Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

11-AMCP-0236

SEP 28 2011

Mr. D. A. Faulk, Program Manager
Office of Environmental Cleanup
Hanford Project Office
U.S. Environmental Protection Agency
309 Bradley Boulevard, Suite 115
Richland, Washington 99352

Dear Mr. Faulk:

WASTE SITE RECLASSIFICATION FORM (CONTROL NUMBER 2011-075), AND RESPONSE ACTION REPORT FOR THE 200-MG-1 OPERABLE UNIT WASTE SITE 200-W-147-PL-A, DOE/RL-2011-86, REVISION 0

This letter transmits signed copies of the Waste Site Reclassification Form (Control Number 2011-075), and the approved Response Action Report for the 200-MG-1 Operable Unit Waste Site 200-W-147-PL-A, DOE/RL-2011-86, Revision 0.

If you have any questions, please contact me, or your staff may contact, Al Farabee, of my staff, on (509) 376-8089.

Sincerely,

Jonathan A. Dowell, Assistant Manager
for the Central Plateau

AMCP:PGE

Attachments

cc: See Page 2

cc w/attachs:
G. Bohnee, NPT
L. Buck, Wanapum
L. C. Buelow, EPA
S. Harris, CTUIR
J. A. Hedges, Ecology
R. Jim, YN
S. L. Leckband, HAB
N. M. Menard, Ecology
K. Niles, ODOE
D. Rowland, YN (4) plus 2 CDs
Administrative Record
Environmental Portal

cc w/o attachs:
D. G. Black, CHPRC
R. L. Cathel, CHPRC
R. E. Piippo, MSA
J. G. Vance, MSA

WASTE SITE RECLASSIFICATION FORM

Date Submitted: 8/10/2011 Originator: N. Chandran Phone: 373-4716	Operable Unit(s): 200-MG-1 Waste Site Code: 200-W-147-PL-A Type of Reclassification Action: Closed Out ☐ Interim Closed Out ☒ No Action ☐ RCRA Postclosure ☐ Rejected ☐ Consolidated ☐	Control Number: 2011-075

This form documents agreement among parties listed authorizing classification of the subject unit as Closed Out, Interim Closed Out, No Action, RCRA Postclosure, Rejected, or Consolidated. This form also authorizes backfill of the waste management unit, if appropriate, for Closed Out and Interim Closed out units. Final removal from the NPL of No Action and Closed Out waste management units will occur at a future date.

Description of current waste site condition:
(Summarize status of investigation/remediation of the waste sites.)

The 200-W-147-PL-A waste site is a portion of underground 20 cm (8 in.) diameter vitrified clay pipe that extends south of the 200 West Area in the Outer Area of the Central Plateau terminating at the 216-S-19 pond. The pipeline conveyed effluent from four different sources (222-S control laboratory, 219-S waste storage facility, 222-SA analytical chemical standards laboratory, and 291-S exhaust fan control house and stack) to the 216-S-19 pond. The selected alternative authorized by DOE/RL-2009-86, *Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit* (Action Memorandum) via TPA-CN-350, *Tri-Party Agreement Change Notice Form: DOE/RL-2009-86 Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit, Rev. 0*, was removal, treatment, and disposal (RTD). Available historical information and process knowledge substantiated the implementation of the RTD alternative, in accordance with DOE/RL-2009-53, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit* (RAWP). During RTD activities, a portion of the 200-W-147-PL-A pipeline, which was beneath an access road to adjacent waste sites 216-S-19 and 216-S-26, could not be excavated without compromising the integrity of the access road. As a result, the pipeline was split into two subsites in WIDS: 200-W-147-PL-A:1 and 200-W-147-PL-A:2. Following RTD, verification sampling was performed in accordance with DOE/RL-2009-60, *Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites*, which demonstrated the 200-W-147-PL-A waste site had achieved compliance with the RALs and corresponding removal action objectives (RAOs).

The results show that residual soil concentrations of COPCs less than or equal to the RALs supports a reclassification of the 200-W-147-PL-A waste site (which encompasses both the 200-W-147-PL-A:1 and 200-W-147-PL-A:2 subsites) to interim closed out. The current site conditions achieve the RALs and the corresponding RAOs established in the RAWP. The results of waste site sampling are used to make reclassification decisions for the 200-W-147-PL-A waste site in accordance with the TPA-MP-14 (DOE-RL 2007) process. Finalization of a backfill concurrence form provided to the agency(ies) constitutes concurrence that the waste site has achieved the established RAOs and thus backfill and/or contouring may occur at the 200-W-147-PL-A waste site with minimal risk. Backfill Concurrence Forms for both the 200-W-147-PL-A:1 and 200-W-147-PL-A:2 subsites have been approved by the regulatory agency(ies), and backfill at the 200-W-147-PL-A waste site has been completed.

Basis for reclassification:
(For interim closeout, reference supporting documentation, as listed in Table 3.)

The current site conditions meet RALs and the corresponding RAOs specified in the Action Memorandum. The results show that the residual soil concentrations support reasonably anticipated future land uses recognized in DOE/RL-2008-44, *Engineering Evaluation/Cost Analysis for the 200-MG-1 Operable Unit Waste Sites*, and the Action Memorandum. The results also demonstrate that residual concentrations of COPCs in soil support unrestricted future use of shallow zone soil (i.e., surface to 4.6 m [15 ft] below ground surface) and that COPC concentrations remaining in the soil are protective of groundwater and the Columbia River. There is no deep zone for the 200-W-147-PL-A waste site therefore no institutional controls are required. The basis for reclassification to interim closed out is described in detail in DOE/RL-2011-86, *Response Action Report for 200-MG-1 Operable Unit Waste Site 200-W-147-PL-A*, U.S. Department of Energy, Richland Operation Office, Richland, Washington.

Waste Site Controls:
Engineered Controls: Yes ☐ No ☒ Institutional Controls: Yes ☐ No ☒ O&M requirements: Yes ☐ No ☒
If any of the Waste Site Controls are checked Yes specify control requirements including reference to the Record of Decision, TSD Closure Letter, or other relevant documents.

O. A. Farabee DOE Federal Project Director (printed)	O A Farabee Signature	8/10/11 Date
Larry Gadbois for Dennis Faulk EPA Project Manager (printed)	Larry Gadbois Signature	Aug 11, 2011 Date

DOE/RL-2011-86
Revision 0

Response Action Report for 200-MG-1 Operable Unit Waste Site 200-W-147-PL-A

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

U.S. DEPARTMENT OF ENERGY

Richland Operations Office

P.O. Box 550
Richland, Washington 99352

Approved for Public Release;
Further Dissemination Unlimited

DOE/RL-2011-86
Revision 0

Response Action Report for 200-MG-1 Operable Unit Waste Site 200-W-147-PL-A

Date Published
August 2011

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

U.S. DEPARTMENT OF ENERGY
Richland Operations Office

P.O. Box 550
Richland, Washington 99352

Release Approval Date 08/10/2011

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Approval Page

Title: *Response Action Report for 200-MG-1 Operable Unit Waste Site 200-W-147-PL-A*

O. A. Farabee
U.S. Department of Energy, Richland Operations Office

Signature _____ Date 8/10/11

Executive Summary

This response action report documents the successful completion of the removal action conducted at the 200-W-147-PL-A waste site, also known as the portion of the 200-W-147-PL Pipeline in the Central Plateau Outer Area. The alternative, proposed in DOE/RL-2008-44, *Engineering Evaluation/Cost Analysis for the 200-MG-1 Operable Unit Waste Sites*[1] (EE/CA), and selected in DOE/RL-2009-86, *Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit*[2] (Action Memorandum) via TPA-CN-350,[3] *Tri-Party Agreement Change Notice Form: DOE/RL-2009-86 Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit, Rev. 0*, was removal, treatment, and disposal (RTD).

The available 200-W-147-PL-A waste site historical information and process knowledge was sufficient, per the provisions of the Action Memorandum (DOE/RL-2009-86), to proceed directly to implementation of the RTD alternative in accordance with DOE/RL-2009-53, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit*[4] without requiring additional field observations or sampling to determine the nature and extent of contaminants of potential concern (COPCs) present in the waste site soils. Verification sampling, conducted after RTD activities in accordance with DOE/RL-2009-60, *Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites*[5] confirmed that the waste site achieved compliance with removal action levels and, therefore, met the established removal action objectives without further removal action.

---

[1] DOE/RL-2008-44, 2009, *Engineering Evaluation/Cost Analysis for the 200-MG-1 Operable Unit Waste Sites*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=0096350.

[2] DOE/RL-2009-86, 2010, *Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=0084449.

[3] TPA-CN-350, 2010, *Tri-Party Agreement Change Notice Form: DOE/RL-2009-86, Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit, Rev. 0*, dated October 10, U.S. Department of Energy, Richland Operations Office, and Washington State Department of Ecology, Richland, Washington. Available at: http://www5.hanford.gov/arpir/?content=findpage&AKey=1010270164.

[4] DOE/RL-2009-53, 2010, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www2.hanford.gov/arpir/?content=findpage&AKey=1010180132.

[5] DOE/RL-2009-60, 2011, *Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites*, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www5.hanford.gov/pdw/fsd/AR/FSD0001/FSD0064/0084054/11-AMCP-0080_-_Letter_[1102030315]_-_1.pdf.

The results show that the residual soil concentrations of COPCs support reasonably anticipated future land use described in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86). These results also support reclassification to "interim closed out" status in accordance with the process described in RL-TPA-90-0001, *Tri-Party Agreement Handbook Management Procedures*, Guideline Number TPA-MP-14, "Maintenance of the Waste Information Data System (WIDS)."[6] No institutional controls are required because there is no deep vadose zone contamination associated with the 200-W-147-PL-A waste site.

This waste site and the data obtained from the subject sampling evolution will be included in the risk assessment and the remedial investigation/feasibility study for final remedial decisions for the Outer Area.

[6] RL-TPA-90-0001, 2007, *Tri-Party Agreement Handbook Management Procedures*, Guideline Number TPA-MP-14, "Maintenance of the Waste Information Data System (WIDS)," Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington. Available at: http://www.hanford.gov/hanford/files/TPA-MP14.pdf.

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Terms

bgs	below ground surface
CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
COPC	contaminant of potential concern
CS/NFA	confirmatory sampling/no further action
DOE	U.S. Department of Energy
DQA	data quality assessment
Ecology	Washington State Department of Ecology
EE/CA	*Engineering Evaluation/Cost Analysis for the 200-MG-1 Operable Unit Waste Sites*
EPA	U.S. Environmental Protection Agency
HEIS	Hanford Environmental Information System
N/A	not available
NPL	National Priorities List
O&M	operations and maintenance
OU	operable unit
PCB	polychlorinated biphenyl
QA	quality assurance
QC	quality control
RAL	removal action level
RAO	removal action objective
RAWP	*Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit*
RESRAD	RESidual RADioactivity (dose model)
RI/FS	remedial investigation/feasibility study
ROD	record of decision
RTD	removal, treatment, and disposal
SAP	*Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites*
TPH	total petroleum hydrocarbon

Tri-Party Agreement	*Hanford Federal Facility Agreement and Consent Order*
WIDS	Waste Information Data System
ZPC	zone of potential contamination

1 Introduction

This report documents the successful completion of a non-time-critical removal action conducted at the 200-W-147-PL-A waste site. The removal action alternative of removal, treatment, and disposal (RTD) was selected for this waste site, as proposed in DOE/RL-2008-44, *Engineering Evaluation/Cost Analysis for the 200-MG-1 Operable Unit Waste Sites* (EE/CA), and authorized by DOE/RL-2009-86, *Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit* (Action Memorandum) via TPA-CN-350, *Tri-Party Agreement Change Notice Form: DOE/RL-2009-86, Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit, Rev. 0*. Using the methodology prescribed in the Action Memorandum (DOE/RL-2009-86), waste site historical information and process knowledge substantiated the implementation of the RTD alternative. This report provides the basis for the successful completion of the RTD action performed at the 200-W-147-PL-A waste site. This documentation has been prepared based on U.S. Environmental Protection Agency (EPA) guidance provided in EPA 540-R-98-016, *Close Out Procedures for National Priorities List Sites*.

