

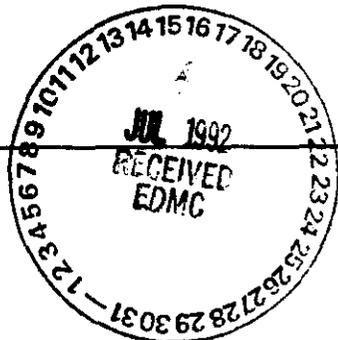
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Page 1 of 1
1. EDT 158682

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1	1/2	Cog. Eng. M.A. McDonald McNamar	<i>M.A. McDonald McNamar</i>	5/12/92	H4-55	EDMC (2)	<i>W.L. Johnson</i>	5/12/92	H4-22	3	
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McDonald-McNamar, M. A., 1992, *Expedited Response Action Candidate Waste Sites*, WHC-SD-EN-TI-032, Rev. 0, Westinghouse Hanford Company, Richland, Washington.

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1.0 INTRODUCTION

This document provides a listing of proposed candidate waste sites for consideration on expedited response actions (ERA's). Fact sheets are provided for each candidate site listed. The fact sheets include contaminants of concern, pathways of concern, historical site information, and general technologies to be applied during the remediation activities.

2.0 BACKGROUND

The Hanford Site contains more than 1,500 identified waste management units (including designed waste management facilities and unplanned releases). These units will be investigated and remediated over the next 28 years in accordance with Federal and State environmental statutes and regulations, as outlined in the Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement).

The past practice waste management units at the Hanford Site include liquid waste disposal sites (i.e., cribs, ponds, ditches, reverse wells, and french drains), solid waste burial grounds, underground tanks, and unplanned releases. The wastes disposed of in these units include nonhazardous solid wastes, hazardous wastes, radioactive wastes, and mixed wastes.

The past-practice units have been grouped into 74 operable units for the purpose of performing the remedial investigation/feasibility studies (RI/FS). It is estimated that the RI/FS process will take four to seven years to complete for each operable unit, before a decision can be reached allowing physical cleanup activities to commence. Therefore, the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the State of Washington Department of Ecology (Ecology) have developed a strategy to accelerate the cleanup of waste sites at Hanford. This strategy includes the use of Expedited Response Actions (ERA's) in those instances where threats, or potential threats, exist to people or the environment or where preventive or interim measures are appropriate.

DOE, EPA, and Ecology signed an Agreement in Principle on October 18, 1990 reaffirming their commitment to the Tri-Party Agreement and identifying the first three sites for expedited cleanup action. The following section will list other potential sites for expedited cleanup.

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3.0 Candidate Waste Sites

Potential ERA's can be identified as candidate waste sites by a variety of sources including the DOE, EPA, Ecology, the public, or Hanford site contractors. In the future it is likely that a majority of the new candidate waste sites will be identified during the operable unit investigation or during the Aggregate Area Management Study Reports (AAMSR) preparations. Once a candidate site is identified via one of these mechanisms, it will be included in the ERA candidate waste site list (Table 1).

Table 1 provides a listing of all the ERA candidate waste sites. Included on the list is the operable unit (OU), lead agency, major contaminants of concern, medial of interest and status. In addition, Appendix A contains detailed fact sheets for each site summarizing the site dimensions, site history, contaminants of concern, environmental media, potential exposure pathway, degree of contamination, previous cleanup actions, and potential response actions.

The regulators and the DOE will utilize the Table 1 listing and the fact sheets to determine which ERA candidate waste sites warrant further consideration. Detailed planning proposals will be prepared for those sites selected for further consideration. The short list of sites will be prioritized and implemented as funding constraints allow.

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Table 1. ERA Candidate Waste Site List.

