 1

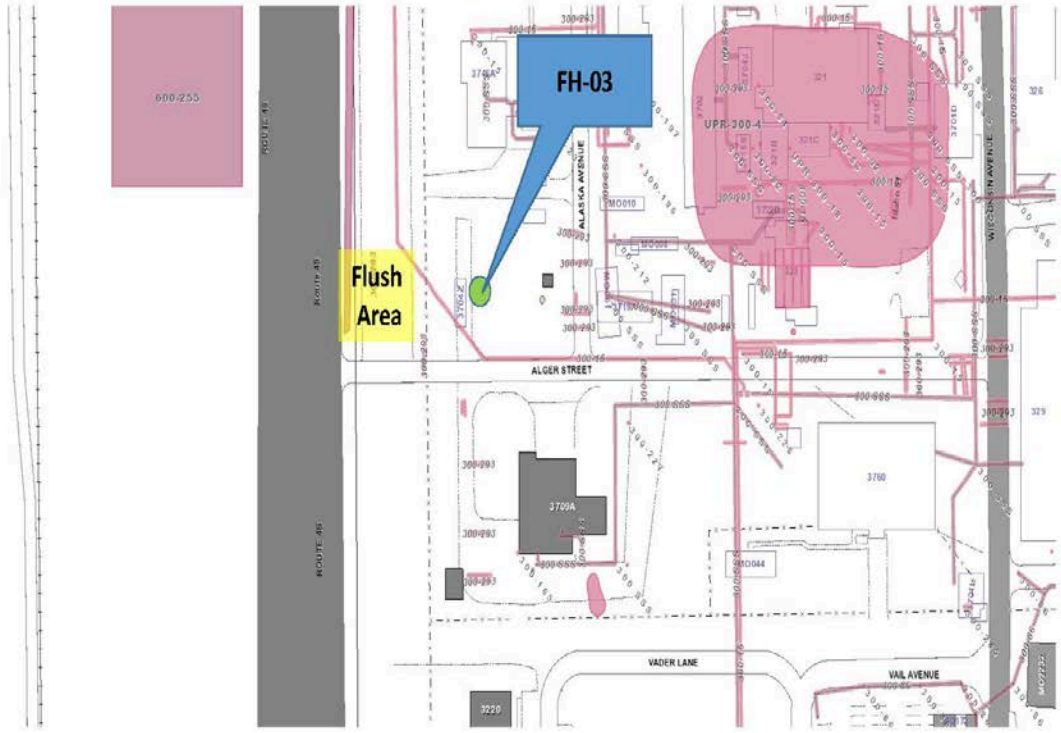

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FIGURE 2

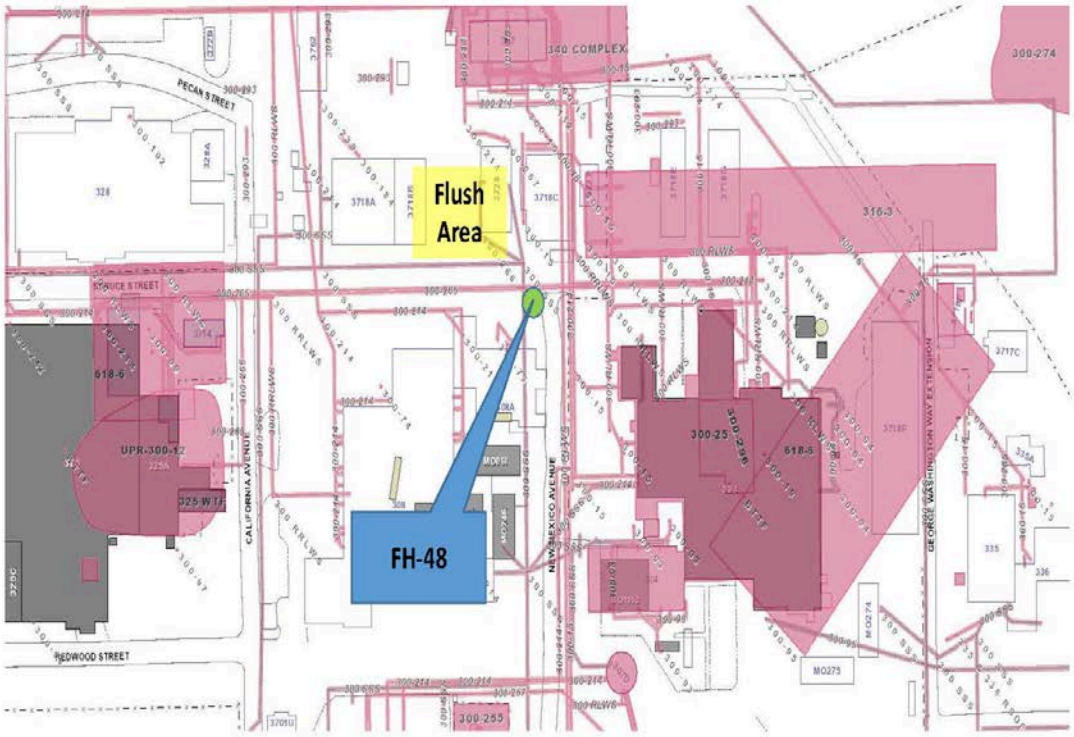

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FIGURE 3

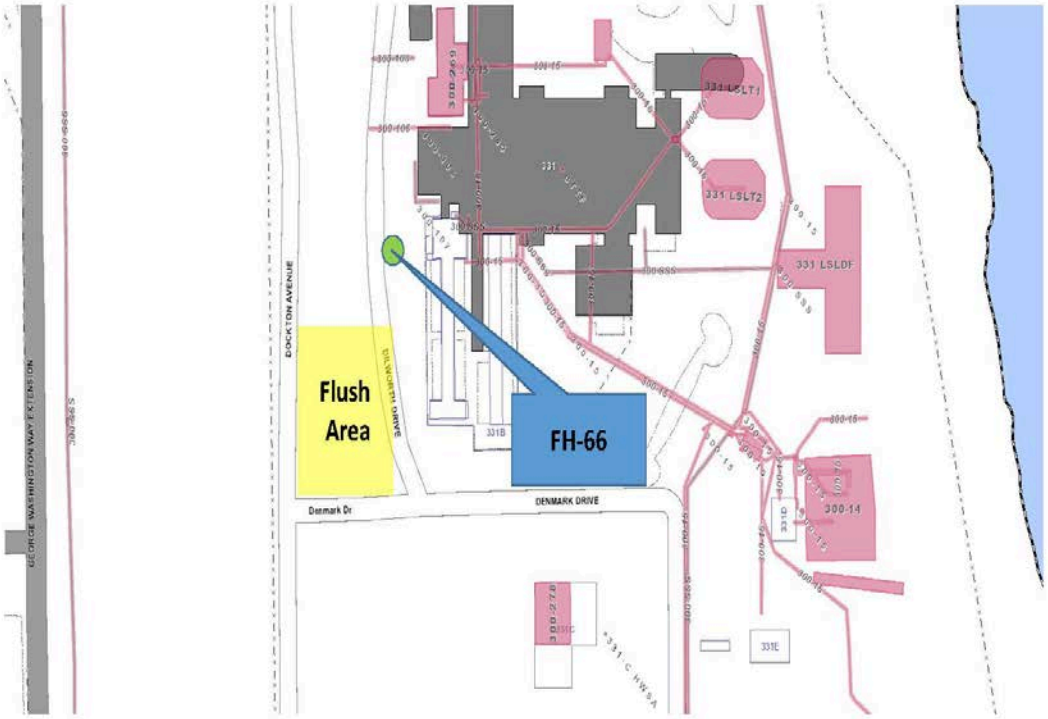

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FIGURE 4

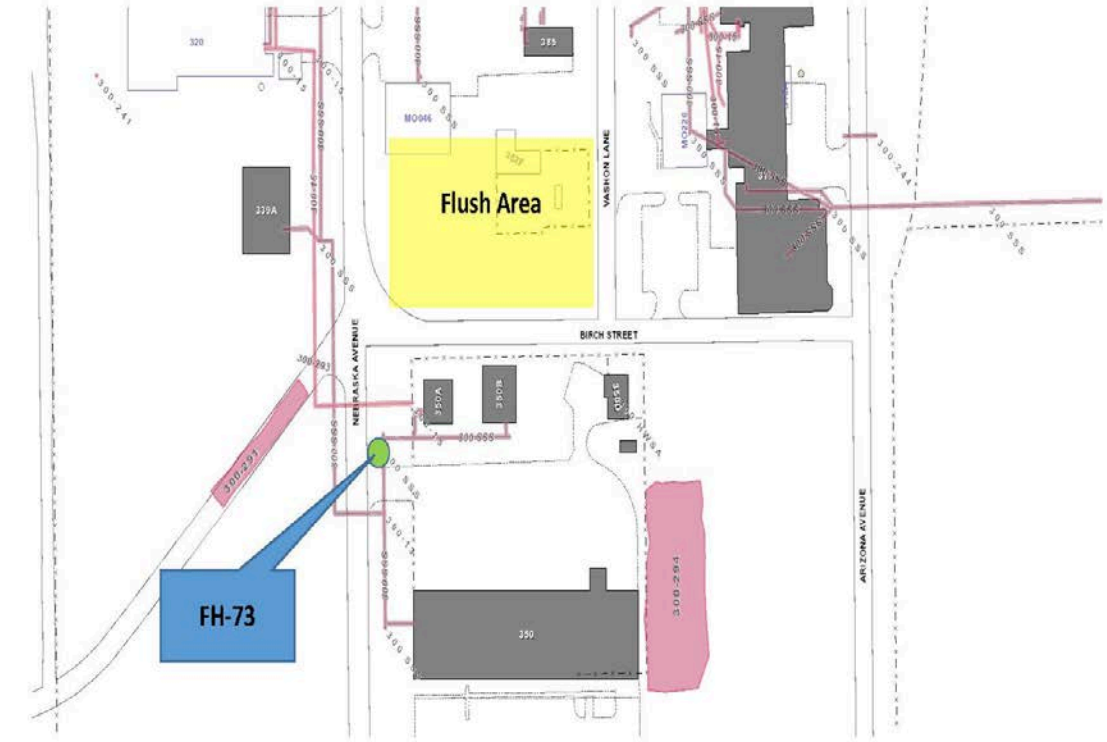

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FIGURE 5

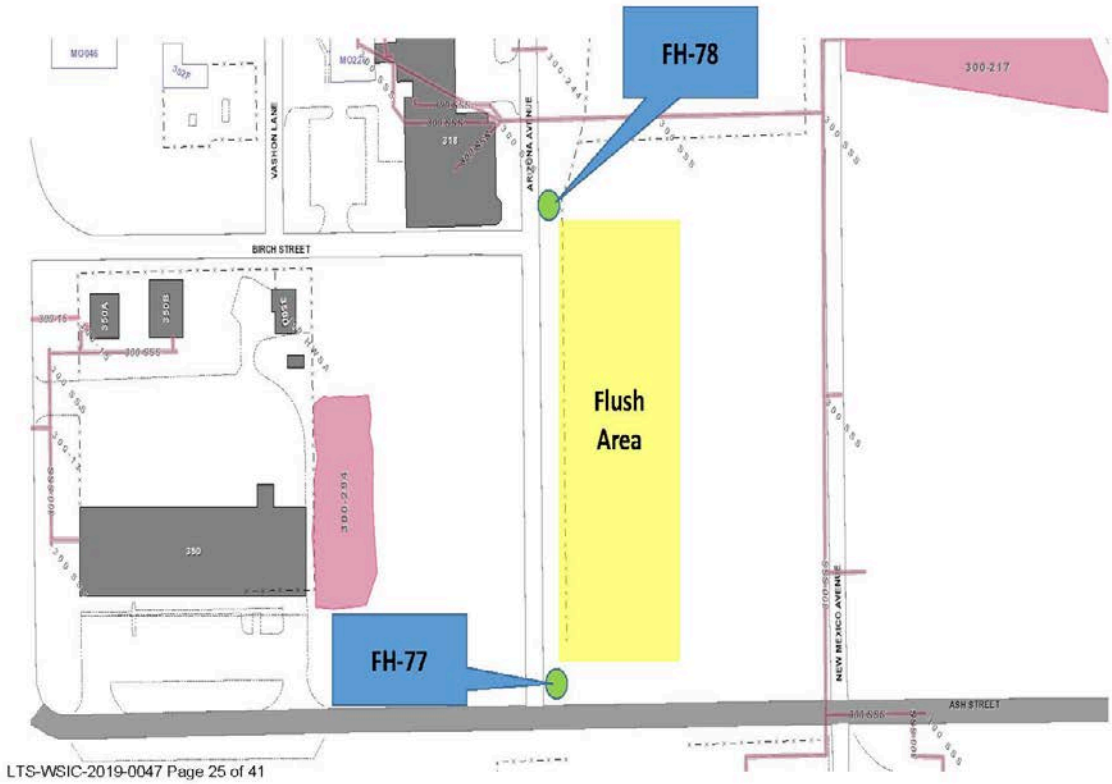
FH-78
FH-77
Flush
Area
BIRCH STREET
ASH STREET
VASHON LANE
ARIZONA AVENUE
NEW MEXICO AVENUE
350
350A
350B
350E
300-217
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FIGURE 6