This report provides a summary of the actions taken and resulting data to support a determination that, through performance of the RTD alternative, conditions remaining at the 200-W-147-PL-A waste site have achieved the established removal action levels (RALs) and have met the removal action objectives (RAOs) provided in the Action Memorandum (DOE/RL-2009-86). The documentation process is consistent with the U.S. Department of Energy (DOE) *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) *Remedial Action Site Closure Guidance* (DOE, 2010).

Statutory authority for the action taken is in accordance with CERCLA (as amended by the *Superfund Amendments and Reauthorization Act of 1986*); Executive Order 12580, *Superfund Implementation*; the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al., 1989), also known as the Tri-Party Agreement, and 40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan."

In June 2011, the non-time-critical removal action for the 200-W-147-PL-A waste site was completed in accordance with DOE/RL-2009-53, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit* (RAWP). This report provides the following information relative to the completion of the subject removal action:

- Background, historical information, regulatory enforcement history, and environmental setting pertinent to this removal action
- Descriptions of the selected alternative, RAOs, and exposure and land use assumptions provided in the related regulatory documents
- A summary of the completed actions, the resulting data collected in support of completion of that removal action, a comparison of that data against objectives, and demonstration that RAOs have been met

1.1 Site Description

General information on the Hanford Site and the 200-MG-1 Operable Unit (OU) provides the background and development of the removal action for the 200-W-147-PL-A waste site and is described in the subsections that follow.

1.1.1 Hanford General Site Information

The Hanford Site, which is part of the DOE nuclear weapons complex, occupies approximately 1,517 km^2 (586 mi^2) along the Columbia River in Benton County, northwest of the City of Richland in the Lower Columbia Basin in southeastern Washington State (Figure 1-1). From the early 1940s to approximately 1989, the Hanford Site mission included building the world's first large-scale plutonium production facility and, until the 1980s, the site was used to produce plutonium for nuclear weapons. Other activities included nuclear research, development, and nuclear materials production. These activities created a wide variety of chemical and radioactive wastes that were released into the environment. The Hanford Site mission is now focused on the cleanup of those wastes and ultimate closure of the Hanford Site.

1.1.2 200-MG-1 Operable Unit

The Washington State Department of Ecology (Ecology), DOE, and EPA created the 200-MG-1 OU through the Tri-Party Agreement Milestone M-015-06-02 and Tri-Party Agreement Change Request C-06-02 (Ecology et al., 1989). The 200-MG-1 OU is made up of waste sites in the 200 East and 200 West Areas, and the 600 Area of the Hanford Site. The 600 Area encompasses those areas south of the Columbia River that are not part of another designated area (i.e., 300 Area, 200 East Area, and 100-K) and are not specifically identified (Figure 1-1). The 200-MG-1 OU waste sites consist of French drains, trenches, cribs, ditches, retention basins with shallow contamination (generally less than 4.6 m [15 ft] deep), and where chemical and radioactive contaminants were released during material transfers (i.e., unplanned release sites). Additionally, some 200-MG-1 OU sites were produced by airborne dissemination of radioactive particles, or biodegradation and dispersion of plant or animal matter. For those sites containing radionuclides, the radionuclide inventory for this conceptual model group does not include transuranic isotopes greater than or equal to 100 nCi/g.

All of the waste sites contained in the 200-MG-1 OU are located within the Central Plateau, as described in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86). The 200-W-147-PL-A waste site, a portion of 200-W-147-PL pipeline in the Central Plateau Outer Area, is located in the 600 Area, just south of the 200 West Area (Figure 1-2).

1.2 Regulatory and Enforcement History

As discussed in Chapter 1, statutory authority for this removal action is taken in accordance with CERCLA. Further governing requirements for compliance with CERCLA and the *Resource Conservation and Recovery Act of 1976* activities at the Hanford Site are in accordance with the Tri-Party Agreement. The Hanford Site was proposed for inclusion in 53 FR 23988, "National Priorities List for Uncontrolled Hazardous Waste Sites – Update 7," hereafter referred to as the National Priorities List (NPL), and was placed on the NPL on November 3, 1989 (54 FR 41015, "National Priorities List for Uncontrolled Hazardous Waste Sites – Final Rule 10/04/89") by EPA. EPA placed the four aggregate areas (i.e., the 100, 200, 300, and 1100 Areas) on the NPL. The 200 Area NPL site consists of the 200 West and 200 East Areas, which contain waste management facilities and inactive irradiated fuel reprocessing facilities. The site also includes the 200 North Area, formerly used for interim storage and staging of irradiated fuel, and the waste sites assigned to the 200-MG-1 OU.