Site	OU	Lead Agency	Major Contaminants of Concern	Media of Interest	Status (as of May 1, 1992)
100-D Ponds Pipeline	100-DR-1	Ecology	Mercury	Pipelines	
183-H Groundwater	100-HR-3	Ecology	Chromium	Groundwater	
100-D/100-H Groundwater	100-HR-3	Ecology	Chromium	Groundwater	
River Rail Wash Pit	100-IU-1	EPA	Radioactive	Soil	Planning Proposal Submitted
North Slope Landfills	100-IU-3	Ecology	Unknown	Soil	Regulatory Approval to Proceed
NaCr Drums	100-IU-4	Ecology	Chromium	Source	Regulatory Approval to Proceed
Pickling Acid Cribs	100-IU-5	EPA	Chromium	Soil	Planning Proposal Submitted
N-Springs	100-NR-1	Ecology	Strontium-90	Groundwater/Soil	Under Discussion
100-N Diesel Spills	100-NR-1	Ecology	Diesel Fuel	Soil	
100 Area Plutonium Cribs	100 Area	Ecology	Fission Prod/TRU	Soil	
100 Area River Pipes	100 Area	EPA/Ecology	Sr-90/Eu	Piping to River	Planned Proposal Submitted
200-W CCl ₄ Groundwater Plume	200-ZP-1	EPA	Carbon Tetrachloride	Groundwater/Soil	Vapor Extraction Initiated 2/25/92
200-E Reverse Well	200-BP-5	EPA	Sr-90/Cs-137	Groundwater	
Nonradioactive Dangerous Waste Landfill	200-IU-3	Ecology	Organics	Soil	
200-W Groundwater	200 West	EPA	Carbon Tetrachloride	Groundwater	
200-W Groundwater (Isolation)	200 West	EPA	Various Organics/Radionuclides	Groundwater	
300 Area Process Trenches	300-FF-1	EPA	Uranium/Copper	Soil	Field Work Complete
300 Area Groundwater	300-FF-5	EPA	Uranium	Groundwater	
300 Area Undocumented Burial Trenches	300-FF-1	EPA	Various Organics/Radionuclides	Soil	Regulators Placed Proposal on Hold
618-9 Burial Ground	300-FF-2	EPA	Uranium/Hexone	Source/Soil	Removal complete. Waste Disposal in Progress
618-10 Burial Ground	300-IU-1	EPA	TRU	Source	
618-11 Burial Ground	300-IU-1	EPA	TRU	Soil	Planning Proposal Submitted

4.0 Conclusion

This document will be updated periodically to include newly identified candidate waste sites in the above listing and the Appendix A Fact Sheets.

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APPENDIX A

ERA Candidate Site Fact Sheets

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Appendix A ERA Candidate Site Fact Sheets

The following fact sheets are based on the listing of proposed candidate waste sites for consideration on expedited response actions (ERA's). The fact sheets for each candidate waste site identify contaminants of concern, pathways of concern, historical site information, and general technologies to be applied during the remediation activities.

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ERA Candidate Site Summary Sheet

Project Name: 189-D Process Sewer Pipeline

Operable Unit: 100-DR-1 (Ecology)

Site Dimensions: Approximately 50 - 70 ft.

Site History: The 189-D Mechanical Development Laboratory was operated from 1944 to 1988. As part of the facility operation, the 189-D facility contained mercury switches and manometers. Floor drains from the facility emptied into pressure tunnels that ultimately discharged into the Columbia River via the 100-D outfall system. In August 1989, 100 Area Environmental Protection personnel received information from a PNL employee that as a result of past operational practices, the potential existed for metallic mercury to have been spilled on the floor and discharged through the pressure tunnel. Subsequent visual inspections confirmed the presence of small beads of mercury on the tunnel floor. In addition, the same condition was found at the entrance to the discharge pipe into which the tunnel empties.

Contaminants of Concern: Mercury.

Environmental Media: Pressure tunnel pipeline and the drains that discharge into the tunnel. Possibly the tunnel itself.

Potential Exposure Pathway: Direct Contact to contaminated pipelines

Degree of Contamination: While mercury spills prior to the late 1960's were generally diverted to the 189-D building floor drains, subsequent spills were carefully cleaned up in response to heightened awareness of mercury toxicity. In 1974, traps were installed at mercury switches and manometers to further reduce the chance of releasing mercury to the environment. It is estimated that approximately 5 pounds of contaminant were disposed via the floor drains. It is also thought that since most of the spills occurred prior to 1977, the mercury was discharged to the Columbia River.

Previous Cleanup Actions: None.

