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Explanation of Significant Differences

for the

300-FF-2 Operable Unit Interim Action Record of Decision

Hanford Site
Benton County, Washington

August 2009

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SITE NAME AND LOCATION

U.S. Department of Energy 300 Area
300-FF-2 Operable Unit
Hanford Site
Benton County, Washington

INTRODUCTION TO THE SITE AND STATEMENT OF PURPOSE

Remediation of waste sites in the 300 Area of the Hanford Site is being conducted under the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) in accordance with the Records of Decision (RODs). The U.S. Environmental Protection Agency (EPA)(lead regulatory agency), the Washington State Department of Ecology (Ecology) (non-lead regulatory agency), and the U.S. Department of Energy (DOE) (responsible agency), hereinafter referred to as the Tri-Parties, are issuing this Explanation of Significant Differences (ESD) to provide public notice on significant changes to the Interim Action ROD (EPA 2001) issued in April 2001 for the 300-FF-2 Operable Unit (OU), which is located on the Hanford Site (Figure 1).

This ESD is required for the following reasons:

1. Since the issuance of the Interim Action ROD (EPA 2001) and an ESD in 2004 (EPA 2004), ongoing cleanup efforts in the 300 Area have identified 14 additional waste sites in the 300-FF-2 OU which fit the waste site profile identified in the ROD and where remediation is necessary to protect human health and the environment. In accordance with the "plug-in" approach described in the ROD, periodic publication of an ESD and/or fact sheet is mandated to provide public notice of the addition of waste sites to the ROD for remediation via the selected interim action remedy of remove/treat/dispose (RTD). These 14 sites will be remediated in accordance with the "plug-in" approach described in the ROD and an approved RD/RA Work Plan

2. Since the issuance of the Interim Action ROD and the ESD in 2004, ongoing cleanup efforts in the 300-FF-2 OU have identified 2 newly discovered waste sites that fit the "plug-in" waste site profile in the ROD and that have potentially unacceptable risk to human health and the environment. These candidate sites will undergo characterization sampling and will be remediated, if necessary, in accordance with the "plug-in" approach described in the ROD and an approved RD/RA Work Plan.

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3. Characterization and/or remediation of any additional newly discovered 300-FF-2 OU waste sites that fit the site profile should proceed in accordance with the ROD, the 2004 ESD, and this ESD as well as an approved RD/RA Work Plan without publication of an ESD provided the cumulative estimated cost of the additional work does not exceed +50% of the total estimate provided in the original ROD, the 2004 ESD, and this ESD, with the exception of the TRU Burial Grounds 618-10 and 618-11 ($225 million). The addition of these candidate and plug-in waste sites will not have a significant impact on the scope, performance, or cost of the remedy. Additions of plug-in and candidate sites will be documented in the

administrative record and a fact sheet will be published by DOE annually identifying the plug-in and candidate sites that have been added.

Statutory Citation for an Explanation of Significant Difference

The Tri-Parties are issuing this ESD in accordance with Section 117(c) of CERCLA and Section 300.435(c)(2)(i) of the "National Oil and Hazardous Substances Pollution Contingency Plan" (NCP) (40 CFR 300). The purpose of this ESD is to provide public notice of the changes identified herein. This ESD will become part of the Administrative Record for the 300-FF-2 OU Interim Action ROD, which is available for review at the following location:

U.S. Department of Energy, Richland Operations Office
Administrative Record
2440 Stevens Center Place, Room 1101
Richland, Washington 99354
Telephone: (509) 376-2530
Attention: Heather Childers
URL: http://www2.hanford.gov/arpir/

This ESD will also be available for review at the following information repositories:

Suzzallo Library
University of Washington
P.O. Box 352900
Seattle, WA 98195-2900
Phone: (206) 543-4664
Fax: (206) 685-8049

DOE-RL Public Reading Room
Washington State University
Consolidated Information Center, Room 101L
2770 University Drive
Richland, WA 99352
Phone: (509) 372-7443
Fax: (509) 372-7444

Gonzaga University
Foley Center
East 502 Boone
Spokane, WA 99258-0001
Phone: (509) 323-6110
Fax: (509) 324-5806

Portland State University
Branford Price Millar Library
1875 SW Park Avenue
Portland, OR 97207-1151
Phone: (503) 725-4709
Fax: (503) 725-4524

SITE HISTORY, CONTAMINATION, AND SELECTED REMEDY

The 300-FF-2 OU includes waste sites with radioactively and/or chemically contaminated soil, buried waste, and below-ground structures (e.g., pipelines and concrete) at sites within and near the 300 Area Industrial Complex, as well as outlying sites. Waste sites that were included in the original scope of the 300-FF-2 OU ROD were identified through a categorization process that was developed and implemented by the Tri-Parties. The categorization process has resulted in identification of 16 additional waste sites that require action under CERCLA.