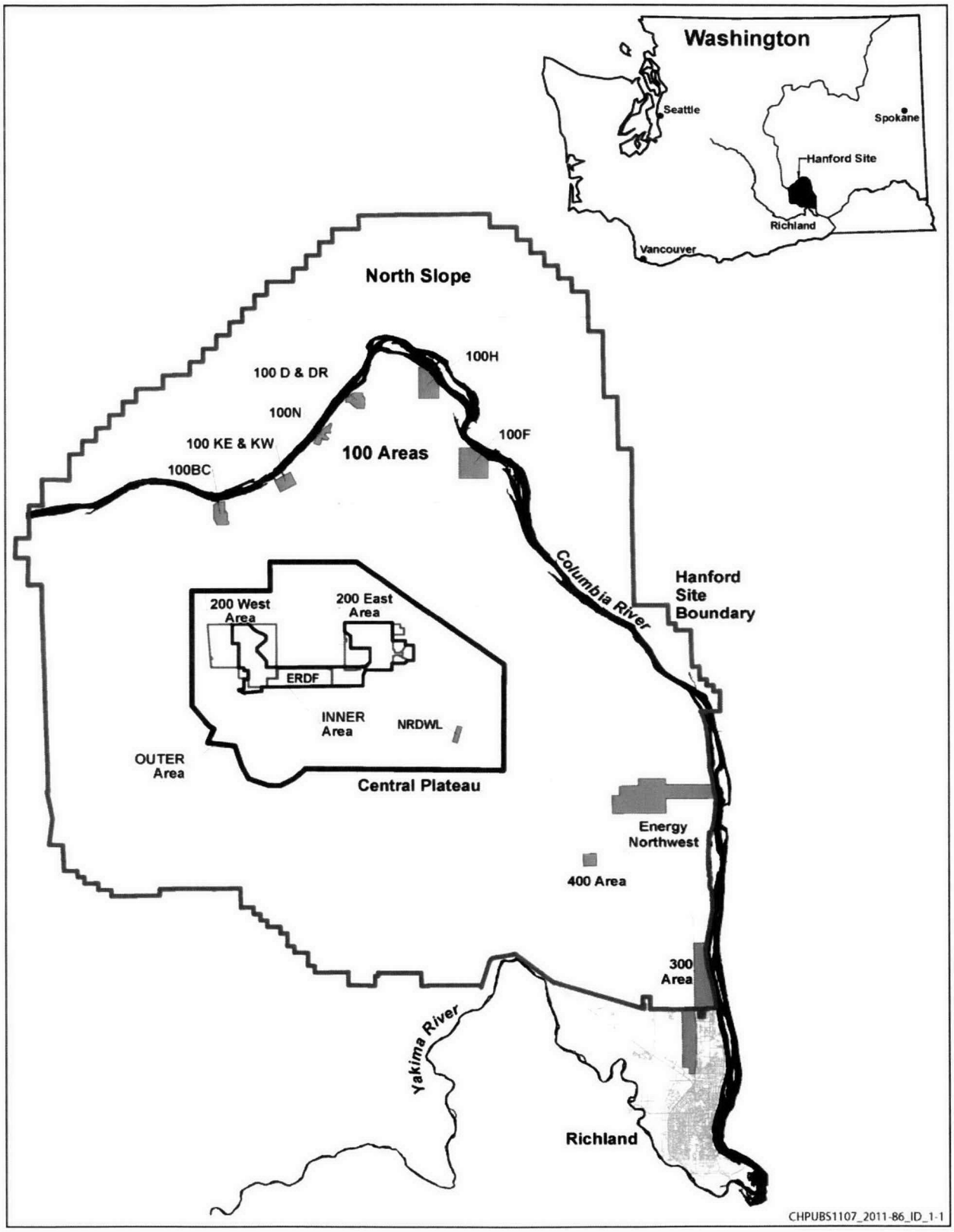

Figure 1-1. Location of the Hanford Site in Washington State

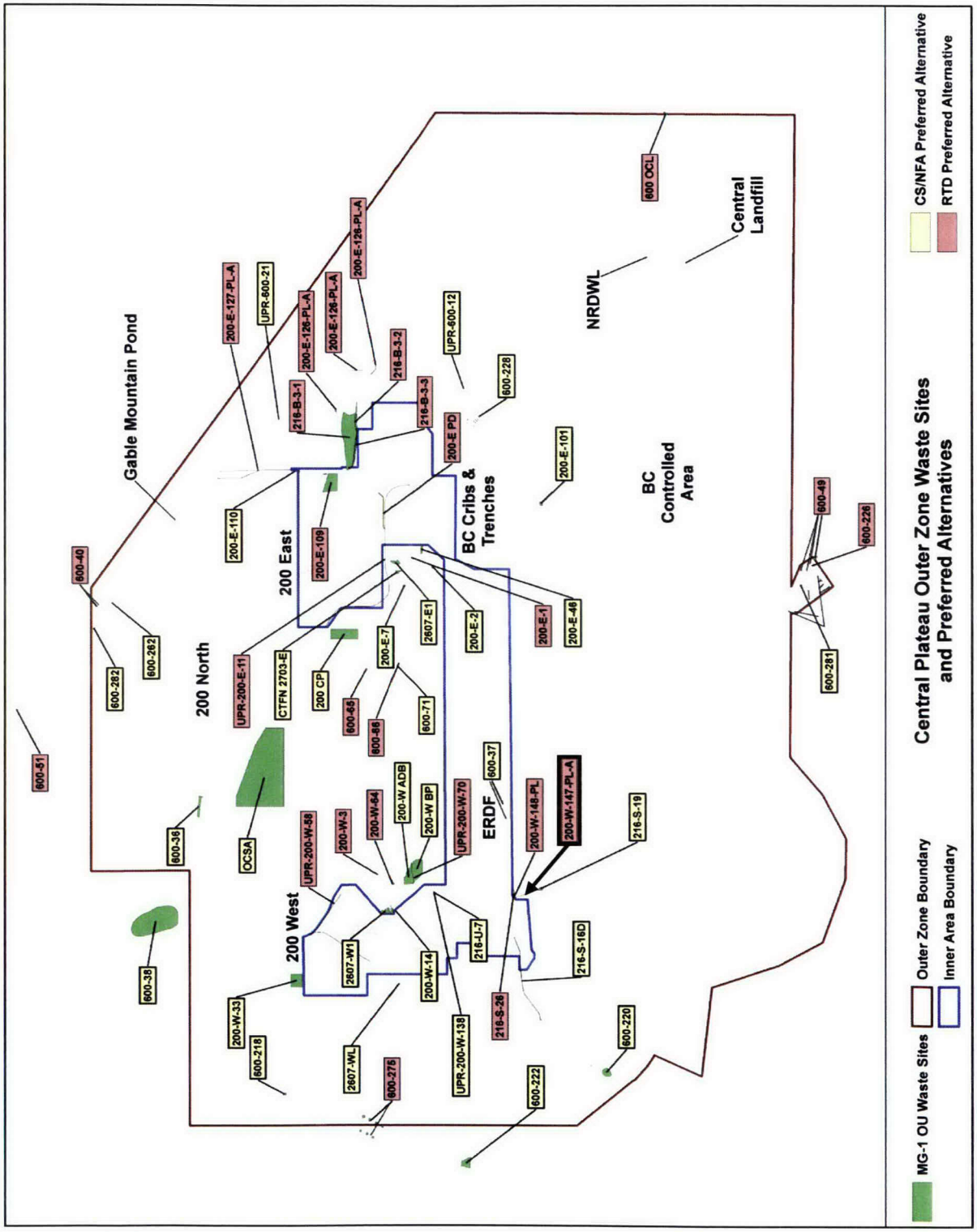

Figure 1-2. 200-MG-1 Operable Unit and the 200-W-147-PL-A Waste Site

1.3 Environmental Setting

The Hanford Site is located within the semi-arid Pasco Basin in the northern portion of the Columbia Plateau. Normal annual precipitation is 17.7 cm (7 in.). According to PNL-10285, *Estimated Recharge Rates at the Hanford Site*, there is an estimated 2.6 to 17.3 mm (0.1 to 0.7 in.) per year of recharge in the 100 Area. Bedrock beneath the site is basalt of the Columbia River Basalt Group.

The Ringold Formation and the Hanford formation cover the basalt throughout the Central Plateau. Poorly consolidated, river-deposited, well-drained sands, gravels, cobbles, and boulders dominate these units. The Ringold Formation is an interstratified sequence of unconsolidated clay, silt, sand, and gravel-to-cobble sediment deposited by the ancestral Columbia River. The Hanford formation consists of uncemented gravels, sands, and silts deposited by Pleistocene cataclysmic floodwaters. Groundwater from the Hanford Site discharges to the Columbia River, the dominant surface water body of the Hanford Site. The direction of groundwater flow beneath the Central Plateau is toward the east-northeast. The uses of the Columbia River include the production of hydroelectric power, irrigation, drinking water, recreation, and natural resources.

The average depth from ground surface to groundwater beneath the 200 Area ranges from 50 m (164 ft) to greater than 100 m (328 ft). Additional details on the geology and hydrogeology underlying the 200 Area and the 200-MG-1 OU are not provided in the base response action documents because the 200-MG-1 OU was created for shallow zone (less than 4.6 m [15 ft] in depth) waste sites, which are assumed not to be a threat to groundwater quality. This assumption is based on historical and process knowledge regarding volumes of liquids discharged, lack of mobility of contaminants, and shallow depth of the discharge(s).

The nearest natural surface water body to the 200-W-147-PL-A waste site is the Columbia River, located approximately 12.2 km (7.6 mi) north. The potential for natural groundwater recharge within the 200 Area is limited to precipitation infiltration. Estimates of recharge from precipitation at the Hanford Site range from 0 to 10 cm (0 to 4 in.) per year.

2 Waste Site Background

This chapter provides a description of the 200-W-147-PL-A waste site and information on process and background, describes the selected alternative, and delineates the RAOs and cleanup standards applicable to this removal action as prescribed in the Action Memorandum (DOE/RL-2009-86).

2.1 200-W-147-PL-A Site Background

The 200-W-147-PL-A waste site is a portion of underground 20 cm (8 in.) diameter vitrified clay pipe that extends south of the 200 West Area in the Outer Area of the Central Plateau, terminating at the 216-S-19 pond (Figure 2-1). The pipeline conveyed effluent from four different sources to the 216-S-19 pond: 222-S control laboratory, 219-S waste storage facility, 222-SA analytical chemical standards laboratory, and 291-S exhaust fan control house and stack. The 222-S control laboratory and 219-S waste storage facility discharged ventilation cooling water and miscellaneous lab wastes from hoods and decontamination sinks to the 216-S-19 pond via the 207-SL retention pond and the pipeline. Nonradioactive and nonhazardous wastewater from the 222-SA analytical chemical standards laboratory and the 291-S exhaust fan control house and stack was sent directly to 216-S-19 via the pipeline. The pipeline transferred up to 283 m^3/day (75,000 gal/day) of effluent and was in operation for over 32 years.

The pipeline was closed in October 1984, and effluent was transferred to discharge at the 216-S-26 crib via the 200-W-148-PL pipeline, at which time the manhole at the junction between the 200-W-147-PL-A and 200-W-148-PL pipelines was grouted with concrete.

This site was identified and entered into the Waste Information Data System (WIDS) in June 2010 using the process approved by the Tri-Party agencies and documented in TPA-MP-14.

During RTD activities in April 2011, a portion of the 200-W-147-PL-A pipeline, which was beneath an access road to adjacent waste sites 216-S-19 and 216-S-26, could not be excavated without compromising the integrity of the access road. As a result, the pipeline was split into two subsites in WIDS: 200-W-147-PL-A:1 and 200-W-147-PL-A:2 (see Figure 2-1).

The primary release mechanism for the 200-W-147-PL-A is potential leakage from breaks or disjointed connections in the buried pipeline. Settlement of contaminated solids within the pipelines or from areas of exfiltration may have also occurred. The transfer of contaminated liquids and solids through the pipeline over the operational history increases the potential for contaminated soil surrounding the pipeline. Due to the length of time the pipeline has been out of service, the potential for the pipeline to contain liquid waste is low, and the current form of the waste matrix is solid.

2.2 Description of the Selected Alternative

As stated in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86), the selected alternative for the subject waste site was RTD. This alternative was selected because, based on historical activity and process knowledge, concentrations of contaminants of potential concern (COPCs) had the potential to exceed the RALs. Activities involved in the RTD action set forth in the RAWP (DOE/RL-2009-53) and DOE/RL-2009-60, *Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites* (SAP) include soil excavation, pipe removal, and verification sampling to demonstrate that concentrations of COPCs in soil are less than or equal to established RALs and that no additional removal action is required. The general removal action sampling design criteria are provided in this section followed by a summary of waste site history, specific sampling design and methodology, and analytical results for the 200-W-147-PL-A waste site.

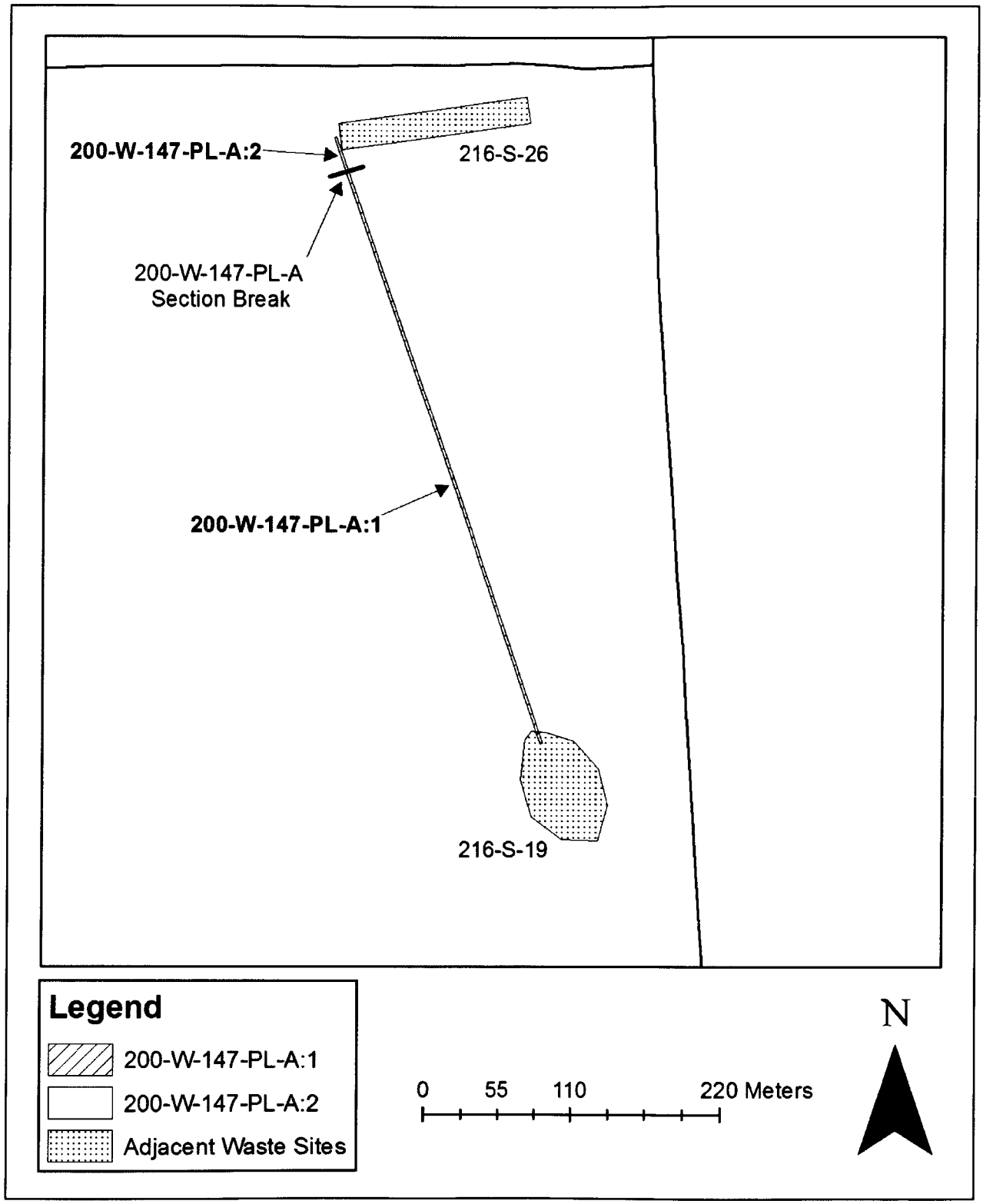

Figure 2-1. 200-W-147-PL-A Waste Site Boundary and Operational Areas

The following key features relevant to the 200-W-147-PL-A waste site were considered during the development of the sample design:

- During excavation, direct visual inspection of the site surface was performed, using available site information as a guide for visual cues such as staining, discoloration, absence of vegetation, presence of debris, and other anomalies.
- Radiological field screening was performed at the surface of the waste site to provide an indication of the presence of radiological COPCs.
- Statistical sampling with a parametric random approach was performed, per the methodology prescribed in the SAP (DOE/RL-2009-60), in the excavated areas for the verification sampling evolution.