Potential Response Action: Response action would most likely consist of characterizing the pipeline (tunnel) and subsequent decontamination, removal, or vitrification if required.

- References:**
- 1) Letter, K. A. Gano and M. J. Lauterbach to S. M. Price, "Estimate of Mercury Released to 120-D-1 Pond", date January 4, 1990.
 - 2) DOE-RL, 1991, *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-DR-1 Operable Unit, Hanford Site, Richland, Washington, DOR/RL-89-09, Draft C*, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: 183-H Groundwater

Operable Unit: 100-HR-3 (Ecology)

Site History: Decontamination processes on the Hanford Site often used concentrated acids, bases, oxidants, and organic complexants to remove radionuclides from equipment, fuel spacers, and related facilities. In addition, these solutions were used to flush the primary cooling system of the reactors during standby and shutdown procedures. The decontamination waste was discharged to liquid disposal sites and subsequently contaminated the groundwater. Water samples collected at the H-Springs have detected chromium in the groundwater which discharges into the Columbia River, but at concentrations significantly lower than detected in the 100-H Area.

Contaminants of Concern: Chromium, Tritium, Nitrate.

Environmental Media: Groundwater.

Potential Exposure Pathway: Ingestion and possible dermal contact to the contaminant from the Columbia River.

Degree of Contamination: Groundwater data collected to date for the 100-HR-3 Operable Unit (OU) has indicated that most of the groundwater is contaminated with tritium, nitrate, and chromium. Preliminary indications are that groundwater contaminants from the 100-N Area are entering the 100-HR-3 OU at the southwest unit boundary. Further information regarding groundwater contamination can be found in the 100-HR-3 OU RFI/CMS Work Plan.

Previous Cleanup Actions: It was originally a stipulation for closure of the 183-H Solar Evaporation Basins that the groundwater be pumped and treated. This issue has been resolved and closure of the basins is not contingent upon cleanup of the groundwater.

Potential Response Action: Potential response actions may include pumping and treating groundwater associated with the chromium plume.

References: 1) DOE-RL, 1991, *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-HR-3 Operable Unit, Hanford Site*, Richland, Washington, DOE/RL-88-36, Draft C, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: 100-D/100-H Groundwater

Operable Unit: 100-HR-3 (Ecology)

Site History: Decontamination fluids were discharged to various liquid disposal sites in the 100-D and 100-H areas. These waste streams contained concentrated acids, bases, oxidants, and organic complexants, as well as heavy metals. Over the years, certain constituents have migrated and contaminated the groundwater. Water samples collected at the H-Springs have detected chromium in the groundwater which discharges into the Columbia River, but at concentrations significantly lower than detected in the 100-H Area.

Contaminants of Concern: Chromium.

Environmental Media: Groundwater.

Potential Exposure Pathway: Ingestion and possible dermal contact to the contaminant from the Columbia River.

Degree of Contamination: Groundwater data collected to date for the 100-HR-3 Operable Unit (OU) has indicated that most of the groundwater is contaminated with tritium, nitrate, and chromium. Preliminary indications are that groundwater contaminants from the 100-N Area are entering the 100-HR-3 OU at the southwest unit boundary. Further information regarding groundwater contamination can be found in the 100-HR-3 OU RFI/CMS Work Plan.

Potential Response Action: Potential response actions may include constructing a barrier restricting further discharge of the contaminated groundwater, or pumping and treating the groundwater.

References: 1) DOE-RL, 1991, *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-HR-3 Operable Unit, Hanford Site, Richland, Washington, DOE/RL-88-36, Draft C, U. S. Department of Energy, Richland Operations Office, Richland, Washington.*

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ERA Candidate Site Summary Sheet

Project Name: Riverland Railroad Car Wash Pit

Operable Unit: 100-IU-1 (EPA)

Site Dimensions: Length: 40.00 ft.
Width: 6.00 ft.
Depth: 3.00 ft.

Site History: The site was used to steam clean and decontaminate low-levels of radioactivity from locomotive and cars used at Hanford during the 1940's.

Contaminants of Concern: Radioactivity.

Environmental Media: Soil.

Potential Exposure Pathway: Ingestion.