The major components of the selected remedy in the 300-FF-2 ROD (EPA 2001) are the following:

- Remove, treat, and dispose contaminated waste, with treatment as necessary to meet disposal facility waste acceptance criteria
- Backfill and infiltration controls
- Institutional controls
- Environmental monitoring
- Regulatory framework for a "Plug-In" approach for accelerating future remedial decisions

BASIS FOR THE DOCUMENT

New Waste Sites for Remove/Treat/Dispose Remedy

Fourteen new 300 Area Complex waste sites were identified in the 300-FF-2 OU (see Figure 2) during ongoing cleanup activities. Details of the sites are given in Table 1. The Tri-Parties have determined that these sites share common physical and contamination characteristics with sites listed in the 300-FF-2 OU Interim Action ROD and meet the ROD site profile and, therefore, are eligible to "plug in" to the remedy selected in the ROD. Further, there is sufficient information to conclude that contaminant concentrations at these sites exceed those required to meet RAOs established in the ROD and require remediation to address a risk to human health and the environment. These waste sites, therefore, are being added to Table A-1 of the 300-FF-2 OU Interim Action ROD for remediation using the RTD remedy.

New Candidate Waste Sites for Characterization Sampling

Two new waste sites were identified in the 300-FF-2 OU (see Figure 2) during ongoing cleanup activities. Details of the waste sites are given in Table 2 of this ESD. The Tri-Parties have determined that these waste sites share common physical and contamination characteristics with

sites listed in the 300-FF-2 OU Interim Action ROD and meet the ROD site profile, and therefore, are eligible for characterization sampling as described by the ROD. Based on historical information and records, as well as analogous data from other similar waste sites, the Tri-Parties anticipate that hazardous substances are present at these sites. However, additional data must be collected to determine if contaminant concentrations exceed those required to meet RAOs established in the ROD. Therefore, these sites will be added to Table A-5 of the 300-FF-2 OU Interim Action ROD as candidate sites for characterization sampling, and if remediation is required, the waste site(s) may be plugged in to the selected remedy in the ROD for remediation.

The 300-FF-2 OU Interim Action ROD provides for a "plug-in" approach for the cleanup of additional waste sites that are identified under certain conditions. The "plug-in" approach provides that when "candidate" or "newly discovered" waste sites fit the "300-FF-2 profile" and the contaminant concentrations at that site exceed those required to meet the remedial action objectives established in the ROD, they may "plug-in" to the RTD selected remedy.

The 300-FF-2 site profile is based on the following site characteristics:

- Types of contaminants
- Types of contaminated environmental media
- Types of contaminated waste material.

If a waste site does not share these three characteristics with the waste sites being addressed by the ROD, remediating it is not within the scope of the 300-FF-2 ROD and the waste site must be addressed as part of a revised ROD or another cleanup action (e.g., a separate ROD). If a waste site shares these characteristics and requires remediation, it can be added to the ROD and become subject to its remediation requirements.

Sites are evaluated based on existing data and process knowledge. Waste sites may also be identified as candidate waste sites for characterization sampling to determine if contaminant concentrations exceed cleanup levels established in the RODs and require remediation.

To ensure that the public is notified of the addition of plug in waste sites to the selected remedy of the ROD, the Tri-Parties periodically publish an ESD, as required by the ROD. However, characterization and/or remediation of newly discovered 300-FF-2 OU waste sites that fit the site profile should proceed in accordance with the ROD, the 2004 ESD, and this ESD as well as an approved RD/RA Work Plan without publication of an ESD provided the cumulative estimated cost of the additional work does not exceed +50% of the total estimate provided in the original ROD, the 2004 ESD, and this ESD for non-TRU burial grounds work ($225 million). The addition of these candidate and plug-in waste sites will not have a significant impact on the scope, performance, or cost of the remedy, provided they are added in accordance with this ESD. A fact sheet will be published by DOE annually identifying the plug in and candidate sites that have been added.