Based on these key design features, implementation of the selected RTD alternative was performed. Soils and the pipe itself were removed, and a verification sampling evolution was conducted. The results of the verification sampling evolution confirmed that remaining in situ soils were less than or equal to RALs for COPCs applicable to the waste site. Table 5-2 provides the maximum concentrations for each COPC from the verification sampling analytical data. Tables A-1 and A-2 (Appendix A) provide detailed summaries of all analytical data results for sampling conducted at the 200-W-147-PL-A waste site.

Personnel with current training and qualifications performed field radiological surveying of the samples and sampling locations during the sampling evolutions. Survey methods and practices were performed in accordance with established contractor methods and protocols. Of the radiological surveys performed for the 200-W-147-PL-A waste site, radiological dose readings greater than the measured background were used to further refine the extent of excavation; no radiological contamination was found.

2.2.1 Removal Action Objectives

The removal action alternatives for the 200-MG-1 OU waste sites were evaluated based on their overall ability to protect human health and the environment and their effectiveness in maintaining both short term and long term protection. The selected alternative must meet the following RAOs established in the Action Memorandum (DOE/RL-2009-86):

- **RAO 1**—Prevent unacceptable risk to human health and ecological receptors from exposure to soils and/or debris contaminated with nonradiological constituents to 4.6 m (15 ft) below ground surface (bgs) at concentrations above the appropriate RALs.
- **RAO 2**—Prevent unacceptable risk to human health and ecological receptors from exposure to soils and/or debris contaminated with radiological constituents to 4.6 m (15 ft) bgs at concentrations above the appropriate RALs.
- **RAO 3**—Control the sources of groundwater contamination to minimize impacts to groundwater resources, protect the Columbia River from adverse impacts, and reduce the degree of groundwater cleanup that may be required under future action.
- **RAO 4**—Prevent adverse impacts to cultural resources and threatened or endangered species, and minimize wildlife habitat disruption.

The RALs for the waste sites identified in the Action Memorandum (DOE/RL-2009-86) are based on the RAOs noted above. These RALs are based on attainment of acceptable levels of human health, ecological risk, and protection of groundwater but are not lower than background levels or detection limits for waste sites. Attainment of RALs is intended to meet the first three RAOs and is expected to satisfy the remedial

action objectives established in the final record of decision (ROD). The fourth RAO is met through cultural and ecological reviews performed before starting removal action activities. Tables 2-1 and 2-2 list the radiological and nonradiological RALs applicable to the 200-MG-1 OU. The attainment of RALs and RAOs is provided in Chapter 5 of this report.

Table 2-1. Radiological Removal Action Levels

Contaminant of Potential Concern	Background Concentration[a] (pCi/g)	Direct Exposure[b] (pCi/g)	Soil Cleanup Level for Groundwater Protection[c] (pCi/g)	Required Detection Limit (pCi/g)	Overall Removal Action Levels (pCi/g)
Americium-241	N/A	31.1	N/A[d]	1.0	31.1
Cesium-137	1.1	6.2	1,465	0.1	6.2
Europium-152	N/A	3.3	N/A[d]	0.1	3.3
Europium-154	0.033	3.0	N/A[d]	0.1	3.0
Europium-155	0.054	125	N/A[d]	0.1	125
Plutonium-238	0.004	38.8	N/A[d]	1.0	38.8
Plutonium-239/240	0.025	33.9	N/A[d]	1.0	33.9
Strontium-90	0.18	4.5	27.6	1.0	4.5
Uranium-233/234	1.1	1.1	1.1	1.0	1.1
Uranium-235	0.11	0.61	0.5	0.5	0.5
Uranium-238	1.1	1.1	1.1	1.0	1.1

a. Hanford Site background values are available from radiological background data from DOE/RL-96-12, *Hanford Site Background: Part 2, Soil Background for Radionuclides*, Table 4.

b. Radionuclide concentrations for beta/gamma in water correspond to a 4 mrem/yr dose from EPA/540-R-00-007, *Soil Screening Guidance for Radionuclides: User's Guide*. Calculations are based on either RESRAD (ANL, 2009) or WDOH/320-015, *Hanford Guidance for Radiological Cleanup*.

c. Soil concentrations for groundwater protection were calculated using RESRAD with the maximum contaminant levels calculated from NBS Handbook 69, *Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air or Water for Occupational Exposure*; maximum permissible concentration as cited in EPA/540-R-00-007; or 40 CFR 141.66, "Maximum Contaminant Levels for Radionuclides."

d. RESRAD predicts constituent will not reach groundwater within 1,000 years based on 100 Area generic site model using soil column layers and depths.

Table 2-2. Nonradiological Removal Action Levels

Contaminant of Concern	Background Concentration[a] (mg/kg)	Direct Exposure[b] (mg/kg)	Groundwater Protection[c] (mg/kg)	Required Detection Limit (mg/kg)	Removal Action Levels (mg/kg)	Ecological Risk Screening Values (mg/kg)
Antimony	5	32	5.4	0.6	5.4	5
Arsenic	6.5	6.5[d]	6.5[d]	1.0	6.5[d]	7
Barium	132	16,000	1,650	2	1,650	102
Beryllium	1.51	160	63.2	0.5	63.2	10
Boron	N/A	16,000	210	2	210	0.5
Cadmium	0.81	80	0.81[d]	0.5	0.81[d]	4
Chromium (Total)	18.5	120,000	2,000	1	2,000	42
Chromium (VI)	N/A	240	--[e]	0.5	--[e]	N/A
Cobalt	15.7	24	15.7[d]	2	15.7[d]	20
Copper	22.0	3,200	284	1	284	50
Lead	10.2	250	3,000	5.0	250	50
Lithium	33.5	160	192	2.5	160	35
Manganese	512	3,760	512[d]	5	512[d]	1,100
Mercury	0.33	24	2.09	0.2	2.09	0.1
Nickel	19.1	1,600	130	4	130	30
Selenium	0.78	400	5.2	1	5.2	0.3
Silver	0.73	400	13.6	0.2	13.6	2
Strontium	N/A	48,000	2,920	1	2,920	N/A
Thallium	N/A	5.6	1.59	1	1.59	1
Tin	N/A	48,000	48,000	10	48,000	50
Uranium (Soluble Salts)	3.21	240	3.21[d]	1	3.21[d]	5
Vanadium	85.1	560	2,240	2.5	560	2
Zinc	67.8	24,000	5,970	1	5,970	86
PCB Aroclor 1016	N/A	0.5	0.094	0.017	0.094	0.65
PCB Aroclor 1221	N/A	0.5	0.017[d]	0.017	0.017[d]	0.65
PCB Aroclor 1232	N/A	0.5	0.017[d]	0.017	0.017[d]	0.65
PCB Aroclor 1242	N/A	0.5	0.039	0.017	0.039	0.65
PCB Aroclor 1248	N/A	0.5	0.039	0.017	0.039	0.65
PCB Aroclor 1254	N/A	0.5	0.066	0.017	0.066	0.65
PCB Aroclor 1260	N/A	0.5	0.72	0.017	0.5	0.65
Acenaphthene	N/A	4,800	98	0.33	98	20

Table 2-2. Nonradiological Removal Action Levels

Contaminant of Concern	Background Concentration[a] (mg/kg)	Direct Exposure[b] (mg/kg)	Groundwater Protection[c] (mg/kg)	Required Detection Limit (mg/kg)	Removal Action Levels (mg/kg)	Ecological Risk Screening Values (mg/kg)
Acenaphthylene	N/A	4,800	98	0.33	98	N/A
Anthracene	N/A	24,000	2,270	0.33	2,270	N/A
Benzo(*a*)anthracene	N/A	1.37	0.86	0.33	0.86	N/A
Benzo(*a*)pyrene	N/A	0.137	0.233[f]	0.33	0.33[d]	12
Benzo(*b*)fluoranthene	N/A	1.37	2.95	0.33	1.37	N/A
Benzo(*g,h,i*)perylene	N/A	2,400	25,700	0.33	2,400	N/A
Benzo(*k*)fluoranthene	N/A	1.37	2.95[f]	0.33	1.37	N/A
Chrysene	N/A	13.7	9.56	0.33	9.56	N/A
Dibenz(*a,h*)anthracene	N/A	1.37	4.29	0.33	1.37	N/A
Fluoranthene	N/A	3,200	631	0.33	631	N/A
Fluorene	N/A	3,200	101	0.33	101	30
Indeno(*1,2,3-cd*)pyrene	N/A	1.37	8.33	0.33	1.37	N/A
Naphthalene	N/A	1,600	4.46	0.33	4.46	N/A
Phenanthrene	N/A	24,000	1,140	0.33	1,140	N/A
Pyrene	N/A	2,400	655	0.33	655	N/A
Carbon Tetrachloride[g]	N/A	7.69	0.0031	0.005	0.005	N/A
Xylene[h]	N/A	16,000	14.6	0.01	14.6	N/A
Nitrate (as Nitrogen)	11.8	128,000	40	0.75	40	N/A
TPH-Diesel	N/A	2,000	2,000	5	2,000	200
TPH-Kerosene	N/A	2,000	2,000	5	2,000	200
Fluoride[i]	N/A	4,800	16	5	16	N/A
Asbestos	N/A	N/A[j]	N/A[j]	N/A[j]	1 %[j]	N/A

Table 2-2. Nonradiological Removal Action Levels

Contaminant of Concern	Background Concentration[a] (mg/kg)	Direct Exposure[b] (mg/kg)	Groundwater Protection[c] (mg/kg)	Required Detection Limit (mg/kg)	Removal Action Levels (mg/kg)	Ecological Risk Screening Values (mg/kg)

a. If Hanford Site-specific background data are not available, values are then taken from Ecology Publication No. 94-115, *Natural Background Soil Metals Concentrations in Washington State*. Hanford Site background values are available from nonradiological background data in DOE/RL-92-24, Rev. 4, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, Table D9-2.

b. Direct contact values were calculated based on WAC 173-340-740, "Model Toxics Control Act—Cleanup," "Unrestricted Land Use Soil Cleanup Standards," using Method B methodology and assumptions.

c. The groundwater protection values were obtained using equations provided in WAC 173-340-747(4), "Deriving Soil Concentrations for Groundwater Protection," with the physical parameters obtained from http://www.ecy.wa.gov/.

d. Where cleanup levels are less than background or required detection limits, cleanup levels default to background or required detection limits in accordance with WAC 173-340-700(6)(d), "Overview of Cleanup Standards," and WAC 173-340-707(2), "Analytical Considerations," respectively.

e. Based on process knowledge, chromium (VI) is not expected to be present at 200-MG-1 OU waste sites. The following values are given to help guide cleanup:

- 0.2 mg/kg—calculated value using $K_d = 0$, based on PNNL-13895, *Hanford Contaminant Distribution Coefficient Database and Users Guide*, and WAC 173-340-747, equation 747-1.
- 2.1 mg/kg—based on DOE/RL-96-17, *Remedial Design Report/Remedial Action Work Plan for the 100 Area.*
- 18.4 mg/kg—based on Ecology, 2007, Cleanup Levels and Risk Calculations (CLARC) database.

f. The soil concentrations for protection of groundwater values for benzo(*a*)pyrene and benzo(*k*)fluoranthene were incorrectly reported in DOE/RL-2009-48, *Action Memorandum for Non-Time-Critical Removal Action for 11 Waste Sites in 200-MG-1 Operable Unit*, and have been corrected.

g. Carbon tetrachloride is applicable to the 11 waste sites authorized by DOE/RL-2009-48.

h. Xylene is applicable only to the 200-W-3, 216-S-19, and 216-S-26 waste sites.

i. Fluoride is added as a COPC for select sites, such as 216-S-19 and 216-S-26, based on process history.

j. The RAL for asbestos in soil is one percent by weight (measured using polarized light microscopy). EPA has used this value for determining if response actions for asbestos should be undertaken (Cook, 2004, "Clarifying Cleanup Goals and Identification of New Assessment Tools for Evaluating Asbestos at Superfund Cleanups"). Further evaluation of removal actions for asbestos will be conducted as needed on a site-specific basis in the Outer Area RI/FS.