Degree of Contamination: There are no groundwater monitoring wells near the site.

Previous Cleanup Actions: In 1963, the entire site was decontaminated, released from radiation zone status, and the building was auctioned to the general public.

Potential Response Action: Since the site was decontaminated in 1963, it is recommended that minimal sampling (walk-through) be performed to determine if the site contains any residual contamination, and if necessary, conduct minimal removal actions.

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North Slope Waste Site Summary Sheet

Project Name: North Slope Landfills and Waste Sites(Wahluke Slope Gunnery/Missile Sites and 2,4-D Site)

Operable Unit: 100-IU-3 (EPA)

Site Dimensions: The site is defined by approximately the entire Wahluke Slope area.

Site History: The North Slope Landfills include the following past practice sites: 1) the Wahluke Nike Missile Bases, 2) the Wahluke Anti-Aircraft Gunnery Sites, and 3) the Bureau of Reclamation 2,4-D disposal site. The number of landfills that are associated with the Wahluke Nike Missile Bases, the Wahluke Anti-Aircraft Gunnery Sites, and the 2,4-D site are approximately 6,7, and 1 (consisting of several trenches), respectively. Most of the missile and anti-aircraft landfills are accessible by the public because they are based upon state fish and game land. Those landfills that are located within the federal game reserve are not accessible to the public. The public also has access to the 2,4-D site. The missile and anti-aircraft sites are not posted or fenced as such, and the 2,4-D site is only marked by a sign that has deteriorated significantly.

The Bureau of Reclamation used 2,4-D in the 1960s in the Othello area. Some of the storage tanks leaked, and the contaminated soil was buried at the 2,4-D disposal site between 1966 and 1967. In addition, 10 storage tanks were crushed and subsequently buried in the same vicinity.

Contaminants of Concern: Walk-through surveys conducted to date at these sites do not exhibit signs of hazardous materials being disposed; however, WHC has been unable to confirm that no hazardous materials were disposed. It is recognized that the control rooms that were buried insitu may contain asbestos. At the Bureau of Reclamation site, 2,4-D is known to have been disposed along with crushed storage tanks. Other concerns associated with these sites include potential physical hazards that exist.

Environmental Media: Soil, groundwater (at the 2,4-D site), and solid material.

Potential Exposure Pathway: Ingestion and possible groundwater contamination. It was determined in 1985 that the only known or potential noteworthy concerns associated with the 2,4-D site are public and environmental access.

Degree of Contamination: There is no groundwater data available for the sites. This area is not included in the PNL offsite environmental monitoring program for groundwater.

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Previous Cleanup Actions: In 1985, the DOE buried the control rooms, the launch sites, and old barracks facilities that were associated with the sites. These burials are not included within the original number of landfills as listed above. The above listed landfills pertain to waste that was disposed during operation of the defense sites.

Potential Response Action: Removal actions for the missile and anti-aircraft sites would most likely consist of sampling a representative number of sites, and then subsequently evaluating the data for further actions. Information received regarding 2,4-D, is that the chemical is biodegraded within 30 days; therefore, sampling is recommended to be performed to determine whether just removing the crushed drums would be the full extent of the removal action. In addition, other potential physical hazardous would also be removed.

References: 1) DSI, K. Cramer to HCCP File, "USBR 2,4-D Burial Site", dated October 1, 1985.

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ERA Candidate Site Summary Sheet

Project Name: Sodium Dichromate Barrel Disposal Landfill

Operable Unit: 100-IU-4 (Ecology)

Site Dimensions: Length: 100.00 ft.
Width: 50.00 ft.
Depth: 10.00 ft.

Site History: Sodium dichromate was used in the 100 Areas for water treatment. In 1945 several sodium dichromate drums used in the water treatment process were crushed and buried in the landfill. It is thought that the barrels were the only items buried in the landfill.

Contaminants of Concern: Sodium Dichromate.

Environmental Media: There is no indication at this time that any environmental media is contaminated; however, the drums may have contained some residual contaminant.

Potential Exposure Pathway: Ingestion and possible groundwater contamination if the barrels have leaked.

Degree of Contamination: There are no groundwater monitoring wells near the site.