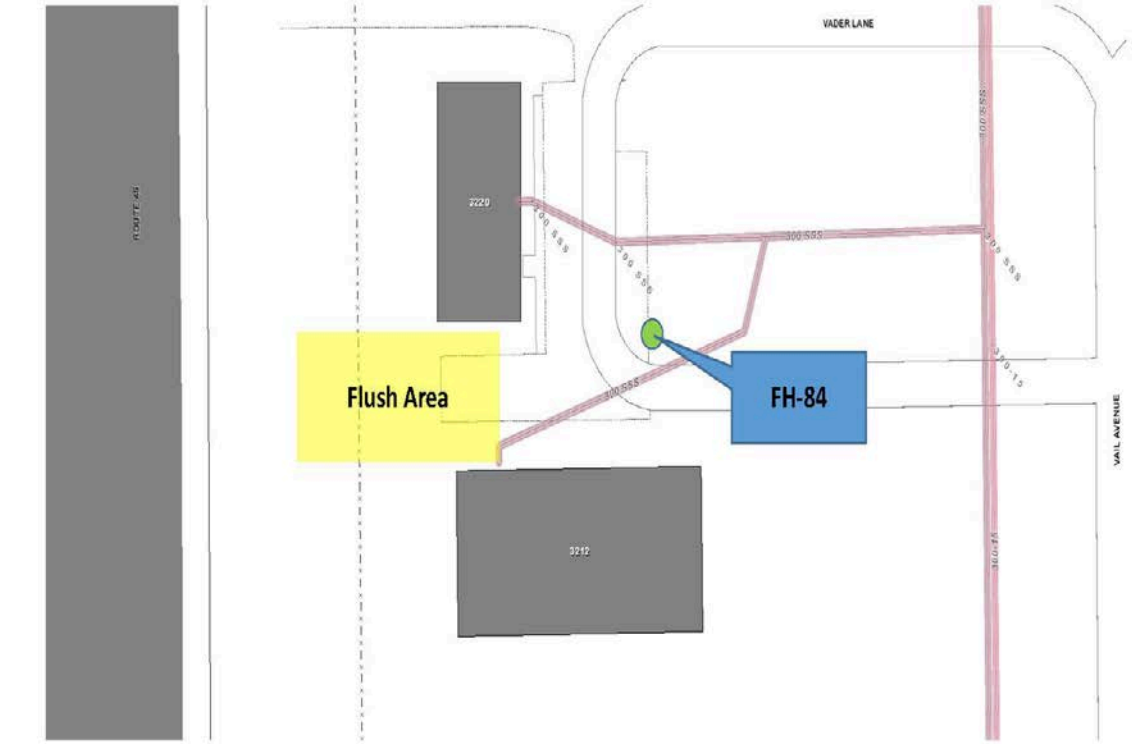

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FIGURE 7

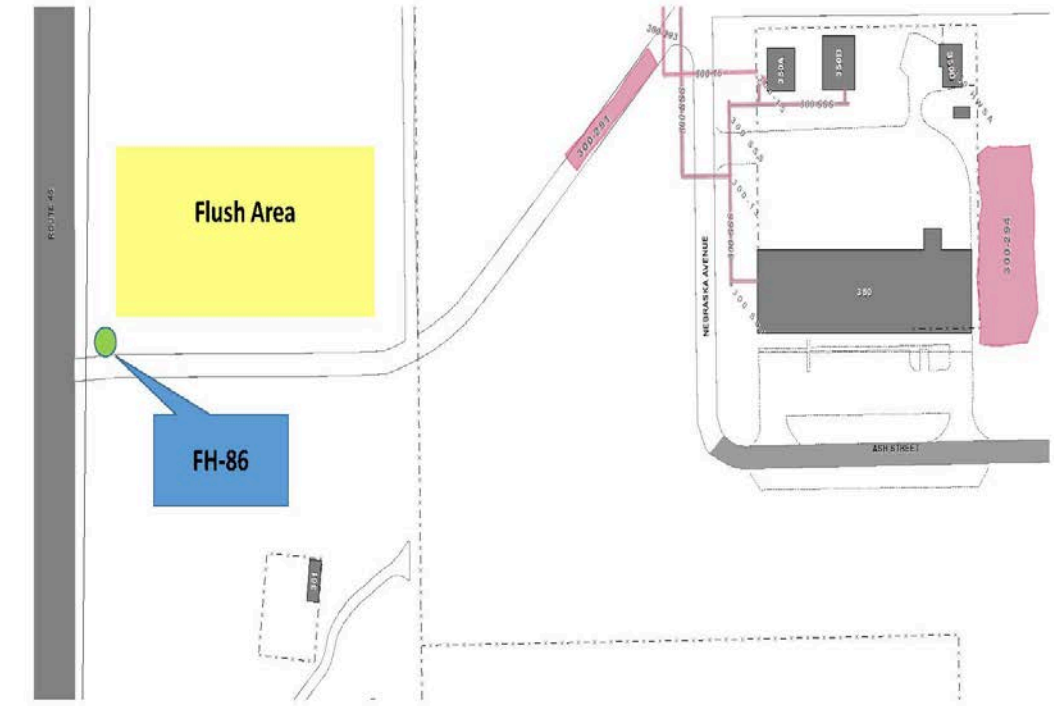

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FIGURE 8

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300 Area Drainage Guidance for Enhanced Recharge Institutional Control[a]

Hydrant #	Direction of Water for Flushing or Testing[b]
300-02	Towards west
300-03[c]	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[c]	Towards northwest with a 50 ft. hose extension
300-49	Towards southeast
300-50	Any direction except south
300-51	Southeast
300-52	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	Any direction south
300-66[c]	Towards southwest on top on tree line with a 100 ft. hose extension
300-73[c]	Towards north or northeast with a 100 ft. hose extension
300-78[c]	Towards the southwest, west, or southeast
300-80	Any direction except east
300-84[c]	Any direction except east
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[c], 300-79, 300-86[c]

[a]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.
[b]Periodic observations of drainage flow will be evaluated and revisions for flow direction guidance will be updated as needed.
[c]Locations planned for significant water discharge in 2019 for potable water flushing.

Updated 7/10/2019

From: Rohlfing, Deanna B
To: Knight, Russell R (Rusty)
Subject: RE: Snow Removal - 300 Area
Date: Tuesday, November 27, 2018 2:45:00 PM
Attachments: image001.png

Great, thank you. Sorry for bombarding you emails today. There shouldn't be anymore ☺.

From: Knight, Russell R (Rusty) <russell_r_rusty_knight@rl.gov>
Sent: Tuesday, November 27, 2018 2:38 PM
To: Rohlfing, Deanna B <deanna_b_rohlfing@rl.gov>
Subject: RE: Snow Removal - 300 Area

I don't see any issues from an MSA look at what our plan identifies.

Rusty Knight
Russell_R_Rusty_Knight@rl.gov
Road Maintenance
(509) 376-6654 Office
(509) 531-8571 Cell
(509) 376-3391 Fax

From: Rohlfing, Deanna B <deanna_b_rohlfing@rl.gov>
Sent: Tuesday, November 27, 2018 12:53 PM
To: Knight, Russell R (Rusty) <russell_r_rusty_knight@rl.gov>
Subject: Snow Removal - 300 Area

Good afternoon Rusty,

Before any snow falls this winter, I wanted to follow up with you regarding the snow removal plan for the 300 Area. As you may remember, there are waste sites within this area that have a "prevent enhanced recharge" institutional control, which could include snowmelt/runoff from piles plowed snow (in orange on the maps attached). As long as plowed snow piles are staged 10-15 feet away from these waste sites, we shouldn't have any concerns. I have attached last year's maps – if anything significant has changed for where you remove snow, please let me know.

I will be sending out separate emails to the surrounding facilities and will cc you in case they have contracted you to plow any of their areas. Let me know if you have any questions. I can also run over and go over these with you if need be.

Thank you,

Deanna Rohlfing
Project Specialist
MSA Long Term Stewardship
Office: (509) 376-3313

From: Rohlfing, Deanna B
To: Dela Cruz, Kristi M
Subject: RE: Additional 324 snow removal
Date: Tuesday, November 27, 2018 2:20:00 PM

Thank you!

From: Dela Cruz, Kristi M <kristi_m_dela_cruz@rl.gov>
Sent: Tuesday, November 27, 2018 2:13 PM
To: Rohlfing, Deanna B <deanna_b_rohlfing@rl.gov>; Wickersham, April J <april_j_wickersham@rl.gov>
Cc: Knight, Russell R (Rusty) <russell_r_rusty_knight@rl.gov>
Subject: RE: Additional 324 snow removal

Nothing has changed on our snow plan that would affect where we've planned to pile snow.
Thank you,
Kristi

From: Rohlfing, Deanna B <deanna_b_rohlfing@rl.gov>
Sent: Tuesday, November 27, 2018 1:38 PM
To: Dela Cruz, Kristi M <kristi_m_dela_cruz@rl.gov>; Wickersham, April J <april_j_wickersham@rl.gov>
Cc: Knight, Russell R (Rusty) <russell_r_rusty_knight@rl.gov>
Subject: FW: Additional 324 snow removal

Good afternoon Kristi,
Before the snow falls this year, I wanted to touch base with you regarding the snow removal plan for the 324 Building. It looks like we came up with a good plan last year. If anything has changed, please let me know. Otherwise, I have attached the maps we used last year for guidance. The map labeled "Truck Access" shows the route delivery trucks would make which would need to be plowed. As long as the piles are staged 10-15 feet away from the WIDS sites outlined in orange on the map, then we should be fine. I have also included the map that shows your planned areas for snow staging, and another map that shows the 2 piles that were actually made after last year's small event – both locations looked like they fit within the outlined parameters.
If you have any questions, please let me know. MSA still plans on plowing main streets, Cypress, George Washington Way Extension, Package Boilers, the Fire Station, general parking lots south of 325, Wisconsin Street, Vail Avenue, and Vader Lane, and will exclude the 324 Building.
Thank you,

Deanna Rohlfing
Project Specialist
MSA Long Term Stewardship
Office: (509) 376-3313

From: Rohlfing, Deanna B
Sent: Wednesday, December 6, 2017 12:21 PM
To: Dela Cruz, Kristi M <Kristi_M_Dela_Cruz@rl.gov>
Cc: Collom, Landon R <Landon_R_Collom@rl.gov>
Subject: RE: Additional 324 snow removal

Kristi,
I incorporated your map the best I could into ours to show where the WIDS sites are in comparison

to the truck access road. Again, the green hatched shapes are areas where snow piles would be fine to stage. It looks like there shouldn't be any problems. Let me know if you have any questions.
Thanks,
Deanna

From: Dela Cruz, Kristi M
Sent: Monday, December 4, 2017 11:31 AM
To: Rohlfing, Deanna B <Deanna_B_Rohlfing@rl.gov>
Subject: Additional 324 snow removal

Thank you,

Kristi dela Cruz
Construction | 300-296 Remote Soil Excavation Project
CH2M Hill Plateau Remediation Company
Office (509) 373-5930
Cell (971) 235-2436

From: Rencken, Jeffrey D
To: Cox, Donald L
Cc: Fies, Sandra U; Rohlfing, Deanna B; Knight, Russell R (Rusty)
Subject: FW: 2017-2018 Snow Removal Plan 331 Building
Date: Wednesday, November 28, 2018 8:06:09 AM
Attachments: 300_Area_EastSide_MSASnow_Plan.pdf
300_Area_331Building_Enhanced_Recharge_Sites_Snow_Plan.pdf

Don, Please add the attached maps to your job planning package for snow removal. We need to keep snow piles at least 10-15 feet away from the marked WIDS sites.