Ecological screening values, which are based on WAC 173-340-900 "Model Toxics Control Act—Cleanup," "Tables," Table 749-3, are used for screening purposes only and are not considered cleanup levels for this CERCLA removal action (described more fully in Chapter 5 of the Action Memorandum [DOE/RL-2009-86]). If analytical results exceed the ecological screening values, the results will be further evaluated during the final ecological risk assessment in accordance with the remedial investigation/feasibility study (RI/FS) for the Central Plateau in order to make the final cleanup decisions.

2.2.2 Exposure and Land Use Assumptions

The 200-W-147-PL-A waste site is located within the Central Plateau, as discussed in more detail in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86) for the 200-MG-1 OU. Land use for the Central Plateau is designated for reasonably anticipated future uses recognized in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86) (for the purposes of this interim action, RAOs were selected that would support unrestricted land use).

2.2.3 Design Summary

RTD was the selected alternative for the 200-W-147-PL-A waste site based on available historical information and process knowledge. Following RTD activities at the waste site, verification sampling was conducted to confirm that residual concentrations of COPCs in soil were less than or equal to the RALs. The sampling objectives for the 200-W-147-PL-A waste site included visual inspection of the excavation trench and the collection of soil samples from the waste site as described in Section 3.1 of this report.

Key features of the site-specific sampling design for the 200-W-147-PL-A waste site included the following:

- During excavation, direct visual inspection of the site surface was performed, using available site information as a guide for visual cues such as staining, discoloration, absence of vegetation, presence of debris, and other anomalies.
- Radiological field screening was performed at the surface of the waste site to provide an indication of the presence of radiological COPCs.
- Statistical sampling with a parametric random approach was performed, per the methodology prescribed in the SAP (DOE/RL-2009-60), in the excavated areas for the verification sampling evolution.

2.3 Decision Document Amendments, Significant Differences, or Waivers

No amendments to the EE/CA (DOE/RL-2008-44) or Action Memorandum (DOE/RL-2009-86), or technical impracticability waivers, were associated with this removal action. A Tri-Party Agreement change notice (TPA-CN-350) has been approved for the Action Memorandum (DOE/RL-2009-86) to add sites, including the 200-W-147-PL-A waste site, to the scope of the removal action, as authorized by Section 1.5.2 of the EE/CA (DOE/RL-2008-44).

3 Response Activity Summary

As stated in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86), the selected alternative for the 200-W-147-PL-A waste site was RTD. Available historical information and process knowledge, per the provisions of the Action Memorandum (DOE/RL-2009-86), substantiated the implementation of RTD at the waste site without requiring additional site investigation. Upon completion of RTD activities, verification sampling was conducted to demonstrate that contaminant concentrations in soil at the 200-W-147-PL-A waste site were less than or equal to the RALs, thus demonstrating that the RAOs established for this interim action were met.

3.1 Summary of Activities

The removal action at the 200-W-147-PL-A waste site was conducted from November 2010 through June 2011 and included the removal of overburden soil, and the pipeline itself, followed by collection of soil samples from locations within the excavation trench, as specified in Section 2.2, and per the methodologies prescribed in the SAP (DOE/RL-2009-60).

The following key activities were pertinent to the removal action at the 200-W-147-PL-A waste site:

- Excavation of soil, under the RTD alternative, along the 200-W-147-PL-A pipeline (Figure 3-1), removal of the vitrified clay pipe itself, and underlying soil
- Collection of samples selected based on a statistical sampling design with a parametric random approach from the excavation trench for verification purposes, laboratory analysis of soil samples for COPCs, and evaluation of analytical results to demonstrate achievement of RALs

3.1.1 Waste Site 200-W-147-PL-A Initial Sampling

The selected alternative for the 200-W-147-PL-A waste site was RTD, and based on available site information, excavation of the waste site soil and pipeline was performed without requiring initial sampling; therefore, this section is not applicable.

3.1.2 Waste Site Excavation

The RTD alternative was applied to the waste site area in accordance with the Action Memorandum (DOE/RL-2009-86), and RTD activities commenced in November 2010.

The removal of the 200-W-147-PL-A:1 and 200-W-147-PL-A:2 subsites of the pipeline, and adjacent soils, was completed using radiological field screening and visual indicators to determine the extent of excavation. Where radiological dose rates greater than background were found, excavation continued in the area. The vertical extent of excavation ranged from 3 to 4.6 m (10 to 15 ft) bgs. The lateral extent of excavation at the waste site was determined utilizing visual and radiological indicators.

3.1.3 Waste Site 200-W-147-PL-A Verification Sampling

Visual Sample Plan™ software was utilized to implement a statistically-based verification sample design with a parametric random approach. Eight sample locations were selected along the 200-W-147-PL-A waste site trench (Figure 3-1), to be collected from the base of the excavation. The samples were analyzed for the full suite of COPCs, listed in Tables 2-1 and 2-2 of this report, except for the metals COPCs which were based on the ten metals constituents identified in DOE/RL-91-60, *S Plant Aggregate Area Management Study Report*, as being COPCs for the 222-S Complex. Analytical data reported a maximum

™ PNNL-16939, *Visual Sample Plan, Version 5.0 User's Guide*. Visual Sample Plan is a registered trademark of Pacific Northwest National Laboratory, Richland, Washington.

concentration of arsenic of 10.8 mg/kg; however, arsenic was not considered a COPC for the 200-W-147-PL-A waste site. Reported values are consistent with recorded background values for arsenic at the Hanford Site, and do not indicate a source of contamination.

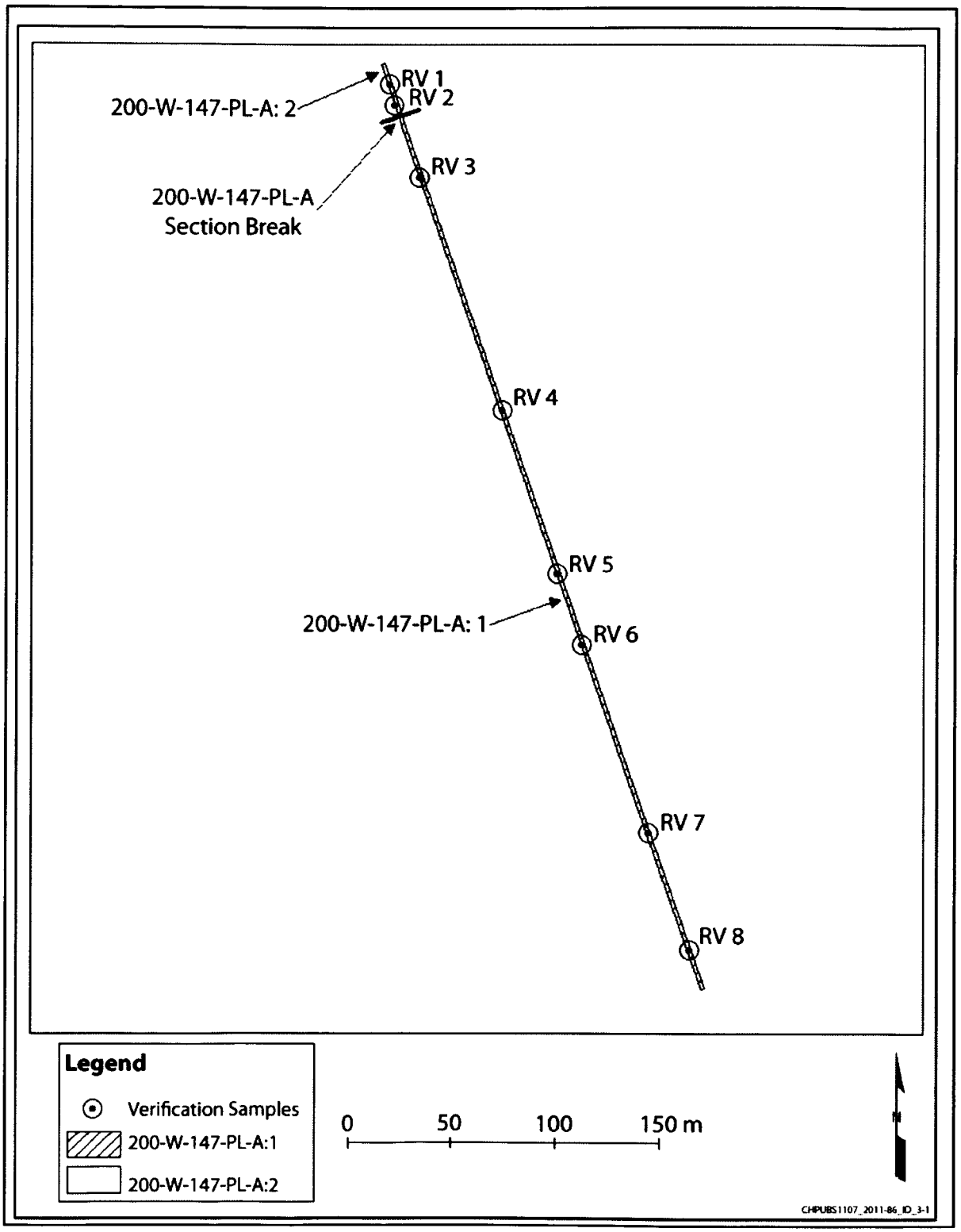

Figure 3-1. Verification Sampling Locations at the 200-W-147-PL-A Waste Site

3.1.4 Backfill and Revegetation

As described in Section 2.1 and Section 5.5.1of the RAWP (DOE/RL-2009-53), backfill and/or contouring may take place upon concurrence by the signing parties that the RAOs have been attained. Finalization of a backfill concurrence form provided to the agency(ies) provided concurrence that the 200-W-147-PL-A waste site had achieved the established RAOs and thus backfill and/or contouring proceeded at the waste site. As a result of fieldwork logistics and safety concerns during RTD activities, the 200-W-147-PL-A waste site was split into two subsites. The backfill concurrence forms for 200-W-147-PL-A:1 and 200-W-147-PL-A:2 were approved by the regulatory agency(ies) on April 14, 2011 and June 21, 2011, respectively. Backfill of the 200-W-147-PL-A waste site was completed on July 11, 2011.

In accordance with the ecological compliance review conducted for the 200-W-147-PL-A waste site, this area does not meet the requirements of a Level III or Level IV designation as described in DOE/RL-96-32, *Hanford Site Biological Resources Management Plan*; therefore, revegetation at the 200-W-147-PL-A waste site is not required. DOE may elect to revegetate the waste site at a future date for aesthetic purposes.