Previous Cleanup Actions: The site has been backfilled; however drums and debris are still exposed at the surface.

Potential Response Action: The response action would most likely consist of removing the drums and sampling to determine if any chromium had leaked.

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ERA Candidate Site Summary Sheet

Project Name: White Bluffs Pickling Acid Crib

Operable Unit: 100-IU-5 (EPA)

Site Dimensions: Length: 50.00 ft.
Width: 30.00 ft.
Depth: 10.00 ft.

Site History: The site was operated between 1943 and 1945 to dispose of spent pickling acid used on galvanized piping for constructing the reactor buildings. The process used several thousand gallons of nitric and hydrofluoric acid. The site is not fenced; however, it is located on the Hanford Site and is accessible only to designated personnel.

Contaminants of Concern: Chromium, nitric, and hydrofluoric acid.

Environmental Media: Soil and groundwater.

Potential Exposure Pathway: Ingestion and possible groundwater contamination which may discharge into the Columbia River.

Degree of Contamination: There are no groundwater monitoring wells near the site.

Previous Cleanup Actions: The site has been covered with clean soil and cobbles.

Potential Response Action: The response action would most likely consist of excavating contaminated soil and backfilling with clean soil.

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ERA Candidate Site Summary Sheet

Project Name: 100-N Diesel Spills

Operable Unit: 100-NR-1 (Ecology)

Site History: There were four diesel spills that occurred at the 100-N area in which the contaminated soil was not removed. These spills include UN-100-17, UN-100-18, UN-100-23, and UN-100-24. The spills occurred between 1966 and 1987. The largest spill, UN-100-17 consisted of 80,000 gallons.

Contaminants of Concern: Diesel Fuel.

Environmental Media: Soil and groundwater.

Potential Exposure Pathway: Ingestion and possible groundwater contamination which may discharge into the Columbia River.

Degree of Contamination: Routine monitoring for oil and grease in the groundwater wells at 100-N was discontinued approximately 2-3 months ago. The last detectable oil and grease was in 1990 due to a broken line. Since that time all sources of the contaminant have been removed. Routine monitoring of the operational outfalls for NPDES permit compliance have not detected oil and grease.

Previous Cleanup Actions: With respect to UN-100-17, oil that migrated to groundwater and ultimately to the Columbia River, was collected in an interceptor trench and periodically burned during 1967. All of the leaking lines have been excavated and either repaired or removed. In addition, all of the diesel storage tanks within the 100-N area have been removed.

Potential Response Actions: Potential response actions could include sampling and subsequent removal and/or bioremediation of the contaminated soil.

References: 1) DOE-RL, 1991, *RCRA Facility Investigation/Corrective Measures Study Work Plan for the 100-NR-1 Operable Unit, Hanford Site, Richland, Washington*, DOE/RL-90-22, Draft B, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: 100 Area Plutonium Cribs: 116-B-3
116-D-2
116-DR-4
116-F-4
116-H-4

Site Dimensions: Length: 4.00 - 10.00 ft.
Width: 4.00 - 10.00 ft.
Depth: 2.00 - 11.00 ft.

Operable Unit: 100 Area (EPA/Ecology)

Site History: The primary use for the plutonium cribs was for disposal of contaminated effluent from reactor tubes that contained ruptured fuel elements. It is estimated that all of the cribs, except the 116-H-4 crib, received approximately 1,055 gallons. The 116-H-4 crib is estimated to have received 264 gallons. All of the cribs were operated for approximately 2 years in the early 1950's.

Contaminants of Concern: Fission products/TRU waste.

Environmental Media: Soil and possibly groundwater.

Potential Exposure Pathway: Ingestion and possible groundwater contamination that may discharge into the Columbia River.

Degree of Contamination: None of the existing wells, except for one, exhibits gross alpha and beta fission product indicators above natural background. Groundwater data from the well located at the 116-F-4 Crib indicates gross alpha levels at 2 to 4 times the drinking water standard.

Previous Cleanup Actions: When retired, the 116-F-4 and 116-H-4 disposal facilities were covered with clean soil. In 1960, the 116-H-4 site was exhumed and moved to the 118-H-5 Burial Ground Thimble Pit.