DESCRIPTION OF SIGNIFICANT DIFFERENCES

Through this ESD, the Tri-Parties approve the following significant changes to the 300-FF-2 OU Interim Action ROD.

Add 14 Waste Sites for Remove, Treat, and Dispose

Using the "plug-in" approach provided in the 300-FF-2 OU Interim Action ROD, 14 newly discovered waste sites located in the 300-FF-2 OU (see Figure 2) which fit the site profile in the ROD are added to Table A-1 of the ROD for remove/treat/dispose in accordance with the selected remedy and an approved RD/RA Work Plan. Site details are provided in Table 1. These sites share common physical and contamination characteristics with sites listed in Table A-1 and have contaminant concentrations that require remediation to address a risk to human health and the environment. This determination is based on historical information and records, as well as analogous data and observations from other similar waste sites. Total remediation costs for the 14 sites are estimated at $5,607,408. The cost estimate for each individual site is listed in Table 1.

Add 2 Candidate Waste Sites for Characterization Sampling

Two additional waste sites in the 300-FF-2 OU (see Figure 2) are added to Table A-5 of the 300-FF-2 OU Interim Action ROD for characterization sampling. If appropriate, these sites can "plug in" to the selected remedy of RTD. Details on the waste sites are given in Table 2. The Tri-Parties have determined that these 2 waste sites fit the site profile in the ROD and are candidate waste sites for remediation due to the hazardous substances that may be present at concentrations that pose a threat to human health and the environment. This determination is based on historical information and records, as well as analogous data from other similar waste sites.

Total estimated costs for confirmatory sampling of the 2 candidate sites listed in Table 2 of this ESD are $142,856. The estimated cost for each individual site is also provided in Table 2; these costs were estimated using the "300 Area Explanation of Significant Difference (ESD) Cost Estimate" (WCH 2008).

Public Notification Process for Adding New Waste Sites

The "Plug-In" Component of the Selected Remedy (For 'Candidate Sites' and 'Newly Discovered Sites') in the 300-FF-2 OU Interim Action ROD states in part, "The Tri-Parties will notify the public regarding the decision to plug in newly discovered waste sites through the periodic publication of ESDs to the 300-FF-2 ROD and/or fact sheets. Minor additions to the 300-FF-2 waste site list can be managed through memoranda issued by EPA to the Operable Unit file maintained in the Administrative Record." In the future, characterization and/or remediation of newly discovered 300-FF-2 OU waste sites that fit the site profile may proceed in accordance with the 2001 ROD, the 2004 ESD, and this ESD as well as an

approved RD/RA Work Plan without publication of an ESD, provided the cumulative estimated cost of the additional work does not exceed +50% of the total estimate provided in the original ROD, the 2004 ESD, and this ESD for non-TRU burial grounds work ($225 million). Additions of such plug in and candidate sites will not have a significant impact on the scope, performance, or cost of the remedy and will be documented in the administrative record. A fact sheet will be published by DOE annually identifying the plug in and candidate sites that have been added.

SUPPORT AGENCY COMMENTS

Ecology provided the following state acceptance statement for inclusion in this ESD:

The State of Washington Department of Ecology is the supporting regulatory agency for the 300-FF-2 interim action remedy. Ecology supports the remedy as described in this Explanation of Significant Difference (ESD). Ecology furnishes the following comments with respect to petroleum contamination in the 300-FF-2 OU.

This ESD lists three waste sites created by leaks or spills from underground storage tanks used to manage petroleum. The U.S. Department of Energy conducted previous responses to these petroleum releases, including working with Ecology on the 300-6 waste site (also known as the 384 Powerhouse Fuel Oil Tanks). Residual contamination remains in the form of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs), and Ecology has indicated to the U.S. Department of Energy that further remedial action is necessary with respect to this contamination. There is also potential radioactivity. Ecology concurs with the proposed interim remedy responses to this contamination as described in the ESD.