3.1.5 Statement of Protectiveness

In accordance with the SAP (DOE/RL-2009-60), the soil at the 200-W-147-PL-A waste site has been sampled, analyzed, and evaluated. The results obtained through implementation of the RTD alternative demonstrate that concentrations of COPCs in the soil at the 200-W-147-PL-A waste site are less than established RALs (discussed in further detail in Chapter 5). These results also indicate that residual concentrations will support reasonably anticipated future land use recognized in the EE/CA (DOE/RL-2008-44) and Action Memorandum (DOE/RL-2009-86) and demonstrate that residual concentrations of COPCs in soil throughout the site are unlikely to affect groundwater or the Columbia River. As summarized in Chapter 5, a review of the sampling results showed that the removal action at the 200-W-147-PL-A waste site has demonstrated achievement of the RAOs established in the Action Memorandum (DOE/RL-2009-86) and identified in the RAWP (DOE/RL-2009-53).

4 Chronology of Events

Table 4-1 presents a chronology of major events associated with sampling the subject waste site. The chronology includes approval of the regulatory documents that form the basis of the removal action and key fieldwork activities associated with the removal action.

Table 4-1. Removal Action Chronology

Date	Event
June 5, 2009	DOE/RL-2008-44, *Engineering Evaluation/Cost Analysis for the 200-MG-1 Operable Unit Waste Sites*, Rev. 0 approved.
April 15, 2010	DOE/RL-2009-86, *Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit*, Rev. 0 approved.
April 21, 2010	Draft of DOE/RL-2009-53, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit*, Rev. 1 completed and routed for approval.
May 20, 2010	Draft of DOE/RL-2009-60, *Sampling and Analysis Plan for Selected 200-MG-1 Operable Unit Waste Sites*, Rev. 1 completed and routed for approval.
October 7, 2010	DOE/RL-2009-53, Rev. 1, approved.
October 20, 2010	TPA-CN-350, *Tri-Party Agreement Change Notice Form: DOE/RL-2009-86, Action Memorandum for Non-Time-Critical Removal Action for 37 Waste Sites in the 200-MG-1 Operable Unit*, Rev. 0, approved.
November 3, 2010	RTD of the 200-W-147-PL-A:1 subsite commenced.
January 10, 2011	DOE/RL-2009-60, Rev. 1, approved.
January 20, 2011	RTD of the 200-W-147-PL-A:1 subsite complete
March 9, 2011	Verification sampling of the 200-W-147-PL-A:1 portion of the waste site completed.
April 11, 2011	Laboratory analytical and data evaluation for 200-W-147-PL-A:1 completed.
April 14, 2011	Backfill Concurrence Form for 200-W-147-PL-A:1 approved.
May 12, 2011	RTD of the 200-W-147-PL-A:2 subsite commenced.
May 18, 2011	RTD of the 200-W-147-PL-A:2 subsite completed
May 31, 2011	Verification sampling of the 200-W-147-PL-A:2 portion of the waste site completed.
June 16, 2011	Laboratory analytical and data evaluation completed.
June 21, 2011	Backfill Concurrence Form for 200-W-147-PL-A:2 approved.
July 11, 2011	Backfill of 200-W-147-PL-A waste site completed.

5 Performance Standards and Construction Quality Control

This chapter addresses the process for demonstrating achievement of performance standards, which include attaining RALs and RAOs and maintaining the required quality control (QC) during removal activities.

5.1 Attainment of Performance Standards

Verification soil sampling, laboratory analysis, and data evaluation conducted after RTD activities confirm that the 200-W-147-PL-A waste site meets the RAOs identified in the Action Memorandum (DOE/RL-2009-86), and residual levels of COPCs remaining in the soil are less than or equal to the RALs. As shown in Table 5-1, RAOs 1 and 2 are achieved by preventing unacceptable risk to human health and the environment through direct exposure to soils and debris by reducing the soil concentration of COPCs to less than or equal to the RALs. RAO 3 is achieved by preventing migration and/or leaching of radiological and nonradiological contamination to groundwater by reducing the soil concentration of COPCs to less than or equal to the RALs. RAO 4 is met through cultural and ecological evaluation, performed in July 2010 and June 2010, respectively, and by the implementation of considerations and recommendations during work activities. Demonstration that the soil concentration of of COPCs is less than or equal to RALs (Tables 5-2 and 5-3), meets RAOs 1, 2, and 3.

Table 5-1. Summary of Attainment of Cleanup Objectives

Removal Action Objective	Compliance Methods	Removal Action Objective Attained?
RAO 1: Prevent unacceptable risk to human health and ecological receptors from exposure to soils and/or debris contaminated with nonradiological constituents to 4.6 m (15 ft) bgs at concentrations above the appropriate RALs.	Achieved through verification soil sampling, performed upon completion of RTD activities, which demonstrated that all individual COPC concentrations are less than or equal to the RALs.	Yes
RAO 2: Prevent unacceptable risk to human health and ecological receptors from exposure to soils and/or debris contaminated with radiological constituents to 4.6 m (15 ft) bgs at concentrations above the appropriate RALs.	Achieved through the radiological survey of soils within the waste site, conducted during site evaluation and sampling evolutions, and verification soil sampling performed upon completion of RTD activities, both of which demonstrated that all individual radiological COPC concentrations are less than or equal to the RALs.	Yes
RAO 3: Control the sources of groundwater contamination to minimize impacts to groundwater resources, protect the Columbia River from adverse impacts, and reduce the degree of groundwater cleanup that may be required under future actions.	Achieved through verification soil sampling, performed upon completion of RTD activities, which demonstrated that concentrations of COPCs in soil were less than established RALs.	Yes
RAO 4: Prevent adverse impacts to cultural resources and threatened or endangered species, and minimize wildlife habitat disruption.	Achieved through cultural and ecological evaluation and the implementation of considerations during removal activities to minimize wildlife habitat and cultural artifact disruption.	Yes

Per the methodology prescribed in the RAWP (DOE/RL-2009-53) and SAP (DOE/RL-2009-60), and based on the available site historical information and process knowledge, the RTD alternative was implemented at the 200-147-PL-A waste site. Excavation of soil and removal of the pipeline were conducted at the waste site, followed by verification sampling evolutions performed for each subsite in March and May 2011. The maximum sampling analytical results, provided in Tables 5-2 and 5-3, demonstrate that there are no radiological or chemical COPC concentrations greater than the RALs remaining in soil at the 200-W-147-PL-A waste site after RTD, thus meeting RAOs 1, 2, and 3. A complete summary of analytical results can be found in Tables A-1 and A-2 (Appendix A).

This waste site and the data obtained from the subject sampling evolutions will be included in the RI/FS for final remedial action of the Outer Area.

5.1.1 Performance Standard Documentation

This response action report addresses the individual 200-W-147-PL-A waste site and not an OU; therefore, this section is not applicable.

5.1.2 Response Action Objectives Verification

RAO performance standard attainment involves comparisons of soil analytical data to RALs. The RALs, identified in the Action Memorandum (DOE/RL-2009-86) and RAWP (DOE/RL-2009-53), are directly compared to the maximum results from the verification analytical data (Table 5-2). The full set of analytical results from all samples collected is provided in Appendix A.

5.1.3 Contaminant Identification

Tables 5-2 and 5-3 provide a direct comparison of verification sample analytical results for each radiological and nonradiological COPC against the established RALs for the 200-W-147-PL-A waste site.

Table 5-2. Comparison of Verification Sample Results Against Removal Action Levels for Radiological Contaminants of Potential Concern

Contaminant of Potential Concern	Background Concentration* (mg/kg)	Removal Action Level (mg/kg)	Maximum Concentration in Soil (mg/kg)	Does the Maximum Exceed Removal Action Levels?
Americium-241	N/A	31.1	0.11	No
Cesium-137	1.1	6.2	0.068	No
Cobalt-60	0.008	0.05	U	No
Europium-152	N/A	3.3	U	No
Europium-154	0.033	3.0	U	No
Europium-155	0.054	125	U	No
Plutonium-238	0.004	38.8	U	No
Plutonium-239/240	0.025	33.9	0.1	No
Strontium-90	0.18	4.5	1.8	No
Technetium-99	N/A	15.0	U	No
Tritium	N/A	30.0	U	No
Uranium-233/234	1.1	1.1	0.28	No
Uranium-235	0.11	0.5	0.04	No
Uranium-238	1.1	1.1	0.26	No

* If Hanford Site-specific background data are not available, values are then taken from Ecology Publication No. 94-115, *Natural Background Soil Metals Concentrations in Washington State*. Hanford Site background values are available from radiological background data from DOE/RL-96-12, *Hanford Site Background: Part 2, Soil Background for Radionuclides*, Table 4.

U = analyzed for, but not detected above, laboratory detection limit

Table 5-3. Comparison of Verification Sample Results Against Removal Action Levels for Nonradiological Contaminants of Potential Concern

Contaminant of Potential Concern	Background Concentration[a] (mg/kg)	Removal Action Levels (mg/kg)	Maximum Concentration in Soil (mg/kg)	Does the Maximum Exceed Removal Action Levels?
Metals				
Barium	132	1,650	125	No
Cadmium	0.81	0.81[b]	0.113	No
Chromium (Total)	18.5	2,000	9.84	No
Copper	22.0	284	16.5	No
Lead	10.2	250	6.53	No
Manganese	512	512[b]	495	No
Nickel	19.1	130	12.2	No
Silver	0.73	13.6	U	No
Vanadium	85.1	560	86.5	No
Zinc	67.8	5,970	57.8	No
Polychlorinated Biphenyls				
Aroclor 1016	N/A	0.094	U	No
Aroclor 1221	N/A	0.017[b]	U	No
Aroclor 1232	N/A	0.017[b]	U	No
Aroclor 1242	N/A	0.039	U	No
Aroclor 1248	N/A	0.039	U	No
Aroclor 1254	N/A	0.066	U	No
Aroclor 1260	N/A	0.5	U	No
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	N/A	98	U	No
Acenaphthylene	N/A	98	U	No
Anthracene	N/A	2,270	U	No
Benzo(*a*)anthracene	N/A	0.86	U	No
Benzo(*a*)pyrene	N/A	0.33[b]	U	No
Benzo(*b*)fluoranthene	N/A	1.37	U	No
Benzo(*g,h,i*)perylene	N/A	2,400	U	No
Benzo(*k*)fluoranthene	N/A	1.37	U	No
Chrysene	N/A	9.56	U	No

Table 5-3. Comparison of Verification Sample Results Against Removal Action Levels for Nonradiological Contaminants of Potential Concern

Contaminant of Potential Concern	Background Concentration[a] (mg/kg)	Removal Action Levels (mg/kg)	Maximum Concentration in Soil (mg/kg)	Does the Maximum Exceed Removal Action Levels?
Dibenz(*a,h*)anthracene	N/A	1.37	U	No
Fluoranthene	N/A	631	U	No
Fluorene	N/A	101	U	No
Indeno(*1,2,3-cd*)pyrene	N/A	1.37	U	No
Naphthalene	N/A	4.46	U	No
Phenanthrene	N/A	1,140	U	No
Pyrene	N/A	655	U	No
Anions				
Fluoride	N/A	16	U	No
Nitrate (as Nitrogen)	11.8	40	8.41	No
Total Petroleum Hydrocarbons				
Diesel	N/A	2,000	U	No
Kerosene	N/A	2,000	U	No
Volatile Organic Analytes				
Carbon Tetrachloride	N/A	0.005	U	No
Xylene	N/A	14.6	U	No

a. If Hanford Site-specific background data are not available, values are then taken from Ecology Publication 94-115, *Natural Background Soil Metals Concentrations in Washington State*. Hanford Site background values are available from nonradiological background data in DOE/RL-92-24, *Hanford Site Soil Background: Part 1, Soil Background for Nonradioactive Analytes*, Table D9-2.

b. Where cleanup levels are less than background or RDLs, cleanup levels default to background or RDLs in accordance with WAC 173-340-700(6)(d), "Overview of Cleanup Standards," and WAC 173-340-707(2), "Analytical Considerations," respectively.