Potential Response Action: Potential response actions could include containment or excavation and treatment of contaminated soil.

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ERA Candidate Site Summary Sheet

Project Name: 200-E Reverse Well

Operable Unit: 200-BP-5 (EPA)

Site Dimensions: Depth: 302.00 ft.
Dimensions: .67 ft.

Site History: The 200-E Reverse Well was operated between 1945 and 1947 for disposing supernatant overflow from the 241-B-361 Settling Tank waste via Tank 5-6 in the 221-B Building and liquid waste from the 224-B Building. From 9/46 to 10/47, the site received cell drainage and other liquid waste via Tank 5-6 in 221-B. An environmental survey performed in 1990 indicates an increase in contamination outside the zone perimeter.

Contaminants of Concern: High-activity radionuclides and inorganics.

Environmental Media: Soil and groundwater.

Potential Exposure Pathway: Ingestion and groundwater contamination that may discharge into the Columbia River. Surface contamination also exists.

Degree of Contamination: The following radionuclides have been detected in the vadose zone and water table: Cs-137, Pu-239/240, Sr-90, and Am-241. Several studies have indicated that the majority of the contamination in the sediments is located in close proximity to the reverse well (as depicted in plume maps).

Previous Cleanup Actions: The site was deactivated by blanking the pipeline inlet to the well when the radionuclide capacity was reached. Use of the well was discontinued due to groundwater contamination.

Potential Response Action: Potential response actions may include excavating the contaminated soil around the well and eliminating further migration of the contaminants.

References: 1) Smith, R. M., 1981, *Radionuclide Distributions Around a Retired Nuclear Waste Disposal Well*, RHO-SA-266, Rockwell Hanford Operations, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: Nonradioactive Dangerous Waste Landfill

Operable Unit: 200-IU-3 (Ecology)

Site History: The Nonradioactive Dangerous Waste Landfill was operated between 1980 and 1988 for disposing of nonradioactive dangerous wastes from process operations, research and development laboratories, and maintenance and transportation functions throughout the Hanford Site. The wastes have the potential to be listed, wastes from nonspecific sources, characteristic, and state-only wastes. Approximately 100,000 lb/yr of wastes were received at the unit. No bulk liquids or free liquids have been allowed into the landfill.

Contaminants of Concern: Organics.

Environmental Media: Soil.

Potential Exposure Pathway: Ingestion.

Degree of Contamination: There is currently no indication that contamination exists in the groundwater beneath the landfill. To date, soil surveys have not been performed to confirm that soil associated with the landfill is not contaminated. Groundwater contamination has; however, been found in wells associated with the Solid Waste Landfill, located adjacent to the Nonradioactive landfill. Chlorinated hydrocarbons have been detected underneath the Solid Waste Landfill.

Potential Response Action: Potential response actions could include capping the landfill. The alternative for excavating and subsequently treating and disposing the waste, as necessary, was previously evaluated and estimated to cost approximately \$120 million. The recommendation for final remediation of this site in the closure plan currently under review by the Washington State Department of Ecology is capping.

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ERA Candidate Site Summary Sheet

Project Name: 200-W Groundwater

Operable Unit: 200 West (EPA)

Site Dimensions: 200 West

Site History: Since 1949, the Plutonium Finishing Plant has utilized carbon tetrachloride (CCl₄) and Tri Butyl Phosphate (TBP) for processing plutonium. In addition, other organics were used in support of operations. For disposal purposes, portions of the CCl₄ and radionuclides were discharged to the soil column. Over the years, discharge of the contaminants has created CCl₄ and radioactive plumes in and beyond the 200 West Area.

Contaminants of Concern: Carbon tetrachloride and uranium.

Environmental Media: Soil and groundwater.

Potential Exposure Pathway: Ingestion and groundwater contamination that will eventually discharge into the Columbia River.

Degree of Contamination: Groundwater collected to date indicates several radionuclides and nonradionuclides at concentration levels 100 to 1000 times drinking water standards.

Potential Response Action: Potential response actions may include pump and treat systems or insitu treatment.