Releases of petroleum from underground storage tanks, as well as releases of all other dangerous waste constituents, are subject to corrective action in accordance with Washington Administrative Code (WAC) 173-303-64620. Under the Hanford Facility RCRA Permit, Dangerous Waste Portion (Sitewide Permit), issued under the Washington's RCRA-authorized Hazardous Waste Management Act, Ecology allows for work under other cleanup authorities or programs to be used to satisfy corrective action requirements, provided such work protects human health and the environment (Site-wide Permit Condition II.Y.2). Ecology specifically accepts work under the Tri-Party Agreement and the CERCLA program as satisfying corrective action requirements, subject to certain reservations (Sitewide Permit Condition II.Y.2.a). These reservations include a qualification that "a final decision about satisfaction of corrective action requirements will be made in the context of issuance of a final ROD" (Sitewide Permit Condition II.Y.2.a.ii). Accordingly, Ecology will make a final decision about satisfaction of corrective action requirements related to the 300-FF-2 OU in conjunction with a final ROD addressing the OU.

STATUTORY DETERMINATIONS

This remedy satisfies the statutory requirements of CERCLA and to the extent practicable the NCP. The remedy selected in the 300-FF-2 OU Interim Action ROD, as modified by this ESD, remains protective of human health and the environment, complies with federal and state requirements identified in the ROD that are applicable or relevant and appropriate to remedial actions, is cost effective, and uses permanent solutions and alternative treatment technologies to the maximum extent practicable.

The response action, as modified by this ESD, is necessary to protect the public health, welfare, and/or environment from actual or threatened releases of hazardous substances into the environment. Such a release or threat of release may present an imminent and substantial endangerment to the public health, welfare, or the environment.

PUBLIC PARTICIPATION COMPLIANCE

To satisfy the public notice requirements set forth in Section 300.435(c)(2)(i) of the NCP, DOE will publish notice of the availability and a brief description of this ESD, which includes the reasons for the differences, in the Tri-City Herald. The ESD will be made available to the public in the administrative record and information repositories identified above. In addition, in accordance with the *Hanford Site Tri-Party Agreement Community Relations Plan* (DOE et al. 2002), DOE will send a fact sheet to Hanford's electronic mailing listserv.

REFERENCES

40 CFR 300, "National Oil and Hazardous Substances Pollution Contingency Plan," *Code of Federal Regulations*, as amended.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9601, et seq.

DOE, EPA, Ecology 2002, *Hanford Site Tri-Party Agreement Community Relations Plan*, January 2002, U.S. Department of Energy, U.S. Environmental Protection Agency, Washington State Department of Ecology, Richland, Washington.

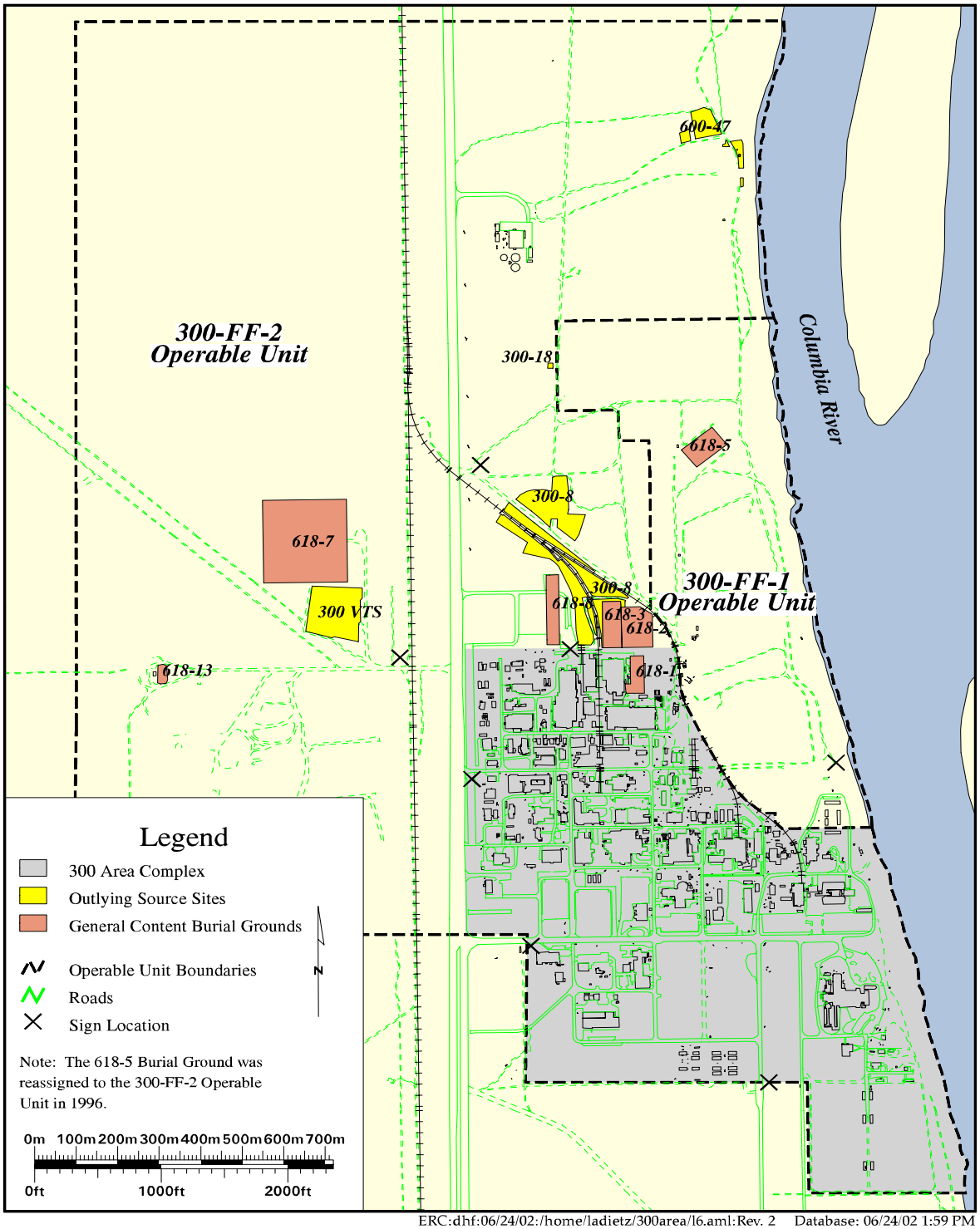
DOE-RL, 2002, *Sitewide Institutional Controls Plan for Hanford CERCLA Response Actions*, DOE/RL-2001-41, as amended, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