From: Nichols, Curtis J
Sent: Tuesday, November 27, 2018 2:57 PM
To: Rohlfing, Deanna B (MSA) <Deanna_B_Rohlfing@rl.gov>; Fies, Sandra U <sandra@pnnl.gov>
Cc: Ellefson, Mark D <Mark.Ellefson@pnnl.gov>; Knight, Russell R (MSA) <Russell_R_Rusty_Knight@rl.gov>; Rencken, Jeffrey D <Jeffrey.Rencken@pnnl.gov>
Subject: FW: 2017-2018 Snow Removal Plan 331 Building

Deanna,
I am forwarding this message to the current PNNL acting 300 Area building manager Sandra Fies and Harold's replacement too.
Thanks

Curt Nichols
Building Manager
Physical Science Facilities
Pacific Northwest National Laboratory
902 Battelle Boulevard
P.O. Box 999, MSIN J4-50
Richland, WA 99352 USA
Tel: 509-371-6407
Fax: 509-371-6409
curt.nichols@pnnl.gov
www.pnnl.gov

From: Rohlfing, Deanna B [mailto:deanna_b_rohlfing@rl.gov]
Sent: Tuesday, November 27, 2018 1:07 PM
To: Nichols, Curtis J <curt.nichols@pnnl.gov>
Cc: Knight, Russell R (MSA) <Russell_R_Rusty_Knight@rl.gov>
Subject: FW: 2017-2018 Snow Removal Plan 331 Building

Good afternoon,
I work with MSA Real Estate Services in the Long Term Stewardship Program. As you might be aware, some of the sites in the 300 Area have a specific institutional control to prevent enhanced recharge. The assessment team for MSA LTS has been monitoring drainage and standing water during inclement weather events, but with the snow season approaching we also need to be mindful of where snow is staged/piled to prevent any enhanced recharge from snow melt on and around the WIDS sites with this IC.
As it pertains to the 331 Building, MSA is planning on plowing Cypress street down to the northern entrance of the 331 parking lot, the George Washington Way Extension, and Ash street.
I have attached a map that shows potential areas for snow staging around the 331 Facility and

where the sites are located that have the "prevent enhanced recharge" IC. As long as they are 10-15 feet away from the WIDS sites outlined in orange and there is no drainage to them, then there shouldn't be any concern for enhanced recharge to sites with this IC. We will continue to assess the sites in the 300 Area throughout the winter during inclement weather events. Please let me know if you have any questions.
Thank you,
Deanna Rohlfing

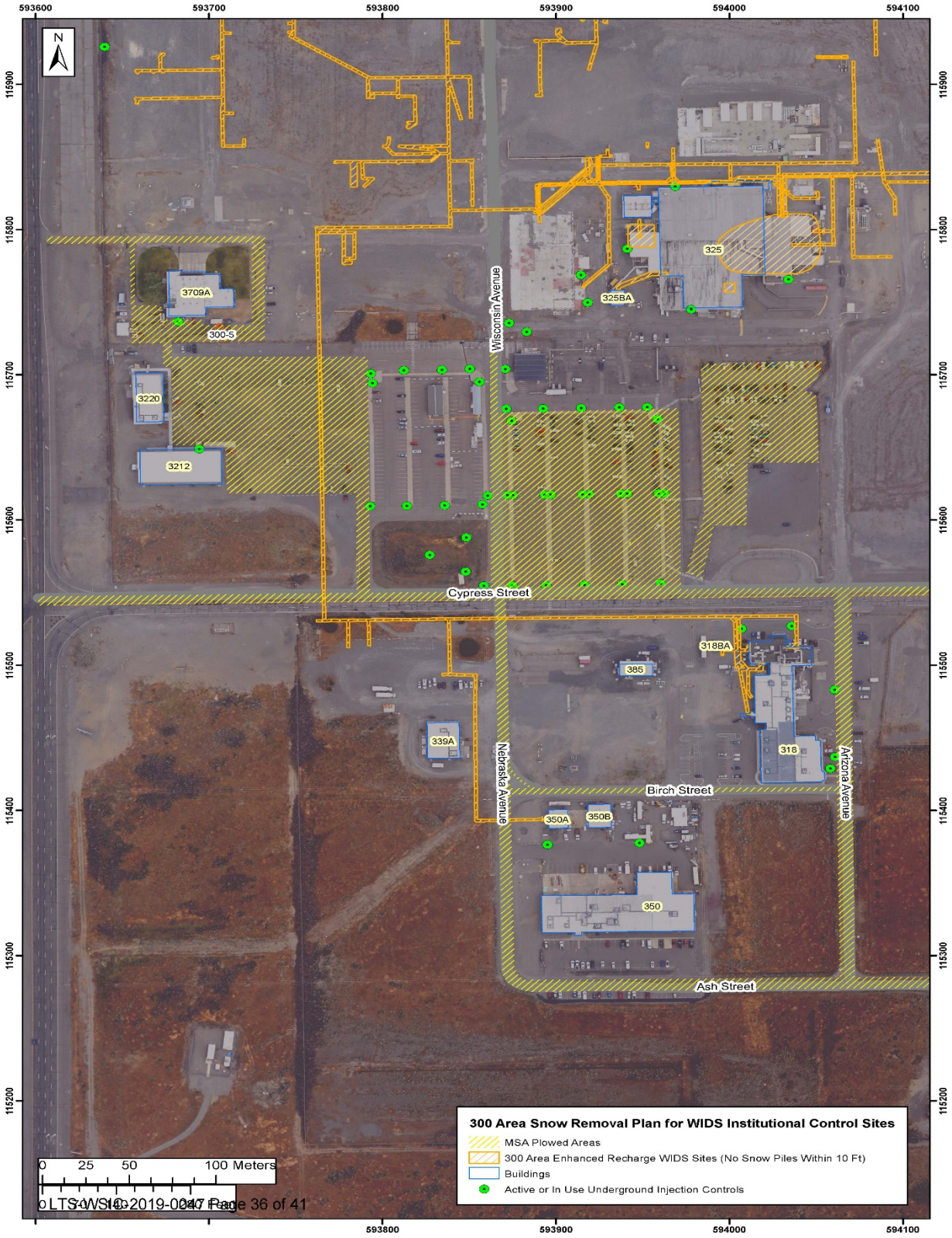
From: Tilden, Harold T II [mailto:Harold.Tilden@pnnl.gov]
Sent: Friday, December 1, 2017 9:07 AM
To: Rohlfing, Deanna B <Deanna_B_Rohlfing@rl.gov>
Subject: RE: 2017-2018 Snow Removal Plan 331 Building
Hi Deanna – I'm checking with the Building Manager to see what instructions are in place, and will get back to you and Landon when I hear. Stay tuned!
Harold

From: Rohlfing, Deanna B (MSA)
Sent: Thursday, November 30, 2017 3:50 PM
To: Tilden, Harold T II <Harold.Tilden@pnnl.gov>
Cc: Collom, Landon Roy (JACOB) <Landon_R_Collom@rl.gov>
Subject: 2017-2018 Snow Removal Plan 331 Building
Good afternoon Harold,
I work with MSA Real Estate Services in the Long Term Stewardship Program. We have recently been out to the 331 Building for WIDS inspections, but as you might be aware, we also have the concern that some of the sites in the 300 Area have a specific institutional control to prevent enhanced recharge. The assessment team for MSA LTS has been monitoring drainage and standing water during inclement weather events, but with the snow season approaching we also need to be mindful of where snow is staged/piled to prevent any enhanced recharge from snow melt.
MSA's Snow Removal Plan excludes the 331 Building (they do Cypress to the end). Do you have a snow removal plan for around the building? Our goal is to have snow piles at least 10-15 feet away with ideal drainage routes away from MSA's waste sites that have this specific enhanced recharge IC. Any guidance and help with this issue would be greatly appreciated.
If there is not a snow plan already, I can provide you with a map that outlines the WIDS wastes sites and where snow piles would be acceptable.
Thank you,
Deanna Rohlfing
Project Specialist
MSA Long Term Stewardship
Office: (509) 376-3313

From: Rohlfing, Deanna B
To: Saueressig, Paul T
Subject: 325 Building - Snow Removal Plan
Date: Tuesday, November 27, 2018 2:28:00 PM
Attachments: 300 Area 325BuildingParkingLot MSASnow Plan.pdf
300 Area WestSide MSASnow Plan.pdf

Good afternoon Paul,
Before we get our first snowfall this year, I wanted to touch base with the building managers regarding the snow removal plan in the 300 Area. Particularly as it pertains to the waste sites with a "prevent enhanced recharge" institutional control. I have attached a map that shows where MSA plans to plow (yellow hashed areas). If PNNL plans to plow snow around the 325 Building, please be sure to keep snow staging piles 10-15ft away from any of the WIDS sites (outlined in orange) shown on the attached maps. If you have any questions, please let me know.
Thank you,