U = result is below laboratory detection limit

5.2 Construction Quality Assurance/Quality Control

No construction-related aspects were implemented as part of the selected alternative for the 200-W-147-PL-A waste site; therefore, this section is not applicable.

5.3 Cleanup Verification Quality Assurance/Quality Control

A data quality assessment (DQA) review was performed to compare the sampling approach and analytical data with the sampling and data requirements specified by the SAP (DOE/RL-2009-60). This review involves evaluation of the data to determine if they are of the right type, quality, and quantity to support

the intended use. The assessment review completes the data life cycle (i.e., planning, implementation, and assessment) that was initiated by the data quality process.

Level C data validation as defined in the contractor's validation procedures, which are based on EPA functional guidelines (Bleyler, 1988a, *Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses*; Bleyler, 1988b, *Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*), was performed for the entire sampling and analysis data package for the verification samples collected for the 200-W-147-PL-A waste site. Level C validation is a review of the QC data and specifically requires verification of deliverables and requested versus reported analyses and qualification of the results based on analytical holding times, method blank results, matrix spike/matrix spike duplicates, surrogate recoveries, duplicates, and analytical method blanks. Specific data quality objectives for the site are found in the SAP (DOE/RL-2009-60).

All of the sampling and analysis data generated from the sampling at the 200-W-147-PL-A waste site are tracked through the Hanford Environmental Information System (HEIS). All of the sampling and analysis data for the 200-W-147-PL-A waste site were found to be useable for decision making purposes as provided in the following summary:

HEIS Identification Numbers: B2BNR5/B2BNJ9/B2BNL4/B2BNP0, B2BNR6/B2BNK0/B2BNL5/B2BNP1, B2BNR7/B2BNK1/B2BNL6/B2BNP2, B2BNR8/B2BNK2/B2BNL7/B2BNP3, B2BNT0/B2BNK4/B2BNL9/B2BNP5, B2BNT1/B2BNK5/B2BNM0/B2BNP6, B2BNT2/B2BNK6/B2BNM1/B2BNP7, and B2BNT3/B2BNK7/B2BNM2/B2BNP8

Blanks: Equipment blanks (B2BNM9/B2BNV0, B2BNN0/B2BNV1, and B2CMF5/B2CMF6) and field transfer blanks (B2BNN1, B2BNN2, and B2CMF9) were received intact to the laboratory, and holding times were acceptable.

Field Duplicates: The duplicate (B2BNR9/B2BNK3/B2BNL8/B2BNP4) results were acceptable.

Data Completeness: Analytical reports were submitted for validation and verified for completeness based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100 percent. The data have been determined to be useable for decision making purposes. The final results narrative supporting the sampling analysis activities and findings and copies of chains of custody were transmitted in letter reports from the laboratory.

Field Screening: Relative to analytical data in sample media, physical data and/or field screening results are of lesser importance in making inferences of risk. Because of the secondary importance of such data, no validation for physical property data and/or field screening results was performed. However, field quality assurance (QA) and QC were reviewed to ensure that the data are useable. Field instrumentation, calibration, and QA checks were performed in accordance with the following:

- Calibration of radiological field instruments (such as Geiger-Müeller and portable alpha meters) on the Hanford Site is performed under contract by Pacific Northwest National Laboratory, as specified in their program documentation.
- Daily calibration checks are performed and documented for each instrument used in support of waste site sampling and investigation. These checks are made on standard materials that are sufficiently like the matrix under consideration, so a direct comparison of data can be made. Daily calibration checks of radiological field instruments were performed by trained and qualified radiological control technicians in accordance with established program requirements.

The review and approval of completed field radiation surveys by the radiological controls organization represent the data validation and usability review for handheld field radiological measurements.

The DQA review for the 200-W-147-PL-A waste site found the analytical results to be accurate within the standard errors associated with the methods, including sampling and sample handling. The data are of the correct type, quality, and quantity to support the intended use. Detection limits, precision, accuracy, and sampling data group completeness were assessed to determine if any analytical results should be rejected because of QA/QC deficiencies. All analytical data were found acceptable for decision making purposes. All of the sampling analytical data are stored in HEIS.

5.4 Regulatory Oversight

This document provides a summary of the removal action taken at the 200-W-147-PL-A waste site. It shows a comparison of the data collected to RALs authorized in approved regulatory documents and provides the basis to reclassify the waste site status (see Chapter 9). Though this report does not require approval by Ecology or EPA, concurrence of those agencies is necessary, under CERCLA Section 120 and the Tri-Party Agreement, for determinations concerning follow-on remedial actions. This report is therefore provided to the agency (or agencies) for review, in accordance with the approval process for waste site reclassification, as supporting documentation. Upon approval of the waste site reclassification, a copy of this report shall be maintained in the Administrative Record. No additional regulatory oversight was required for the sampling of the 200-W-147-PL-A waste site.

6 Final Inspection and Certifications

There were no final inspections or certifications required in the implementation of the selected alternative for the 200-W-147-PL-A waste site; therefore, this chapter is not applicable.

7 Operations and Maintenance Activities

This chapter discusses the operations and maintenance (O&M) for the 200-W-147-PL-A waste site.

7.1 Remedy Related Operations and Maintenance or Monitoring

There are no O&M activities or monitoring requirements for the 200-W-147-PL-A waste site; therefore, this section is not applicable.

7.2 Institutional Controls

Based on the analyses performed and presented in this report, there are no waste site-specific institutional controls required at the 200-W-147-PL-A waste site.

7.3 Five-Year Reviews

Five-year reviews are required by CERCLA for post-ROD remedial actions, which do not apply to the 200-W-147-PL-A waste site. This waste site and the data obtained from the subject sampling evolutions will be included in the risk assessment and RI/FS for final remedial action of the Outer Area.

8 Summary of Project Costs

For the purposes of reporting costs of removal action for the 200-W-147-PL-A waste site, costs are prorated utilizing an activity/schedule-based methodology (Table 8-1). This method is not considered to be audit quality data. Actual costs for waste site cleanup will continue to be collected for each OU or closure area in accordance with the current cost tracking methodology. These costs will then be included, in accordance with CERCLA requirements, in the response action report for the final remedial action of the OU or closure area.

Table 8-1. Cost Summary

Cost Item	Actual Cost Fiscal Year 2010 ($)	Actual Cost Fiscal Year 2011 ($)	Actual Total Cost ($)
Removal Action Capital (Construction) Costs	0	0	0
Removal Action Operating Costs	410,706.46	2,950,196.40	3,360,902.86
Total Removal Action Cost	410,706.46	2,950,196.40	3,360,902.86
Projected Yearly Operations and Maintenance Cost	0	0	0

9 Waste Site Reclassification

The waste site reclassification form for the 200-W-147-PL-A waste site is proposed and processed in accordance with the procedures and definitions described in RL-TPA-90-0001, *Tri-Party Agreement Handbook Management Procedures*, Guideline Number TPA-MP-14, "Maintenance of the Waste Information Data System (WIDS)." Reclassification form 2011-075 for the 200-W-147-PL-A waste site, which encompasses subsites 200-W-147-PL-A:1 and 200-W-147-PL-A:2, proposes that the status of this waste site be changed to "interim closed out." Per RL-TPA-90-0001, "interim closed out" status indicates that a site meets the cleanup standards specified in the approved 200-MG-1 Action Memorandum (DOE/RL-2009-86), (i.e., the interim response action decision document). This site will be evaluated under the cleanup standards established for the final ROD for this area.

10 Observations and Lessons Learned

There were no observations or lessons learned applicable for inclusion in this report.

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Appendix A

Sampling Results for the 200-W-147-PL-A Waste Site

A1 Sampling Results for the 200-W-147-PL-A Waste Site

This appendix contains laboratory analytical results from the sampling conducted at the 200-W-147-PL-A waste site (Tables A-1 and A-2). The following information is provided in the table headings: Hanford Environmental Information System identification numbers and field sample identifiers. Surface samples were collected from 0 to 0.3 m (0 to 1 ft) below the base of the excavation, which ranged in vertical depth from approximately 3 to 4.6 m (10 to 15 ft) below original grade.

- Table A-1 provides final verification sampling results for radiological contaminants of potential concern (COPCs), which demonstrate that concentrations of COPCs were less than removal action level (RALs), thereby attesting to the achievement of established RALs and corresponding removal action objectives (RAOs).
- Table A-2 provides final verification sampling results for nonradiological COPCs, which demonstrate that concentrations of COPCs were less than RALs, thereby attesting to the achievement of established RALs and corresponding RAOs.

Table A-1. Analytical Results for Verification Sampling for Radiological Contaminants

Contaminant	Removal Action Levels[a] (pCi/g)	Required Detection Limit (pCi/g)	Maximum Reported Laboratory Method Detection Limit (pCi/g)	Background Activity[b] (pCi/g)	B2BNJ9 B2BNL4 B2BNR5 B2BNP0 RV 1 Surface (pCi/g)	B2BNK0 B2BNL5 B2BNR6 B2BNP1 RV 2 Surface (pCi/g)	B2BNK1 B2BNL6 B2BNR7 B2BNP2 RV3 Surface (pCi/g)	B2BNK2 B2BNL7 B2BNR8 B2BNP3 RV 4 Surface (pCi/g)	B2BNK4 B2BNL9 B2BNT0 B2BNP5 RV 5 Surface (pCi/g)	B2BNK5 B2BNM0 B2BNT1 B2BNP6 RV 6 Surface (pCi/g)	B2BNK6 B2BNM1 B2BNT2 B2BNP7 RV 7 Surface (pCi/g)	B2BNK7 B2BNM2 B2BNT3 B2BNP8 RV 8 Surface (pCi/g)
Americium-241	31.1	1.0	0.079	N/A	U	U	0.015	0.11	0.057	0.037	0.019	0.035
Cesium-137	6.2	0.1	0.064	1.1	U	U	U	U	U	0.068	U	U
Cobalt-60	1.4	0.05	0.054[c]	0.008	U	U	U	U	U	U	U	U
Europium-152	3.3	0.1	0.16[c]	N/A	U	U	U	U	U	U	U	U
Europium-154	3	0.1	0.19[c]	0.033	U	U	U	U	U	U	U	U
Europium-155	125	0.1	0.25[c]	0.054	U	U	U	U	U	U	U	U
Plutonium-238	38.8	1.0	0.078	0.004	U	U	U	U	U	U	U	U
Plutonium-239/240	33.9	1.0	0.021	0.025	0.026	U	U	0.1	0.013	0.012	U	U
Strontium-90	4.5	1.0	0.33	0.18	1.8	U	U	U	U	U	U	U
Technetium-99	15	15	0.48	N/A	U	U	U	U	U	U	U	U
Tritium	30	30	8.52	N/A	U	U	U	U	U	U	U	U
Uranium-233/234	1.1	1.0	0.024	1.1	0.16	0.11	0.17	0.23	0.18	0.21	0.24	0.28
Uranium-235	0.5	0.5	0.021	0.11	U	0.21	0.028	0.029	0.013	0.015	0.04	0.03
Uranium-238	1.1	1.0	0.025	1.1	0.17	0.15	0.2	0.23	0.22	0.25	0.24	0.26

a. Removal action levels are from DOE/RL-2009-53, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit* (RAWP).

b. Hanford Site background values for radiological background data are available from DOE/RL-96-12, *Hanford Site Background: Part 2, Soil Background for Radionuclides*, Table 4.

c. Maximum reported laboratory detection limits were greater than the required detection limits per the RAWP (DOE/RL-2009-53); however, analytical results are less than the established removal action levels and meet the corresponding removal action objectives.