EPA, 2001, *Interim Action Record of Decision for the 300-FF-2 Operable Unit, Hanford Site*, U.S. Environmental Protection Agency, Region 10 , Seattle, Washington.

EPA, 2004, *Explanation of Significant Differences for the 300-FF-2 Operable Unit Record of Decision, Hanford Site, Benton County, Washington*, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.

WCH, 2008, "300 Area Explanation of Significant Difference (ESD) Cost Estimate," CCN 0589674 dated June 9, 2008, Washington Closure Hanford, Richland, Washington.

Figure 1. 300-FF-1/300-FF-2 Operable Units.



VTS = vitrification test site

Figure 2. Waste Sites in the 300-FF-2 Operable Unit Added to the Interim Action ROD for Characterization Sampling and for Remove, Treat, Dispose.

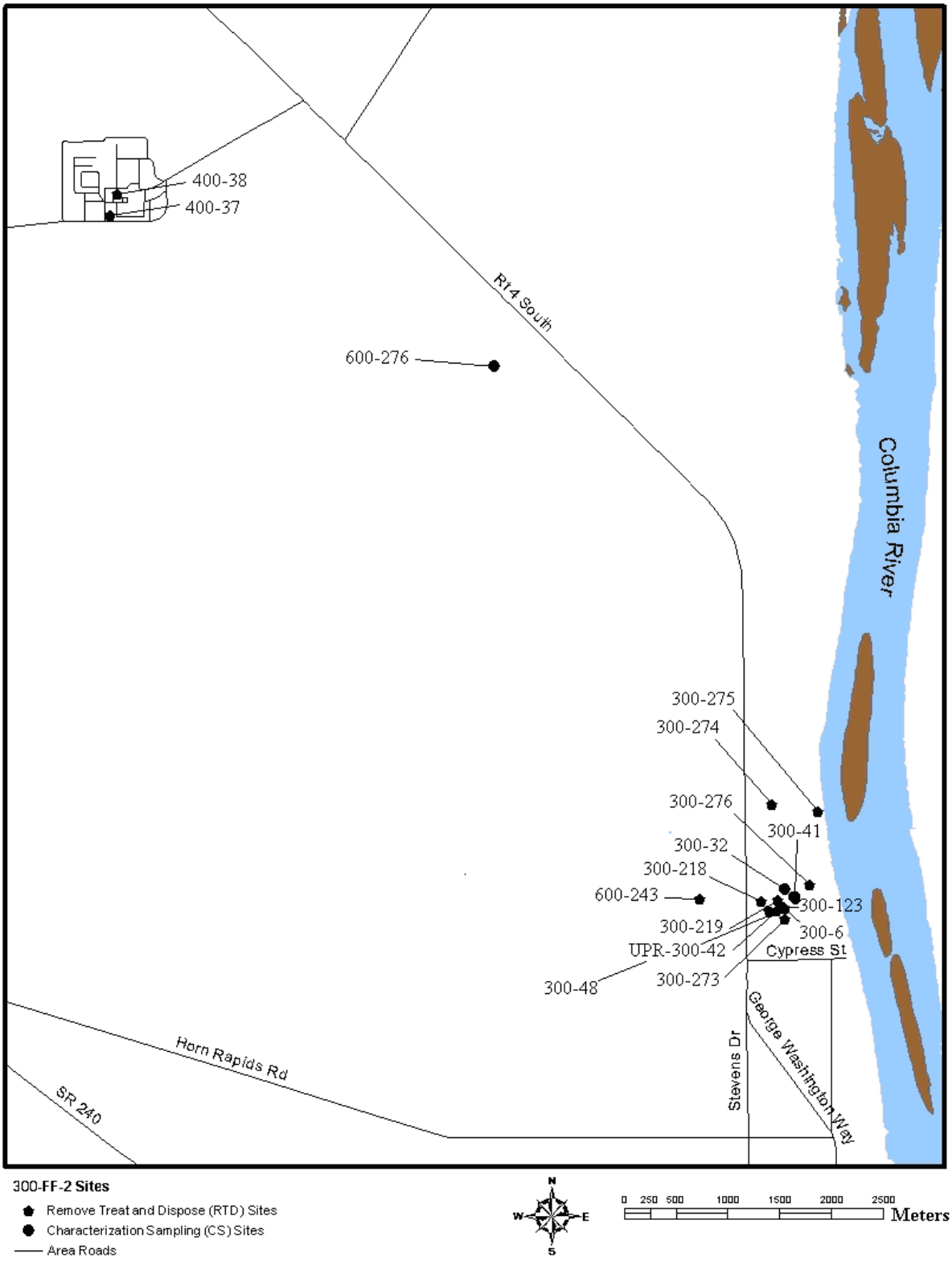


Table 1. Additional Remove, Treat, and Dispose Sites for the 300-FF-2 OU Interim Action ROD. (2 Pages)

Operable Unit	Site Name	Current Site Knowledge	Media/Material	Potential Contamination	Estimated Cost of Site Remediation
300-FF-2	300-6, 366/366A Fuel Oil Bunkers	Former location of four fuel oil underground storage tanks. Nonradiological contaminated soil and debris have been disposed of off-site. Residual petroleum related soil contamination remains. Remaining soils also have the potential for radiological contamination from adjacent waste sites.	Soil and dirt	Radiological/ hazardous contaminants	$501,636
