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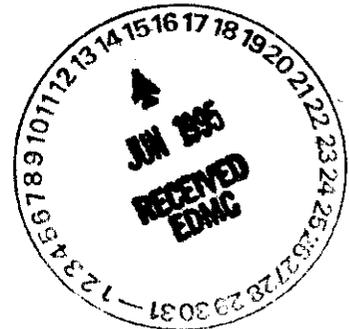
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Rev. 0

Riverland Expedited Response Action Assessment



United States
Department of Energy
Richland, Washington



Approved for Public Release

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Revision 0
UC # 630

Riverland Expedited Response Action Assessment

Date Published
June 1995



United States
Department of Energy

P.O. Box 550
Richland, Washington 99352

Approved for Public Release

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) and Washington Department of Ecology (Ecology) recommended that the U.S. Department of Energy prepare an expedited response action (ERA) for the Riverland Railroad Car Wash Pit (located in the Riverland Rail Yard) and the 600 Area Army Munitions Burial Site (Munitions Cache) both located in the 100-IU-1 Operable Unit.

The ERA goal is to reduce the potential for contaminant migration to the soil column, groundwater, and Columbia River. The ERA action may be the final remediation of the 100-IU-1 Operable Unit.

With the exception of a small area under the jurisdiction of the Bonneville Power Administration (BPA), this ERA covers the rest of the 100-IU-1 Operable Unit. The 100-IU-1 Operable Unit is about 33.8 km² (13 mi²) with boundaries of the Washington State Route 240 on the east, Washington State Highway 24 on the south, Hanford Site boundary on the west, and the Columbia River on the north.

The EPA and Ecology issued an Action Memorandum in June 1993. The memorandum directed cleaning up the Pesticide Can Site, filling in the 600 Area Munitions Cache hole, cleaning up the Riverland Rail Yard Maintenance Facility, and performing an Explosive Ordnance survey. The U.S. Army Corp of Engineers completed an *Ordnance and Explosive Waste Records Search Report* (DOE/RL-1995) in January 1995.

Characterization activities identified two hazardous waste sites within the 100-IU-1 Operable Unit: the Riverland Rail Yard Maintenance Facility and a Pesticide Container Site.

At the Pesticide Site a total of 27 209-liter (55-gallon) drums were filled with waste. Two drums contain 15 crushed pesticide containers. The remaining 25 drums contain aldrin and dieldrin contaminated soils. All drums were sent to the Hanford Central Landfill as nonregulated waste.

The Riverland Rail Yard Maintenance Facility produced about 260 m³ (340 yd³) of concrete and about 328 m³ (430 yd³) of diesel contaminated soil. The concrete was recycled by a concrete crusher system. The soil was bioremediated on a 100-C Area concrete pad.

All postactivity offsite laboratory sampling data show that the waste sites are below the applicable cleanup standards.

All suspected hazardous substances above cleanup standards have been removed from the site and there is no significant risk to the public health or the environment.

This meets the requirement for "No Further Action" under CERCLA guidance.

ACRONYMS

BPA	Bonneville Power Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EE/CA	Engineering Evaluation and Cost Analysis
EPA	U.S. Environmental Protection Agency
ERA	Expedited Response Action
MTCA	Washington State Model Toxics Control Act
OEW	ordnance and explosive waste
ppb	parts per billion
RCRA	Resource Conservation and Recovery Act
RL	U.S. Department of Energy, Richland Operations Office
WHC	Westinghouse Hanford Company
ppm	parts per million

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and Washington Department of Ecology (Ecology) recommended that the U.S. Department of Energy (DOE) prepare an expedited response action (ERA) for the Riverland Railroad Car Wash Pit (located in the Riverland Rail Yard) and the 600 Area Army Munitions Burial Site (Munitions Cache) (DOE-RL 1992). This assessment report details the actions taken to complete the Riverland ERA.

The ERA lead regulatory agency is EPA, and Ecology is the support agency. The ERA followed applicable sections of 40 CFR 300, Subpart E; the *Hanford Federal Facility Agreement and Consent Order* (Part 3, Article XIII, Section 38) (Ecology et al. 1991); the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA); the *Resource Conservation and Recovery Act of 1976* (RCRA); and the State of Washington *Model Toxics Control Act* (MTCA).

The ERA was classified as nontime critical. A non-time critical ERA proposal includes an engineering evaluation/cost analysis (EE/CA). The EE/CA was included in the ERA proposal. The EE/CA is a rapid, focused evaluation of available technologies using specific screening factors to assess feasibility, appropriateness, and cost.

The ERA goal is to reduce the potential for contaminant migration to the soil column, groundwater, and Columbia River. The ERA action may be the final remediation of the 100-IU-1 Operable Unit.