Deanna Rohlfing
Project Specialist
MSA Long Term Stewardship
Office: (509) 376-3313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Ash Street
300 Area Snow Removal Plan for WIDS Institutional Control Sites
MSA Plowed Areas
300 Area Enhanced Recharge WIDS Sites (No Snow Piles Within 10 Ft)
Buildings
Active or In Use Underground Injection Controls
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300 Area Snow Removal Plan for WIDS Institutional Control Sites
MSA Plowed Areas
300 Area Enhanced Recharge WIDS Sites (No Snow Piles Within 10 Ft)
Buildings
Active or In Use Underground Injection Controls
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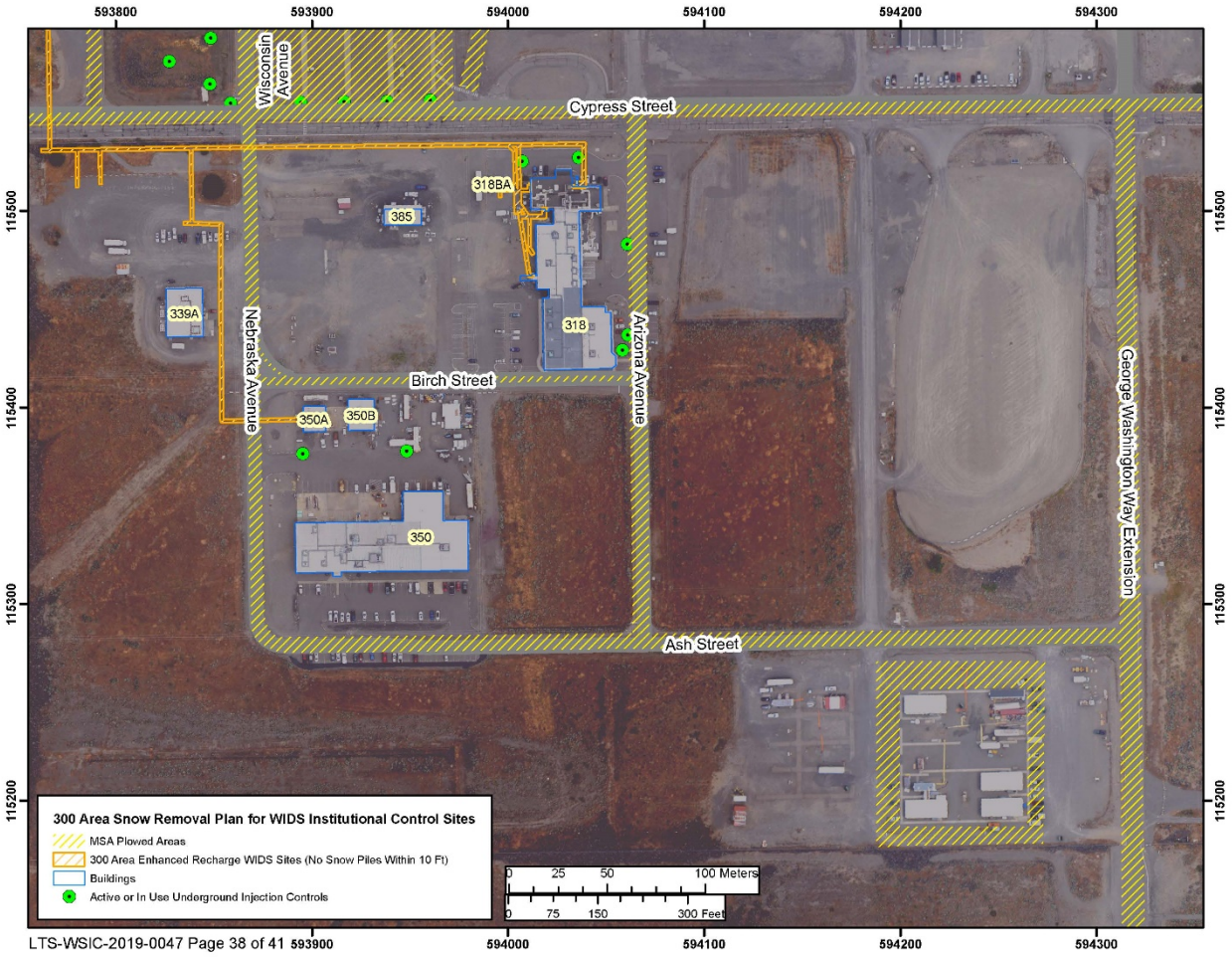
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Arizona Avenue
George Washington Way Extension
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Ash Street
300 Area Snow Removal Plan for WIDS Institutional Control Sites
MSA Plowed Areas
300 Area Enhanced Recharge WIDS Sites (No Snow Piles Within 10 Ft)
Buildings
Active or In Use Underground Injection Controls
0 25 50 100 Meters
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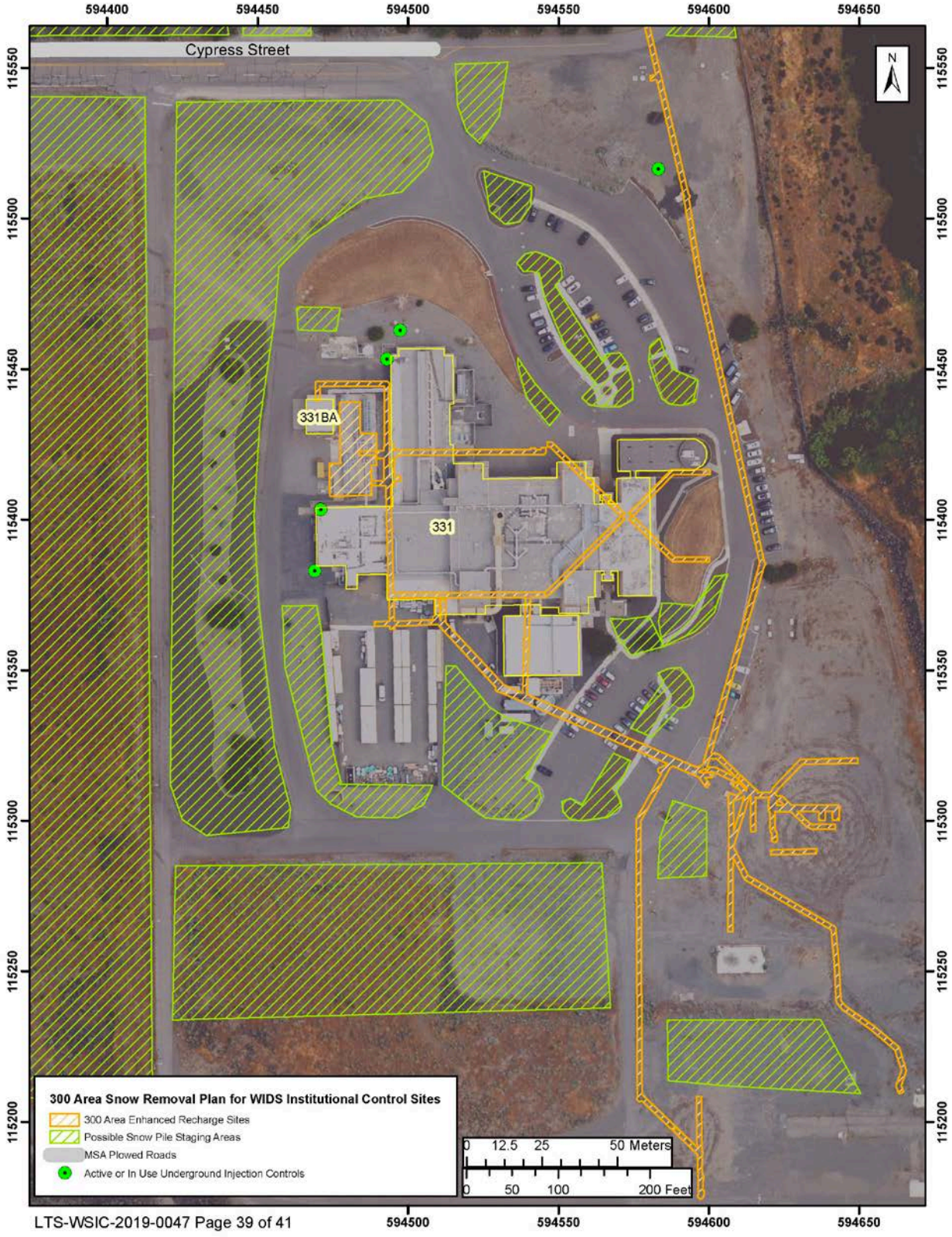
LTS-WSIC-2019-0047 Page 38 of 41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300 Area Snow Removal Plan for WIDS Institutional Control Sites
300 Area Enhanced Recharge Sites
Possible Snow Pile Staging Areas
MSA Plowed Roads
Active or In Use Underground Injection Controls
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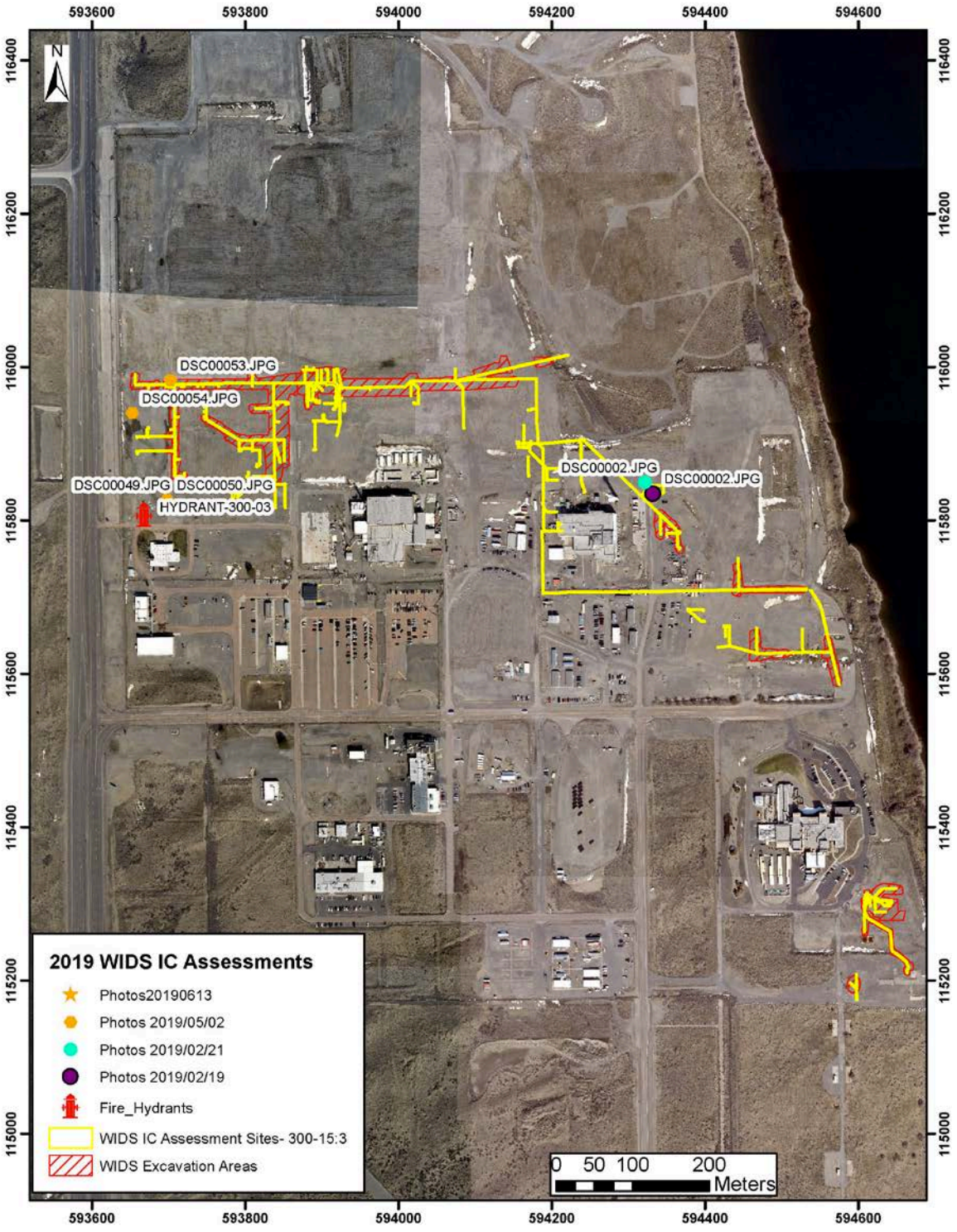
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2019 WIDS IC Assessments
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Photos 2019/05/02
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Photos 2019/02/19
Fire_Hydrants
WIDS IC Assessment Sites- 300-15:3
WIDS Excavation Areas
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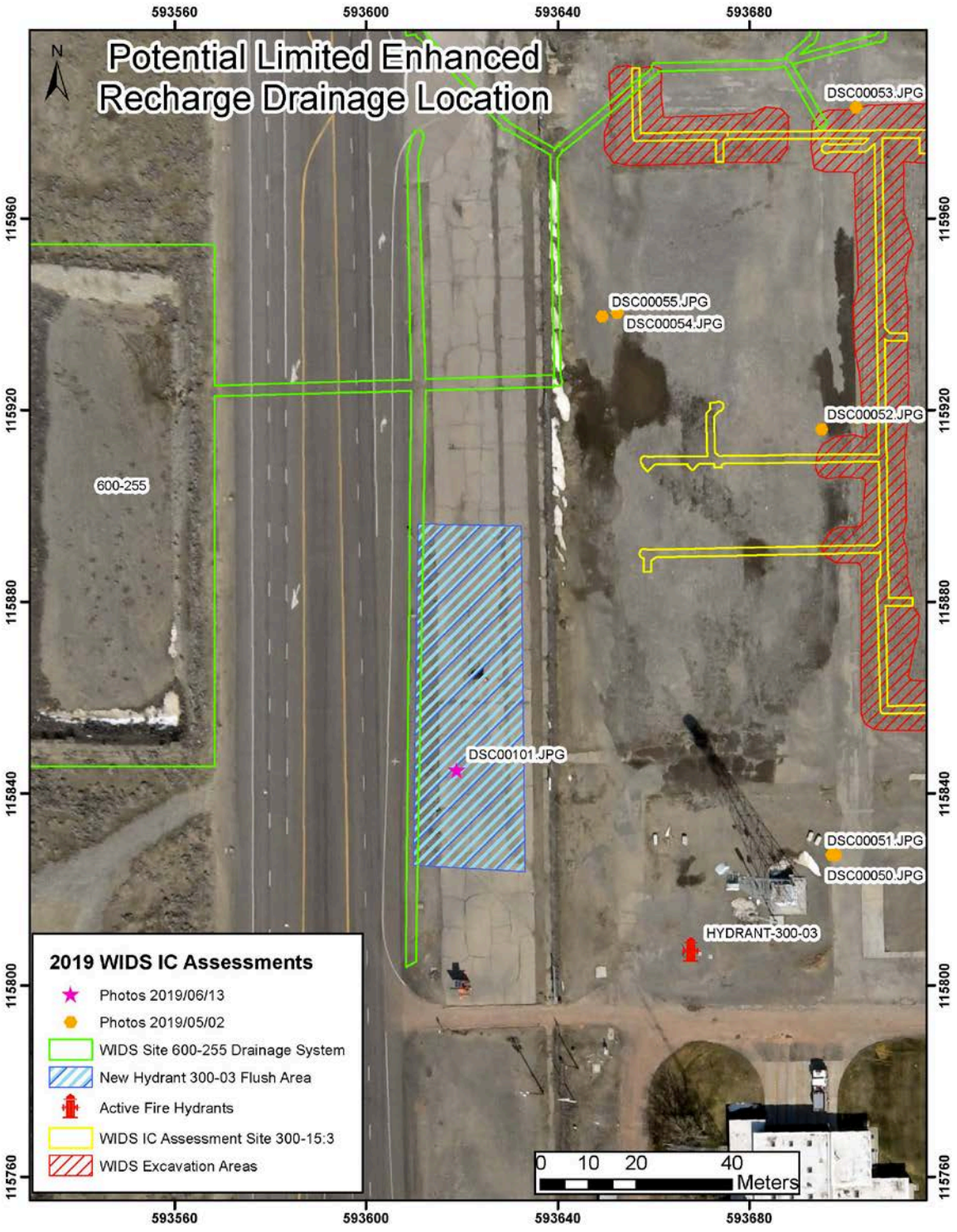

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2019 ANNUAL SITEWIDE INSTITUTIONAL CONTROL ASSESSMENT
CH2M HILL PLATEAU REMEDIATION COMPANY

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 the whether the control has been implemented and whether the implementation has been effective in minimizing the potential for human exposure to hazardous substances.

Institutional Control Category	Institutional Controls Requirement	2019 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.

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 the 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 200 Area, 200-UP-1 Operable Unit (Required through time of completion of the remedy.)