300-FF-2	300-41 306E Neutralization Tank	Site consists of a neutralization tank and valve pit	Soil, metal, and concrete	Radiological/ hazardous contaminants	$285,899
300-FF-2	300-48, Thorium Oxide and Fuel Fabrication Chemical Wastes Around 3732 Building	Thorium Oxide & Fuel Fab Wastes	Soil, metal, and concrete	Radiological/ hazardous contaminants	$194,998
300-FF-2	300-123, 366 Bldg. Fuel Oil Bunker Loading Station Steam Condensate French Drain, Misc. Stream #342	The site is a french drain that received steam condensate from the 366 bldg fuel oil bunker loading station.	Soil, rock, metal	Fuel oil Radiological/ hazardous contaminants	$564,343
300-FF-2	300-218, 314 and 314A Bldgs., 314/314A Bldgs., Engineering Development Laboratory	This site consists of the former 314 and 314A Building areas. All above-grade portions of the buildings. have been demolished. Permanent equipment for processing, storing, or disposing of material or waste consists of pits, sumps, drywells, tanks, trenches, airshafts, and the soil column. All permanent equipment is suspected of being contaminated	Soil, concrete, metal, equipment, sludge	Radiological/ hazardous contaminants	$1,295,824
300-FF-2	300-219, 300 Area Waste Acid Transfer Line	This site consists of the transfer lines connecting the various components of the 300 Area Waste Acid Treatment Plant (WATS) and the 300 Area Uranium	Pipe, soil, concrete	Radiological/ hazardous contaminants	$93,553