References: 1) DOE-RL, 1991, *Expedited Response Action Proposal (EE/CA & EA) for 200 West Area Carbon Tetrachloride Plume, DOE/RL-91-32, Draft B*, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: 200-W Groundwater (isolation)

Operable Unit: 200 West (EPA)

Site Dimensions: 200 West Area.

Site History: Since 1949, the Plutonium Finishing Plant has utilized carbon tetrachloride (CCl₄) and Tri Butyl Phosphate (TBP) for processing plutonium. In addition, other organics were used in support of operations. For disposal purposes, portions of the CCl₄ and radionuclides were discharged to the soil column. Over the years, discharge of the contaminants has created CCl₄ and radioactive plumes in and beyond the 200 West Area.

Contaminants of Concern: Various organics and radionuclides.

Environmental Media: Soil and groundwater.

Potential Exposure Pathway: Ingestion and groundwater contamination that will eventually discharge into the Columbia River.

Degree of Contamination: Groundwater collected to date indicates several radionuclides and nonradionuclides at concentration levels 100 to 1000 times drinking water standards.

Potential Response Action: Intent of response action would be to contain the existing contamination; therefore, prospective response actions would include large-scale containment technologies, such as hydraulic or slurry walls or grout curtains.

References: 1) DOE-RL, 1991, *Expedited Response Action Proposal (EE/CA & EA) for 200 West Area Carbon Tetrachloride Plume, DOE/RL-91-32, Draft B*, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: 300 Area Groundwater

Operable Unit: 300-FF-5 (EPA)

Site Dimensions: 300 Area.

Site History: Facilities in the 300 Area have been used in the past for the manufacturing of nuclear fuel and to support DOE research activities. In addition, many technical and support activities were conducted in support of operations. Process, laboratory, and miscellaneous waste were disposed via the soil column. As a result of these discharges the groundwater beneath the 300 Area has become contaminated.

Contaminants of Concern: Radionuclides, metals, and volatile halogenated hydrocarbons.

Environmental Media: Groundwater.

Potential Exposure Pathway: Potential for groundwater contamination to reach the Columbia River.

Degree of Contamination: Contaminants detected in the groundwater include heavy metals, inorganics, organics, and radionuclides. Groundwater at the bottom of the unconfined aquifer and in the upper confined aquifer has a different water chemistry than the top of the unconfined aquifer, with the bulk of the contamination restricted to the shallow zone. Maximum concentrations of some of the parameters are highly elevated above background concentrations. Further information regarding groundwater quality can be found in the 300-FF-5 OU RI/FS Work Plan.

Potential Response Action: Potential response actions could include pump and treat, insitu remediation, and possible containment technologies.

References: 1) DOE-RL, 1990, *Remedial Investigation/Feasibility Study Work Plan for the 300-FF-5 Operable Unit, Hanford Site, Richland, Washington*, DOE/RL-89-14, U. S. Department of Energy, Richland Operations Office, Richland, Washington.

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ERA Candidate Site Summary Sheet

Project Name: 618-10 Burial Ground

Operable Unit: 300-IU-1 (EPA)

Site Dimensions: Length: 500.00 ft.
Width: 500.00 ft.
Depth: 25.00 ft.

Site History: The 618-10 Burial Ground was operated between 1954 and 1963 to dispose of low-activity and high-activity dry wastes; primarily fission products and plutonium from the 300 Area. Low-level wastes were buried in the trenches, and high-activity wastes were stored in 94 pipe facilities. Airborne radioactivity was a problem during burial of the waste. In addition, the 316-4 Crib is located approximately 150 ft. southeast of the facility.

Contaminants of Concern: Low- and high-activity radionuclides (suspect TRU).

Environmental Media: Potential for soil and groundwater contamination.

Potential Exposure Pathway: Ingestion and possible groundwater contamination that may discharge into the Columbia River.

Degree of Contamination: Sampling results from a well located approximately 400 ft. to the east of the burial ground indicates elevated levels of tritium above drinking water standards. It is postulated that the tritium plume may be coming from 200 East.

Previous Cleanup Actions: The site was surface stabilized in 1983.

Potential Response Action: Potential response actions may include excavation and subsequent treatment of contaminated soil and possible reburial of the high-activity wastes.

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