Institutional Controls Category	**Institutional Controls Requirement**	**2019 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 1. 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	2019 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 2. 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	2019 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 3. 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	2019 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 *Sitewide Institutional Controls Plan* 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 8 – 11)
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/lesson 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	No findings, no transfer/sale of land has taken place.

Table 3. 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	2019 Status
	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.	
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 23rd Street.

Figure 11. Camden and 23rd Street.

Figure 12. East of 200 West P&T

Table 4. 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	2019 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 5. Institutional Controls Requirements Listed in Record of Decision for Environmental Restoration Disposal Facility.

Institutional Controls Category	Institutional Controls Requirement	2019 Status
Entry Restrictions	DOE shall controls access to restrict public access to the landfill.	No findings, access controls still in place.

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 the 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 300-FF-1 Amendment, and 300-FF-2 and 300-FF-5 Operable Unit Record of Decision for 300-5, 331- LSLT1, 331-LSLT2, and 618-11 Waste Sites.

Institutional Controls Category	Institutional Controls Requirement	2019 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 for the 300-FF-2 and 300-FF-5 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	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.

Figure 13. Warning Sign at the 618-11 Waste Site.

Pacific Northwest
NATIONAL LABORATORY

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Richland, WA 99352
(509) 371-7098
michael.stephenson@pnnl.gov
www.pnnl.gov

OUT-0457-2019

September 20, 2019

Deanna B. Rohlfing
Long-Term Stewardship, Project Specialist
Mission Support Alliance
P.O. Box 650, MSIN G3-55
Richland, Washington 99352

Dear Ms. Rohlfing:

SUBMITTAL OF THE 2019 ASSESSMENT OF COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT INSTITUTIONAL CONTROLS FOR BUILDINGS OCCUPIED BY PACIFIC NORTHWEST NATIONAL LABORATORY LOCATED WITHIN THE HANFORD SITE 300 AREA, RICHLAND, WASHINGTON

Pacific Northwest National Laboratory (PNNL) 300 Area operations include PNNL occupied facilities, the sanitary sewer system, and the drinking water supply system. The attached input summarizes PNNL's implementation of the 300 Area institutional controls for Mission Support Alliance to incorporate as part of the 2019 Hanford Site institutional control reporting.

If you should you have any questions or require any additional information, please contact Mr. Dan Edwards at (509) 375-6726.

Sincerely,

Michael J. Stephenson
Manager
Environmental Protection and Regulatory Programs

MJS/DLE/slj

U.S. DEPARTMENT OF ENERGY

Attachment(s) 3:
1. PNNL 300 Area Facilities Retained
2. PNNL Hanford Site Miscellaneous Streams Inventory
3. Discharge to Ground Approvals for 300 Area Water Line Flushing

cc: Landon Collom, MSA
Thomas M. McDermott, PNSO
Kent M. McDonald, PNNL
Dana M. Storms, PNNL

ATTACHMENT 1

PACIFIC NORTHWEST NATIONAL LABORATORY
PNNL 300 AREA FACILITIES RETAINED

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

Building #	Building Name/Function
312	Pump Pit
318	Radiological Calibrations Laboratory
325	Radiochemical Processing Laboratory (RPL)
331	Life Sciences Laboratory I
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: 339A Computer Server Building is in the process of being transferred to PNSO/PNNL in late CY2019.

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

WIDS ID	Description	Associated With
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.

Institutional Controls Requirement[1]	Institutional Controls Status
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? *Excavation Work Environment* 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.
Prevent enhanced recharge over or near waste sites with potential to pose an unacceptable groundwater risk from irrigation	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. 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.

[1] From 300 Area ROD Section 9.2.

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

Institutional Controls Requirement[1]	Institutional Controls Status
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	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 Fiscal Year 2018 with a ROD-compliant cover under a project managed and executed by CHPRC.
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.	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. Additional asphalt is being placed in the northeast corner of the 325 Building to prevent stormwater from infiltrating into the basement. The design will allow water to be channeled to the north of the facility and was coordinated with MSA to evaluate against the 300Area IC's. Work is anticipated for completion by 9/30/2019.

2019 Releases

In FY2019, PNNL had the following two releases that presented potential impacts to the 300 Area institutional controls:

- *Fire Hydrant 66, overflushing* – On 2/2/2019, a PNNL operator was performing drinking water line flushing from Fire Hydrant 66 located on the west side of the 331 Building. During water line flushing, the operator inadvertently left the water line open for 180 minutes. The Operator, upon becoming aware that the water line had been left on, turned off the water and made notifications to management.

Water infiltrated to the east side of Dilworth Street onto the east side of the 331 Building. The volume of water discharged was estimated to be 81,000 gallons and the discharge was from the potable drinking water source.

- *331 Aquatics Lab, piping break* – On 5/22/2019 PNNL noted that there was a minor leak on the southeast side of the 331 Building (by the southeast entrance). During operator rounds early the morning of 5/23/2019 the leak in the area was found to have increased and was estimated at ~5gpm. The line in question is a river water source from the 312 building that is piped into the Aquatics Research Laboratory (ARL) for fish studies. ARL source water was converted over to well water to maintain fish studies, and the river supply line was valved out at 12:45pm on 5/23/2019. Based on the above rate, it is estimated that approximately 5,000 gallons of river water was discharged during this event. The area was excavated and the leak was repaired the first week of July 2019. River water supply to the ARL was shut off the entire repair period, well water from 399-4-12 was used for fish studies.

ATTACHMENT 2

PACIFIC NORTHWEST NATIONAL LABORATORY
HANFORD SITE MISCELLANEOUS STREAMS INVENTORY

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	• Status Verified 5/15/98. • Status verified 5/19/99. (BPA / MJM) • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).
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	• Status Verified 5/15/98. • Status verified 5/19/99. (BPA / MJM) • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).
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	• New – To be installed in 2008. Rerouting stormwater from sewer to ground as part of 300 Area transition project. • Well installation verified via photos 3/12 (EAR).
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	• Status Verified 5/8/98. • Status verified 5/19/99. (BPA / MJM) • Coordinates/location corrected by Dave Encke, WCH 8/13/09. • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).
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	• Status Verified 5/6/98. • Status verified 5/19/99. (BPA / MJM) • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).
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	• Status Verified 5/6/98. Revise location description. • Status verified 5/19/99. (BPA / MJM) • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).

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	• Stream incorrectly assigned to PNNL. DynCorp owner per June 1, 1998 e-mail message from Michelle Gunter. • Status verified 8/17/98. BPA-(PNNL), SW - (BHI), TJ - (BHI) • Assigned to WCH in Hanford Site UIC database update 8/22/11.
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	• New - Installed September 2000 • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).
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	• New - Installed September 2000 • Status verified 11/28/12 during Hanford UIC Well Assessment (EAR/TWM).
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	???	• TBD on PNNL operational control.

INACTIVE STREAMS

Stream Number	WIDS Site Code	Process Description	Flow (gpm)	Disposal Structure	Washington State Planer 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	• Status Verified 5/8/98 • Status verified 5/19/99. (BPA / MJM) • Status verified 11/28/12 during Hanford Site UIC Well Assessment. Well is located indoors. Status kept as active at request of MSA.
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 N115829.4~~ E593968.835 N115829.598	X_COORD 593968.8349 (-119.278638865) Y_COOR 115829.5984 (46.368894489)	SA	• Status Verified 5/20/98. • Status Verified 5/19/99 (BPA / MJM). Pipe has been cut and permanently plugged. • New coordinates identified by WCH 4/15/09 for waste site 300-242 (Joan Woolard, Len Habel, James D Anderson) • Status verified 11/28/12 during Hanford Site UIC Well Assessment. Does not receive stormwater. Pipe is plugged.

ATTACHMENT 3

DISCHARGE TO GROUND APPROVALS FOR 300 AREA WATER LINE FLUSHING

Discharge to Ground Approval for 300 AREA WATER LINE FLUSHING

Comments: Discharges to Ground from **300 AREA WATER LINE FLUSHING** activities have been approved for another year. This approval governs the discharge of potable water to the ground in the 300 Area from fire hydrants or hoses used to flush drinking water lines. Water line flushing is performed in order to maintain the quality of drinking water in the 300 Area.

Please note: This approval identifies the authorized discharge locations for each fire hydrant and hose bib as provided to us by the MSA Longterm Stewardship group and includes review and concurrence by the CHPRC Groundwater Vadose Zone group.

Discharges to ground on the Hanford Site are governed by Washington State Waste Discharge Permit ST 4511 and as such you must follow the permit conditions and pollution prevention and best management practices (P2/BMPs) listed in the approval below. In particular, your main actions are as follows:

- Discharges may only occur to areas authorized by the MSA LTS and CHPRC Vadose Zone group (see attached forms for those locations).
- A "responsible party" must be assigned to these discharges. Per previous agreement, the 300 Area Building Manager or delegate will act in this role as the person knowledgeable of the work being performed and of the requirements contained in this discharge approval. Please let all staff performing work know who the responsible party is should any questions about the activity arise. Staff may also direct any questions to Effluent Management (Liz Raney 531-8987 or Dave Warren 371-7772).
- Discharge approval is only for Clean Potable Water.
- Discharges must be recorded on the attached 300 Area Water Line Flushing Significant Discharge Log.
- Discharges from fire hydrants may not exceed 60 minutes (due to the high flow rate). Discharges from hose bibs (< 150 gpm) do not have this time restriction, but still must be recorded on the Log.

EXPIRES: August 31, 2020

Generator	Field Service Representative	Building/Room	Sewer System
Sanjay Sanan	Dan Edwards	300 Area - see attached for authorized locations	Discharge to Ground

Waste Stream Constituents

Constituents	Wt %	mg/L
Water	100.00	

Waste Stream Characteristics

Parameter	
pH	7
Volume	< 30,000 gallons per location

Waste Stream Conditions

Parameter

Discharge Conditions:

- Water line flushing discharges must only occur to areas approved by MSA LTS and CHPRC Vadose Zone staff. Contact the 300 Area Building Manager or Effluent Management to receive approval for discharge outside these areas.
- Discharges must be recorded on the 300 Area Water Line Flushing Significant Discharge Log.
- Discharge approval is for potable water only. Addition of any chemicals or products must be reviewed and approved prior to discharge.
- Maximum total volume discharged from water line flushing activities may not exceed 200,000 gallons/day.
- Discharge rate must be ≤ 150 gpm (hose bibs) OR, if it exceeds 150 gpm (fire hydrants), you may not discharge more than 60 minutes. At no time may discharges exceed 1,000 gpm
- Let staff performing work know who the responsible party is should any questions arise.
- Direct discharges (or runoff from discharges) to the river or property not owned by DOE are prohibited.

APPROVED FOR DISCHARGE TO GROUND

Internal Use Only:

SS:	Ground	**Building:**	300 Area	**In:**	7/23/2019
Date:	8/8/19	**Initials:**	EAR	**Out:**	7/6/2018
Expiration Date:	8/31/2020				

300 Area Water Line Flushing – Significant Discharge Log

REQUIRED							OPTIONAL			
Date	**Flushing Source or Location (e.g., FH #86)** See Note #1	**Discharge Rate (gpm)** See Note #2	**Discharge Duration (minutes)** See Note #2	**Total Volume Discharged (gallons)** See Note #3	**Estimated Discharge Area (sq. ft.)**	**Staff Name**	**Start Time**	**Start Residual Chlorine (mg/L)**	**Stop Time**	**Stop Residual Chlorine (mg/L**

This approval governs the discharge of potable water to ground in the 300 Area from fire hydrants or hoses used to flush drinking water lines. Discharges must follow the limits and pollution prevention and best management practices (P2/BMPs) from Washington State Waste Discharge Permit ST 4511 listed below:

- Note #1: Water line flushing discharges must only occur to areas approved by MSA LTS and CHPRC Vadose Zone staff. Contact the 300 Area Building Manager for approval to discharge outside these areas.
- Note #2: Discharges must either be ≤ 150 gpm at all times (hose bibs) OR may occur for no more than 60 minutes with a flow rate that may not exceed 1,000 gpm (fire hydrants).
- Note #3: The total volume discharged from all 300 Area water flushing locations must not exceed 200,000 gallons/day.
- Discharge approval is for potable water only. The addition of any chemicals or products must be reviewed and approved prior to discharge.
- Direct discharge, or runoff from discharges, to the Columbia River or a property not owned by DOE is prohibited.