Table 1. Additional Remove, Treat, and Dispose Sites for the 300-FF-2 OU Interim Action ROD. (2 Pages)

Operable Unit	Site Name	Current Site Knowledge	Media/Material	Potential Contamination	Estimated Cost of Site Remediation
		Recovery Operations.			
300-FF-2	300-273, Fuel Oil Transfer Pipeline, 366 Bunker Pipeline	This site is an encased underground pipeline. The encased pipeline contains two 3-inch-diameter stainless steel lines. It is not visually marked on the surface. The underground pipeline transferred fuel oil from the 366 fuel oil bunkers to the underground fuel oil day tanks to run the 384 Powerhouse. Remaining soils also have the potential for radiological contamination from adjacent waste sites.	Pipe, soil	Radiological/ hazardous contaminants	$97,591
300-FF-2	300-274, Surface Debris	Surface debris	Soil and debris	Radiological/ hazardous contaminants	$513,963
300-FF-2	300-275, Potential Landfill on River Edge	Surface debris. There is evidence of potential landfill, which, if it exists, will be plugged in via a fact sheet in accord with this ESD.	Soil and debris	Radiological/ hazardous contaminants	$513,963
300-FF-2	300-276, 3607 Sanitary System Miscellaneous Components	Sanitary system	Soil and debris	Radiological/ hazardous contaminants	$295,467
300-FF-2	UPR-300-42, 300 Area Powerhouse Fuel Oil Spill	300 Area Powerhouse oil spill. Remaining soils also have the potential for radiological contamination from adjacent waste sites.	Soil and debris	Radiological/ hazardous contaminants	$630,621
300-FF-2	400-37, Fuel Oil Tank South of 4732-B	Fuel oil tank	Soil and debris	Radiological/ hazardous contaminants	$205,850
300-FF-2	400-38, Fuel Oil Tank East of 4722-A Building Pad	Fuel oil tank	Soil and debris	Radiological/ hazardous contaminants	$75,062
300-FF-2	600-243, Petroleum Contaminated Soil Bioremediation Pad	Petroleum-contaminated soil	Soil and debris	Radiological/ hazardous contaminants	$151,430
				Total	$5,420,200

Table 2. Candidate Waste Sites to Be Added to the 300-FF-2 OU Interim Action ROD for Characterization Sampling.

Operable Unit	Site Name	Current Site Knowledge	Media/Material	Potential Contamination	Estimated Cost
300-FF-2	600-276, Hanford Geotechnical Engineering and Development Facility, GEDF, Cold Test Facility, Little Egypt	The site is surrounded with light posts and chain. A vehicle gate is posted "Authorized Personnel Only." The site is a large open field with a high mound of soil in the center. Several pipes extend vertically through the surface of the soil in some areas. A small pallet containing damaged bags of bentonite is located in the southeast corner of the area adjacent to some vertical pipes.	Soil, piping, steel, fencing	Radiological/ hazardous contaminants	$90,310
300-FF-2	300-32, 333 Bldg., 333 N Fuels Manufacturing Bldg., New Fuel Cladding Facility	The site is the former 333 Bldg. All that remains is the concrete foundation and associated piping.	Concrete, piping, soil	Radiological/ hazardous contaminants	$52,546
				Total	$142,856

Signature sheet for the *Explanation of Significant Differences for the 300-FF-2 Operable Unit Interim Action Record of Decision* between the U.S. Department of Energy and the U.S. Environmental Protection Agency.

Daniel D. Opalski
Director, Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10

11 August 2009
Date

Signature sheet for the "Explanation of Significant Differences for the 300-FF-2 Operable Unit Interim Action Record of Decision," between the U.S. Department of Energy and the U.S. Environmental Protection Agency.

Joe R. Franco, Assistant Manager
for the River Corridor
U.S. Department of Energy,
Richland Operations Office

8/6/09
Date

Signature sheet for the "Explanation of Significant Differences for the 300-FF-2 Operable Unit Interim Action Record of Decision," between the U.S. Department of Energy and the U.S. Environmental Protection Agency.

Jane A. Hedges
Program Manager, Nuclear Waste Program
State of Washington Department of Ecology

8/11/09
Date

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Hanford Site
Benton County, Washington

August 2009

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