N/A = not available

U = analyzed for, but not detected above, laboratory method detection limit

Table A-2. Analytical Results for Verification Sampling for Nonradiological Contaminants

Contaminant	Removal Action Levels[a] (mg/kg)	Required Detection Limit (mg/kg)	Maximum Reported Laboratory Method Detection Limit (mg/kg)	Background Concentration[b] (mg/kg)	B2BNJ9 B2BNL4 B2BNR5 B2BNP0 RV 1 Surface (mg/kg)	B2BNK0 B2BNL5 B2BNR6 B2BNP1 RV 2 Surface (mg/kg)	B2BNK1 B2BNL6 B2BNR7 B2BNP2 RV3 Surface (mg/kg)	B2BNK2 B2BNL7 B2BNR8 B2BNP3 RV 4 Surface (mg/kg)	B2BNK4 B2BNL9 B2BNT0 B2BNP5 RV 5 Surface (mg/kg)	B2BNK5 B2BNM0 B2BNT1 B2BNP6 RV 6 Surface (mg/kg)	B2BNK6 B2BNM1 B2BNT2 B2BNP7 RV 7 Surface (mg/kg)	B2BNK7 B2BNM2 B2BNT3 B2BNP8 RV 8 Surface (mg/kg)
Metals												
Antimony	5.4	0.6	0.33	5	U	U	U	U	U	U	U	U
Arsenic	6.5[c]	1	0.44	6.5	2.87	3.63	7.81[d]	6.32	6.03	6.19	6.3	10.8[d]
Barium	1,650	2	0.22	132	68.4	78.2	109	116	105	125	116	125
Beryllium	63.2	0.5	0.11	1.51	0.178	0.275	0.374	0.362	0.439	0.358	0.336	0.39
Boron	210	2	45[e]	N/A	4.55	3.74	U	U	U	U	U	U
Cadmium	0.81[c]	0.5	0.11	0.81	U	U	0.1	0.107	U	U	U	0.113
Chromium (Total)	2,000	1	0.55	18.5	5.19	7.26	7.99	8.52	7.33	8.3	9.84	7.94
Chromium (VI)	2.1	0.5	0.11	N/A	0.0504	U	U	U	U	U	U	U
Cobalt	15.7[c]	2	0.11	15.7	9.6	9.79	11.6	10.7	10.9	10.7	10.3	10.9
Copper	284	1	0.11	22	12.4	14.1	16.5	14	14.1	15.4	14.2	14.6
Lead	250	5	0.11	10.2	3.1	4.31	6.52	6.44	5.95	6.4	5.49	6.53
Lithium	160	2.5	4.4[e]	33.5	3.51	4.37	9.02	10	9.02	10.1	10.7	10.9
Manganese	512[c]	5	0.11	512	347	330	482	471	454	476	474	461
Mercury	2.09	0.2	0.055	0.33	U	U	U	U	U	U	U	U
Nickel	130	4	0.22	19.1	7.63	8.82	10.3	11.4	9.58	10.2	12.2	10.1
Selenium	5.2	1	0.33	0.78	0.793	0.881	1.83	1.52	1.03	1.19	1.39	1.06
Silver	13.6	0.2	0.11	0.73	U	U	U	U	U	U	U	U
Strontium	2,920	1	0.11	N/A	24.1	24.9	32	35.7	35.3	39.9	39	46
Thallium	1.59	1	0.11	0.1	U	U	U	0.106	U	0.164	0.111	0.115
Tin	48,000	10	0.11	N/A	0.395	0.416	0.482	0.484	0.503	0.537	0.443	0.515
Uranium	3.21[c]	1	0.11	3.21	0.521	0.53	0.675	1.28	0.784	0.692	0.691	0.847
Vanadium	560	2.5	0.22	85.1	76.3	78.7	86.5	72.8	76.8	72.7	64.6	76.7
Zinc	5,970	1	0.88	67.8	46.5	49.3	57.8	53.4	52.6	53	49.3	52.1
Anions												
Fluoride	16	5	1.9	N/A	U	U	U	U	U	U	U	U

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Nitrate-N	40	0.75	1.7[c]	11.8	8.41	7.66	U	U	U	U	NA	NA
Polynuclear Aromatic Hydrocarbons												
Acenaphthene	98	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Acenaphthylene	98	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Anthracene	2,270	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Benzo(*a*)anthracene	0.86	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Benzo(*a*)pyrene	0.33[c]	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Benzo(*b*)fluoranthene	1.37	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Benzo(*k*)fluoranthene	1.37	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Benzo(*g,h,i*)perylene	2,400	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Chrysene	9.56	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Dibenzo(*a,h*)anthracene	1.37	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Fluoranthene	631	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Fluorene	101	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Indeno(*1,2,3-cd*)pyrene	1.37	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Naphthalene	4.46	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Phenanthrene	1,140	0.33	0.2	N/A	U	U	U	U	U	U	U	U
Pyrene	655	0.5	0.2	N/A	U	U	U	U	U	U	U	U
Polychlorinated Biphenyls												
Aroclor 1016	0.094	0.017	0.004	N/A	U	U	U	U	U	U	U	U
Aroclor 1221	0.017[c]	0.017	0.009	N/A	U	U	U	U	U	U	U	U
Aroclor 1232	0.017[c]	0.017	0.004	N/A	U	U	U	U	U	U	U	U
Aroclor 1242	0.039	0.017	0.004	N/A	U	U	U	U	U	U	U	U
Aroclor 1248	0.039	0.017	0.004	N/A	U	U	U	U	U	U	U	U
Aroclor 1254	0.066	0.017	0.004	N/A	U	U	U	U	U	U	U	U
Aroclor 1260	0.5	0.017	0.004	N/A	U	U	U	U	U	U	U	U

Table A-2. Analytical Results for Verification Sampling for Nonradiological Contaminants

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Volatile Organic Analytes												
Carbon Tetrachloride	0.005	0.005	0.001	N/A	U	U	U	U	U	U	U	U
Xylene	14.6	0.01	0.001	N/A	U	U	U	U	U	U	U	U
Total Petroleum Hydrocarbons												
Diesel	2,000	5	4	N/A	U	U	U	U	U	U	U	U
Kerosene	2,000	5	4	N/A	U	U	U	U	U	U	U	U

a. Removal action levels are from DOE/RL-2009-53, *Removal Action Work Plan for 48 Waste Sites in the 200-MG-1 Operable Unit* (RAWP).

b. If Hanford Site-specific background data are not available, values are then taken from Ecology Publication No. 94-115, *Natural Background Soil Metals Concentrations in Washington State*. Hanford Site background values are from DOE/RL-92-24, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, Table D39-2.

c. Where cleanup levels are less than background or required detection limits, cleanup levels default to background or required detection limits per WAC 173-340-700(6)(d), "Model Toxics Control Act—Cleanup," "Overview of Cleanup Standards," and WAC 173-340-707(2), "Analytical Considerations," respectively.

d. Arsenic is not considered a COPC for these samples based on historical information and process knowledge. Values obtained are consistent with recorded background values for arsenic at the Hanford Site and do not indicate a source of contamination.

e. Maximum reported laboratory detection limits were greater than the required detection limits per RAWP (DOE/RL-2009-53); however, analytical results are less than the established removal action levels and meet the corresponding removal action objectives.

N/A = not available

U = analyzed for, but not detected above, laboratory detection limit

Task# DOE-AMCP-C-2011-0236

E-STARS[R] Report
Task Detail Report
09/26/2011 1945

TASK INFORMATION

Task#	DOE-AMCP-C-2011-0236	**Status**	Open
Subject	WASTE SITE RECLASSIFICATION FORM (CONTROL NUMBER 2011-075), AND RESPONSE ACTION REPORT FOR THE 200-MG-1 OPERABLE UNIT WASTE SITE200-W-147-PL-A, DOE/RL-2011-86, REVISION 0		
Reference			
Reference 2			
Due		**Task Created Date**	09/21/2011 1617
Originator	Hintzen, Kathryn M	**Originator Phone**	(509) 373-9971
Deliverable	None	**Priority**	High
Category	None	**Generic1**	
Class	None	**Generic2**	
View Permissions	Normal	**Generic3**	
Parent Task#		**Generic4**	
Remote Task#		**Generic5**	

Instructions

bcc w/attachs:
OFF File
KM Hintzen, AMCP
FM Roddy, AMCP
P Ensign, AMCP
OA Farabee, AMCP
J Peschong, AMCP
RA Holten, AMCP
JA Dowell, AMCP
JA Hansen, AMCP
K Ballinger, OCE
P Call, OCE
RM Carosino, OCC

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SEP 29 2011
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Record Note: This letter transmits signed copies of the Waste Site Reclassification Form (Control Number 2011-075), and the approved Response Action Report for the 200-MG-1 Operable Unit Waste Site 200-W-147-PL-A, DOE/RL-2011-86, Revision 0.

ROUTING LISTS

1 Route List — Active

Parallel

- Ensign, Patty G - Approve - Approved with comments - 09/22/2011 0743
  Instructions:
- Farabee, Al - Approve - Approved - 09/22/2011 0955
  Instructions:
- Carosino, Robert M - Approve - Approved with comments - 09/23/2011 1523
  Instructions:

Task# DOE-AMCP-C-2011-0236

- Dowell, Jonathan A - Approve - Awaiting Response - Due Date
  Instructions:

ATTACHMENTS

Attachments

1. 11-AMCP-0236 Attachment (Waste Site Reclassification Form 2011-075).tif.pdf
2. 11-AMCP-0236 Attachment (DOE-RL-2011-86, Revision 0).tif.pdf
3. 11-AMCP-0236.doc

COMMENTS

Poster Ensign, Patty G - 09/22/2011 0743

Approve

Approved, acting in the absence of Frank Roddy.

Poster Carosino, Robert M (Corbin, Peggy A) - 09/23/2011 1523

Approve

Approve. BDW reviewed and concurred. JBS for RMC 9/23/11

TASK DUE DATE HISTORY

No Due Date History

SUB TASK HISTORY

Subtask# DOE-AMCP-C-2011-0236.1

Subject WASTE SITE RECLASSIFICATION FORM (CONTROL NUMBER 2011-075), AND RESPONSE ACTION REPORT FOR THE 200-MG-1 OPERABLE UNIT WASTE SITE200-W-147-PL-A, DOE/RL-2011-86, REVISION 0

Originator Carosino, Robert M (Corbin, Peggy A)

Routing List *No Active Routing List*

-- end of report --