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-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	8000	300-15:1	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

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE

To be completed ONLY if planned discharge will exceed a volume of 2,000 gallons or application rate of 10 gal/ft^2/day (*MSC-PRO-EI-15333, Sections 4.7 and 4.87*)

TO BE FILLED OUT BY THE REQUESTOR

1. Requestor:	2. Organization:	3. Date of Request:
Daniel L. Edwards	PNNL - 300A Core Team	7/11/2019

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)*:	6. Duration *(weeks/days/hours)*:
~2x/week for each hydrant/location	Up to 60 minutes per each hydrant flushed

7. Total Volume *(gal)*:	8. Discharge Rate *(gal/min)*:	9. Point Source *(check one)*:
Up to 30K gallons/location	See attached.	☒ Yes ☐ 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^2, 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)*:	☐	☐
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.		
13. Groundwater Contaminate Plumes *(from annual groundwater report)*:	☐	☐
14. Groundwater Remedial Actions *(from annual operations summary reports)*:	☐	☐

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 contmination? *(if yes, list applicable sites affected)*:	☒	☐

See attached files and the attached document titled, "300 Area Drainage Guidance for Enhanced Recharge Institutional Control."

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE (Continued)

Review/Concurrence

16. GVZ Environmental Compliance Officer (ECO):

Print First and Last Name	Signature	Date

17. Requesting Organization ECO:

Print First and Last Name	Signature	Date
Daniel L. Edwards	D L Edwards	7-17-19

18. GVZ Technical Lead:

Print First and Last Name	Signature	Date

19. Long-Term Stewardship POC:

Print First and Last Name	Signature	Date
Landon Collom	Landon Collom	7-18-19

20. Comments:

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE

To be completed ONLY if planned discharge will exceed a volume of 2,000 gallons or application rate of 10 gal/ft^2/day *(MSC-PRO-EI-15333, Sections 4.7 and 4.87)*

TO BE FILLED OUT BY THE REQUESTOR

1. Requestor:	2. Organization:	3. Date of Request:
Daniel L. Edwards	PNNL - 300A Core Team	7/11/2019

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)*:	6. Duration *(weeks/days/hours)*:
~2x/week for each hydrant/location	Up to 60 minutes per each hydrant flushed

7. Total Volume *(gal)*:	8. Discharge Rate *(gal/min)*:	9. Point Source *(check one)*:
Up to 30K gallons/location		☒ Yes ☐ 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^2, 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)*:	☒	☐

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.

FH03: 300-293, UPR-300-4, 300-28, 300-5, 300-86
FH48: 316-3, 300-25, 300-214, UPR-300-12, 300-274, 300 FBP, 300 RFBP, 300-6, 300-283, 300-2, 300-39, 300-255, 300-22, 300-257, 300 RLWS
FH66: 300-278, 300-215, 300-15, 300-14, 300-280, 300-269, 300-283
FH73: 300-294, 300-86, 300-291, 300-215
FH78: 300-215, 300-294, 300-283
FH84: 300-86, UPR-300-4, 300-46, 300-293
FH86: 300-215, 300-291
Trailers: 300-215, 300-293

13. Groundwater Contaminate Plumes *(from annual groundwater report)*:	☒	☐

Nitrate, Uranium

14. Groundwater Remedial Actions *(from annual operations summary reports)*:	☐	☐

300-FF-5 Record of Decision

TO BE FILLED OUT BY LTS REVIEWER

Institutional Controls in the Potentially Affected Areas of Contamination

Groundwater Vadose Zone (GVZ)/Institutional Control (IC) Zones

PLANNED WATER DISCHARGE REVIEW AND CONCURRENCE (Continued)

15. Are there any WIDS sites with institutional controls within 100 ft. of the potentially affected areas of contmination? *(if yes, list applicable sites affected):*	☒	☐

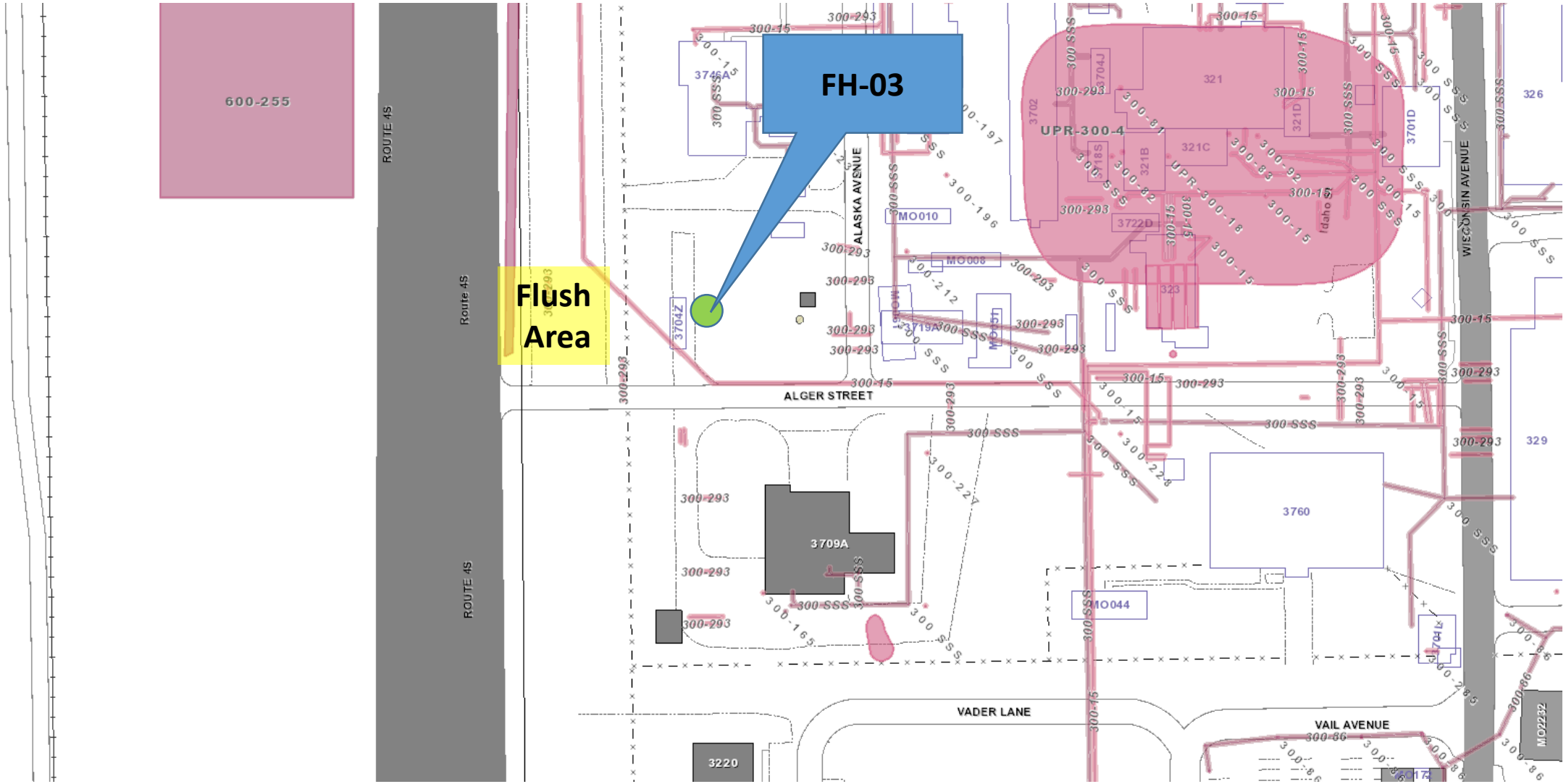
See attached files and the attached document titled, "300 Area Drainage Guidance for Enhanced Recharge Institutional Control."

Review/Concurrence

	Print First and Last Name	Signature	Date
16. GVZ Environmental Compliance Officer (ECO):	Sean M. Sexton		7/22/2019
17. Requesting Organization ECO:	Daniel L. Edwards		
18. GVZ Technical Lead:			
19. Long-Term Stewardship POC:			

20. Comments:

FIGURE 1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ROUTE 45
Route 45
ROUTE 45
ALASKA AVENUE
WISCONSIN AVENUE
ALGER STREET
VADER LANE
VAIL AVENUE
UPR-300-4
UPR-300-18
3746A
3704J
3702
321
321D
3701D
321C
321B
3718S
3722D
323
3704Z
3719A
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MO008
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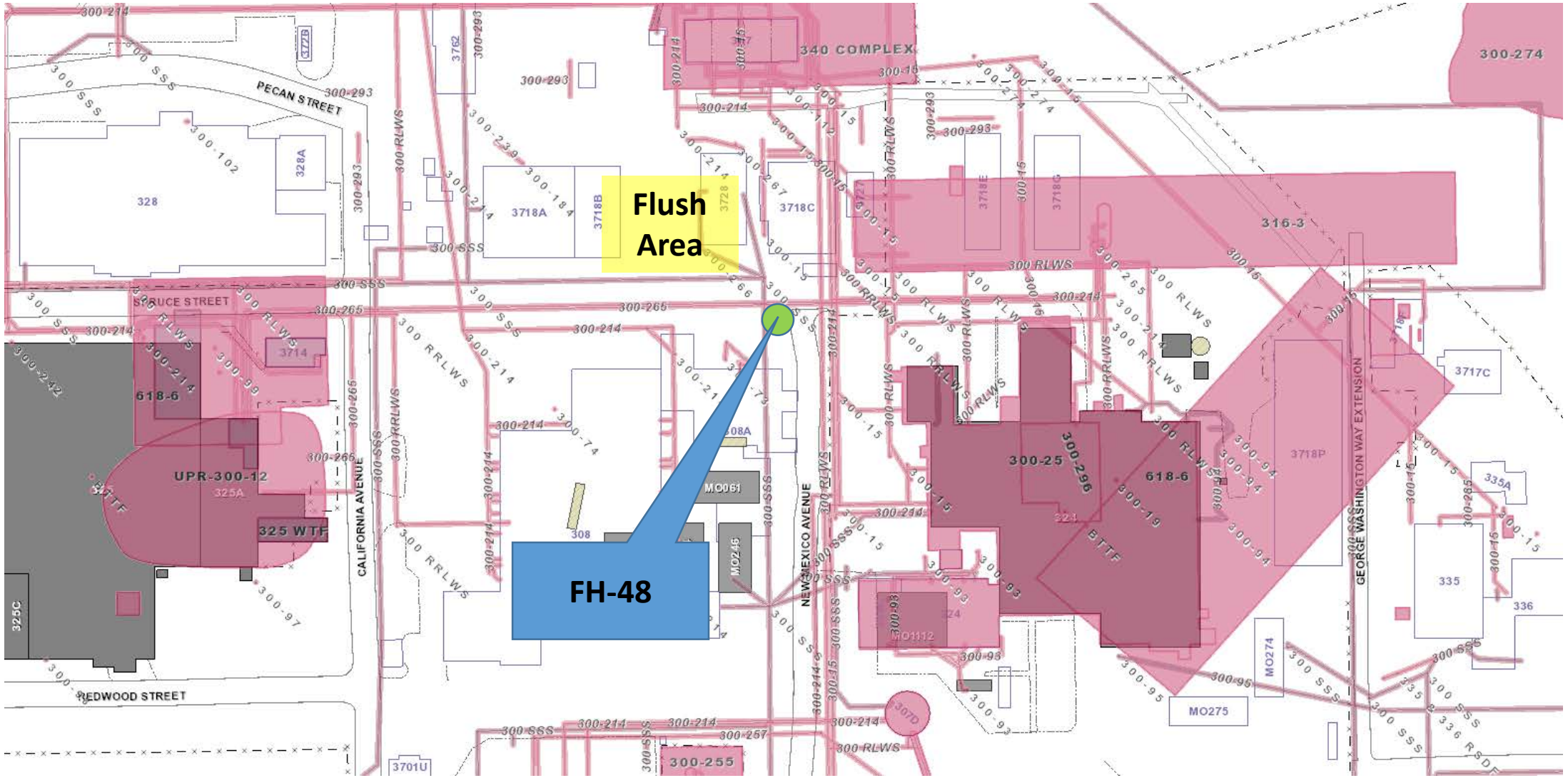
FIGURE 2


Flush Area
FH-48
PECAN STREET
SPRUCE STREET
REDWOOD STREET
CALIFORNIA AVENUE
NEW MEXICO AVENUE
GEORGE WASHINGTON WAY EXTENSION
340 COMPLEX
316-3
618-6
UPR-300-12
325 WTF
MO061
MO246
MO1112
MO274
MO275
300-25
300-296
300-255
328
328A
3718A
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335A
336
3701U
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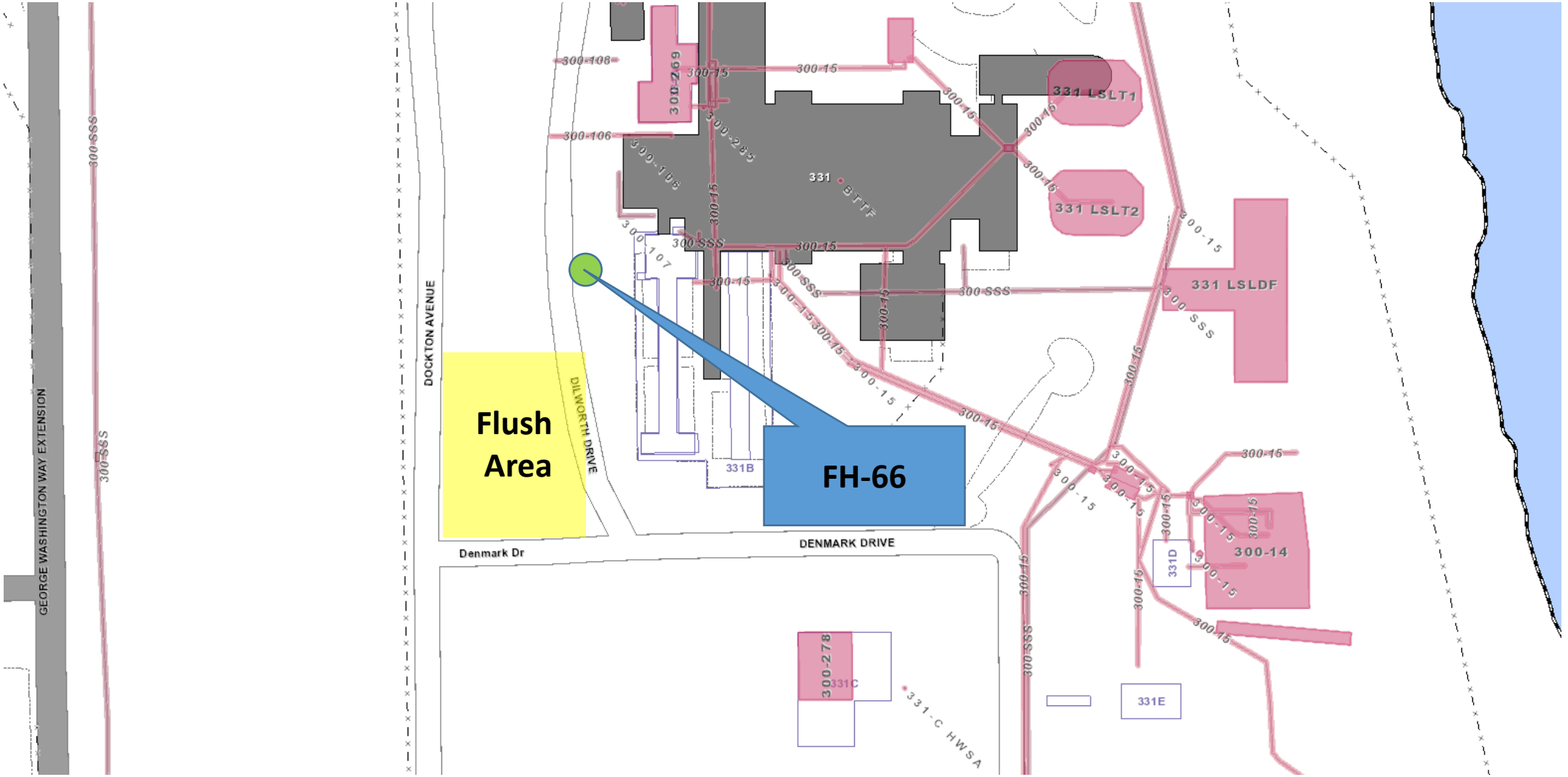
FIGURE 3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Denmark Dr
DENMARK DRIVE
GEORGE WASHINGTON WAY EXTENSION
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331 LSLT2
331 LSLDF
331B
331C
331D
331E
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FIGURE 4

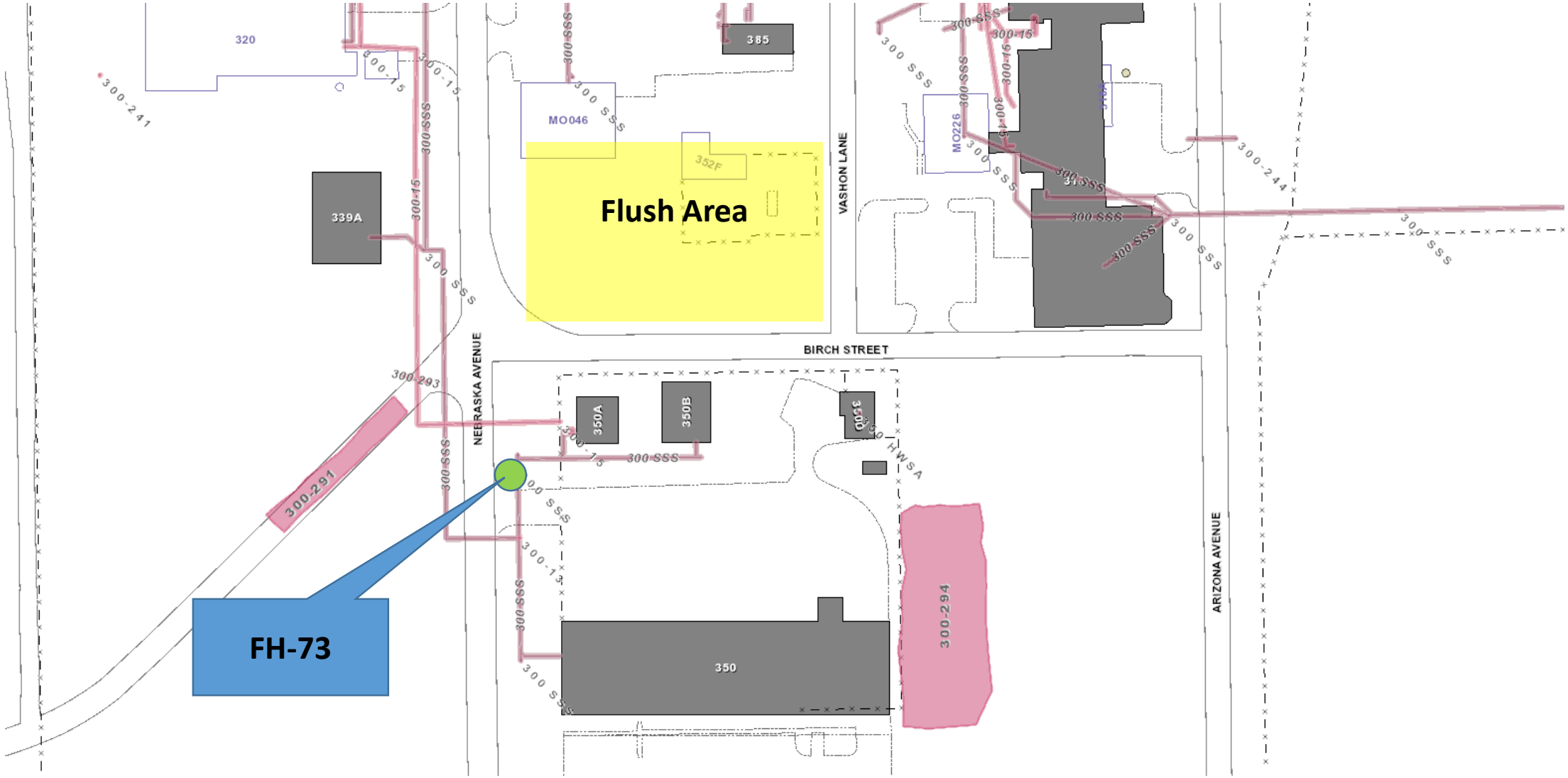

Flush Area
FH-73
BIRCH STREET
NEBRASKA AVENUE
VASHON LANE
ARIZONA AVENUE
320
385
339A
MO046
352F
MO226
350A
350B
350
300-241
300-15
300 SSS
300-293
300-291
300-294
300-244
HWSA

FIGURE 5

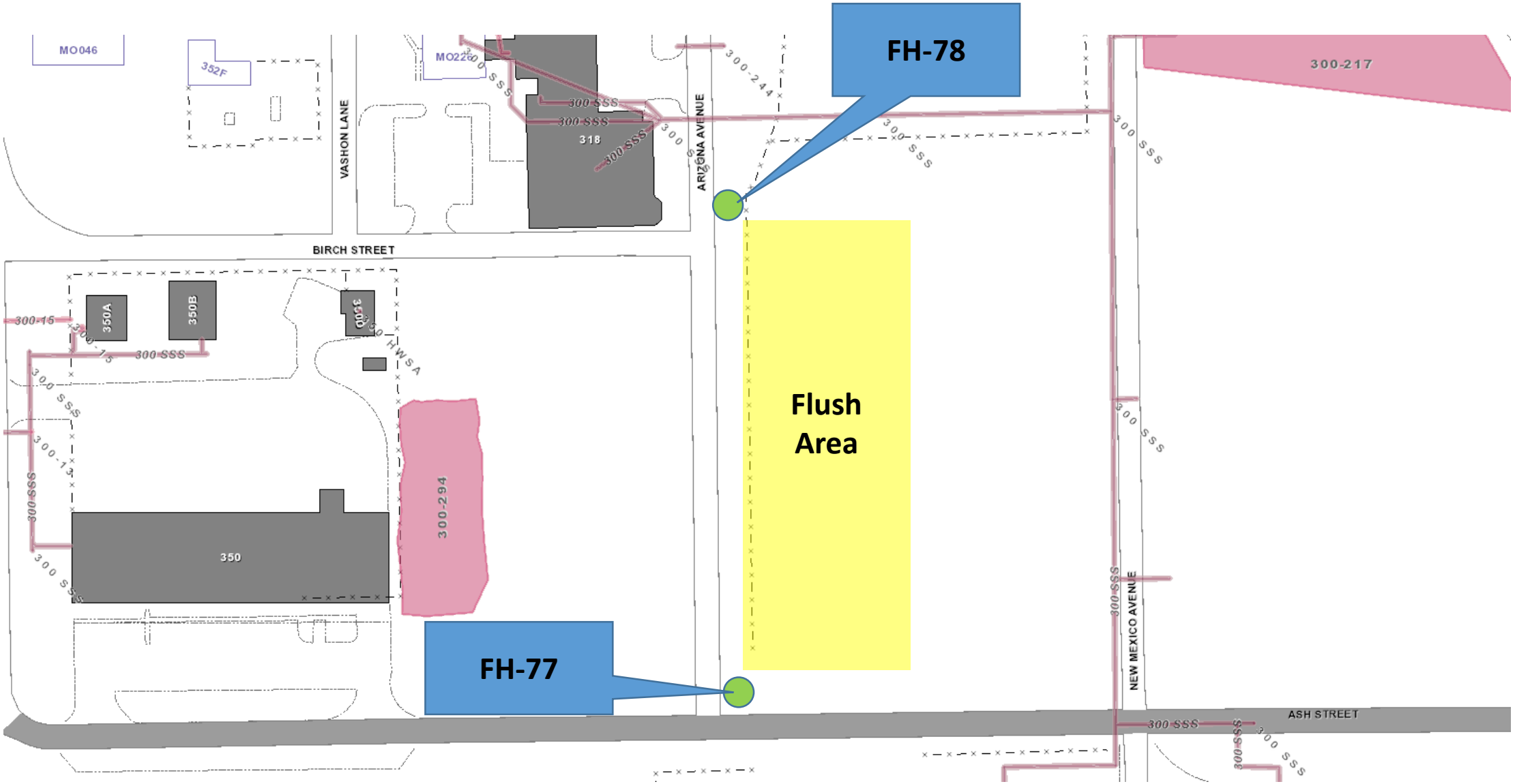

FH-78
FH-77
Flush Area
MO046
352F
MO2260
VASHON LANE
ARIZONA AVENUE
318
300-244
300-217
BIRCH STREET
350A
350B
351
350
300-294
300-15
300-16
300-13
300 SSS
300 HWSA
NEW MEXICO AVENUE
ASH STREET

FIGURE 6

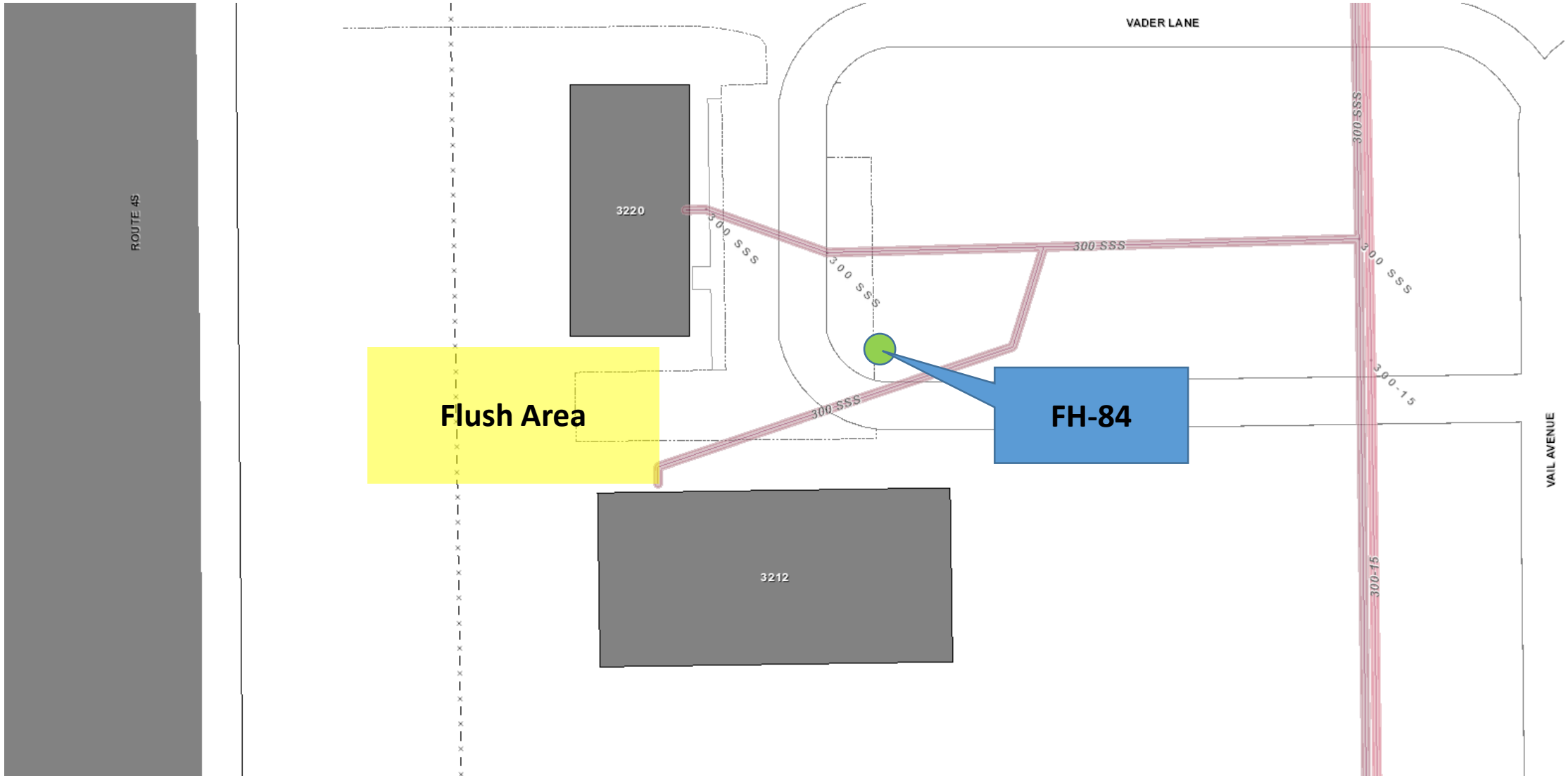

ROUTE 4S
VADER LANE
3220
3212
300 SSS
300 SSS
300 SSS
300 SSS
300 SSS
300 SSS
300 SSS
300-15
300-15
Flush Area
FH-84
VAIL AVENUE

FIGURE 7

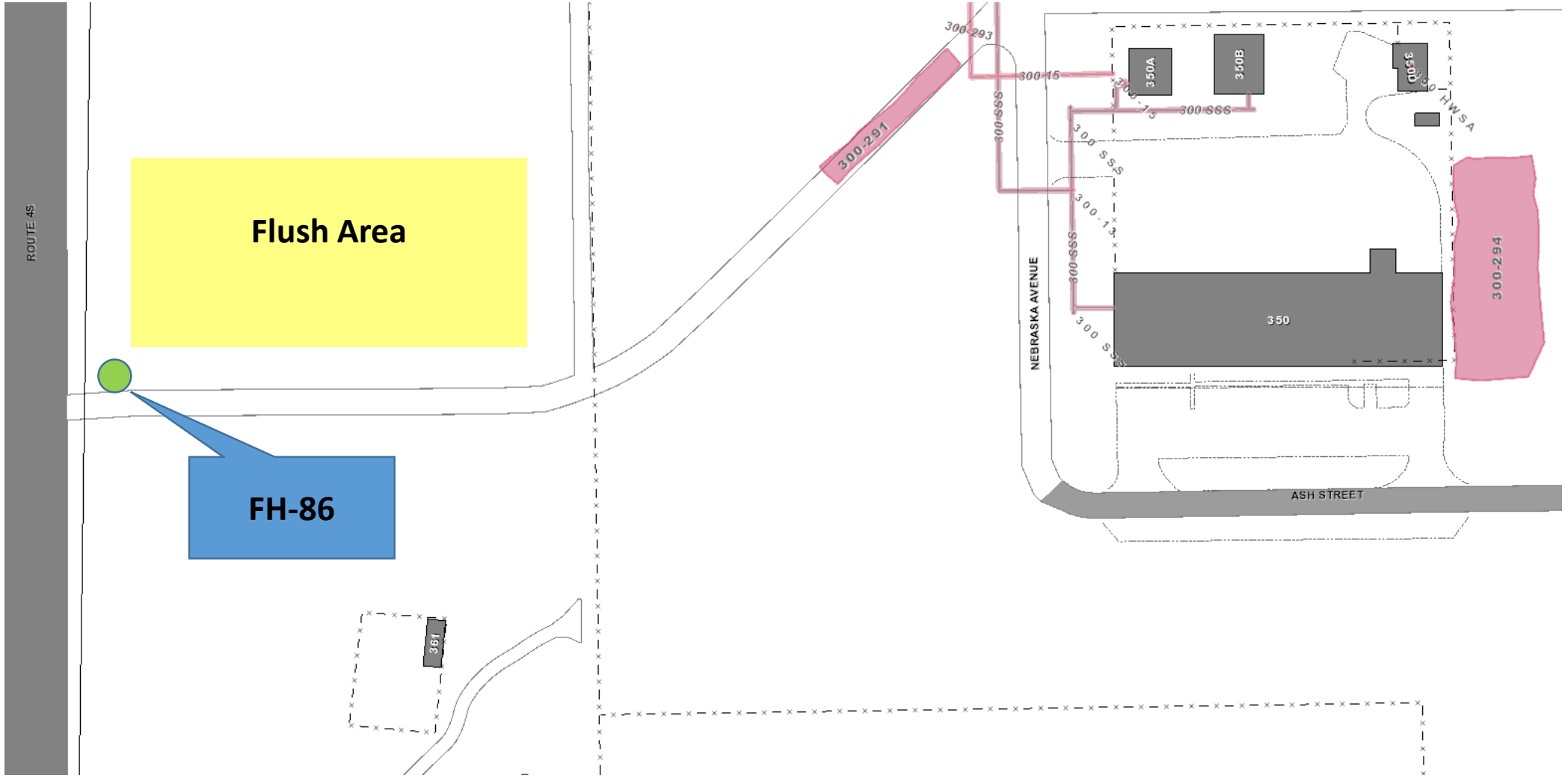
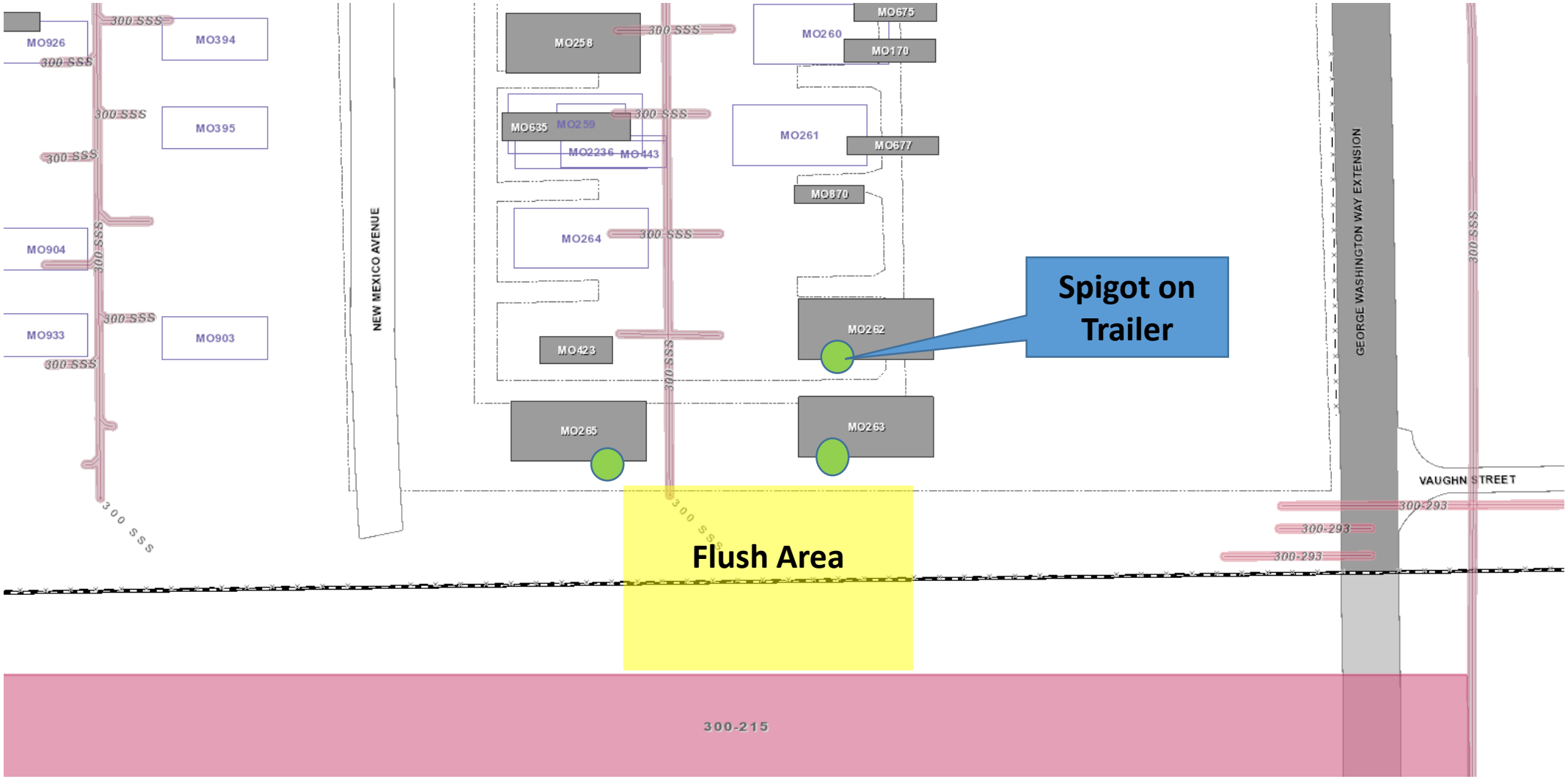

ROUTE 45
Flush Area
FH-86
300-293
300-291
300-15
300 SSS
350A
350B
350C
HWSA
300-294
350
NEBRASKA AVENUE
ASH STREET
361

FIGURE 8


MO926
MO394
MO395
MO904
MO933
MO903
MO258
MO260
MO675
MO170
MO635
MO259
MO2236
MO443
MO261
MO677
MO870
MO264
MO423
MO262
MO265
MO263
NEW MEXICO AVENUE
GEORGE WASHINGTON WAY EXTENSION
VAUGHN STREET
300 SSS
300-293
300-215
Spigot on Trailer
Flush Area

300 Area Drainage Guidance for Enhanced Recharge Institutional Control[a]

Hydrant #	Direction of Water for Flushing or Testing[b]
300-02	Towards west
300-03[c]	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[c]	Towards northwest with a 50 ft. hose extension
300-49	Towards southeast
300-50	Any direction except south
300-51	Southeast
300-52	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	Any direction south
300-66[c]	Towards southwest on top on tree line with a 100 ft. hose extension
300-73[c]	Towards north or northeast with a 100 ft. hose extension
300-78[c]	Towards the southwest, west, or southeast
300-80	Any direction except east
300-84[c]	Any direction except east
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[c], 300-79, 300-86[c]

[a]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.
[b]Periodic observations of drainage flow will be evaluated and revisions for flow direction guidance will be updated as needed.
[c]Locations planned for significant water discharge in 2019 for potable water flushing.

Updated 7/10/2019