This ERA process started in March 1992. The ERA proposal went through a parallel review process with Westinghouse Hanford Company (WHC), DOE Richland Operations (RL), EPA, Ecology, and a 30-day public comment period. Ecology and EPA issued an Action Memorandum in June 1993 (Appendix A). The memorandum directed cleaning up the Pesticide Can Site, filling in the 600 Area Munitions Cache hole, cleaning up the Riverland Rail Yard Maintenance Facility, and performing an explosive ordnance survey. The Action Memorandum activities were completed by the end of October 1993. The U.S. Army Corp of Engineers completed an *Ordnance and Explosive Waste Records Search Report* (DOE/RL 1995) in January 1995.

Figure 1. Hanford Site Map Showing Location of the 100-IU-1 Operable Unit.

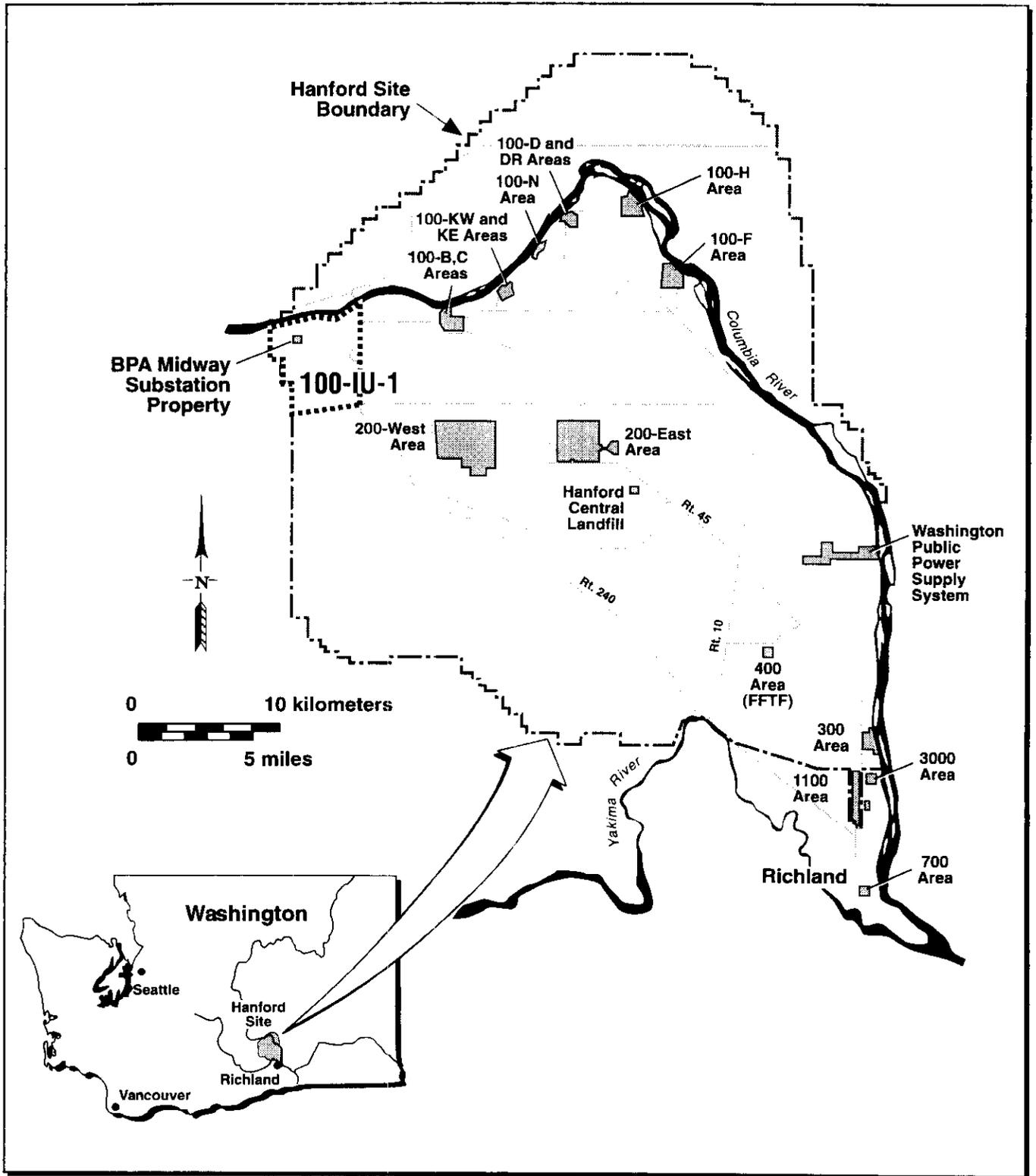
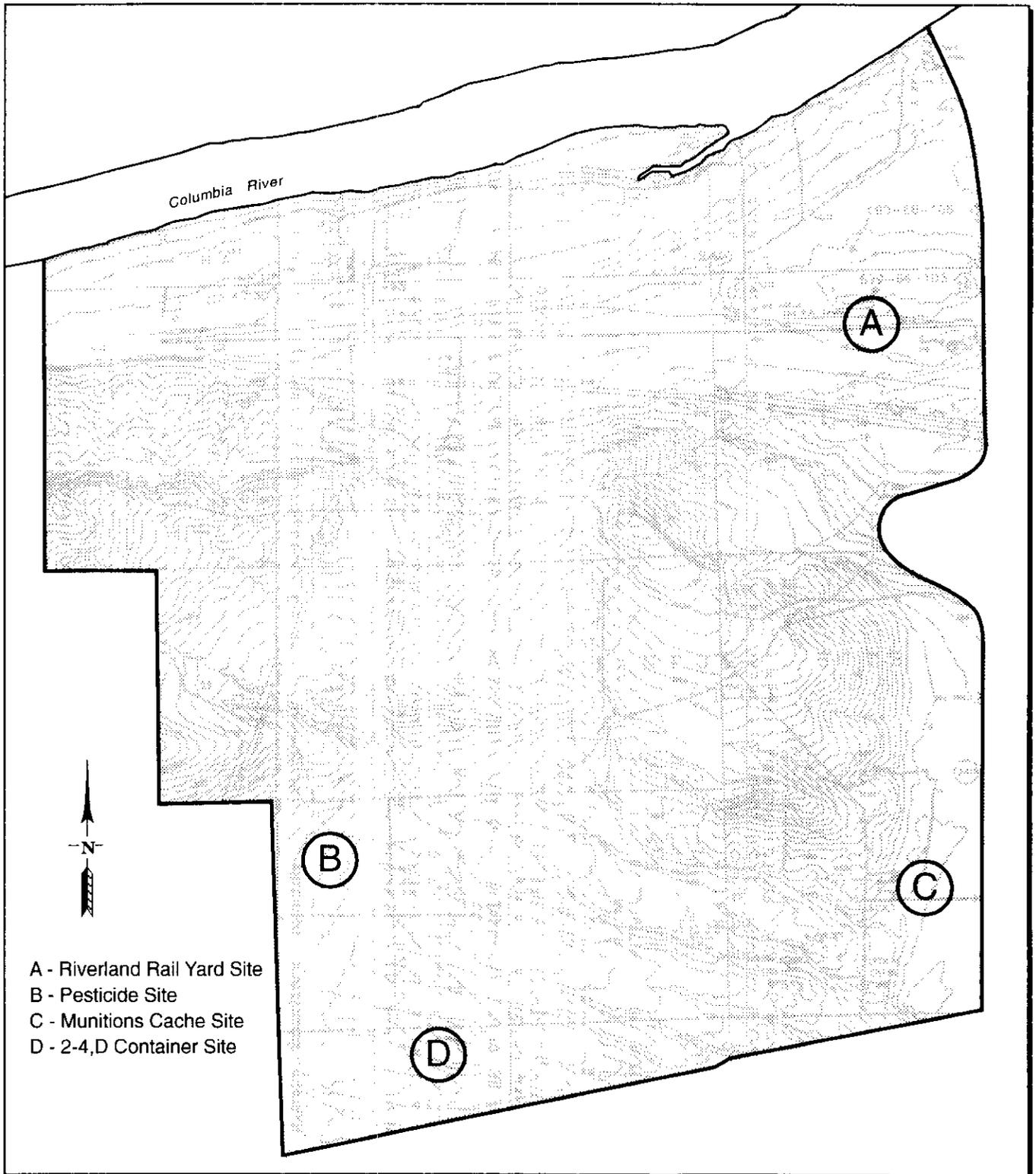


Figure 2. Waste Site Locations (USGS 1986).



2.0 REMEDIATION DESCRIPTION

2.1 LOCATION AND PHYSICAL DESCRIPTION

The ERA includes the entire 100-IU-1 Operable Unit (Figures 1 and 2). The 100-IU-1 Operable Unit's (about 33.8 m² [13 mi²]) boundaries are Washington State Route 240 on the east, Washington State Highway 24 on the south, Hanford Site boundary on the west, and the Columbia River on the north.

The 100-IU-1 Operable Unit contains two hazardous waste sites: the Riverland Rail Yard Maintenance Facility and a pesticide container site. A potentially hazardous 2-4,D container waste site was discovered in July 1994.

A small area within the operable unit boundaries is under Bonneville Power Administration (BPA) jurisdiction (DOE-RL 1991) (Figure 1). This BPA area is not part of the operable unit, and the BPA is responsible for cleanup actions in this area.

2.1.1 Riverland Rail Yard Maintenance Facility

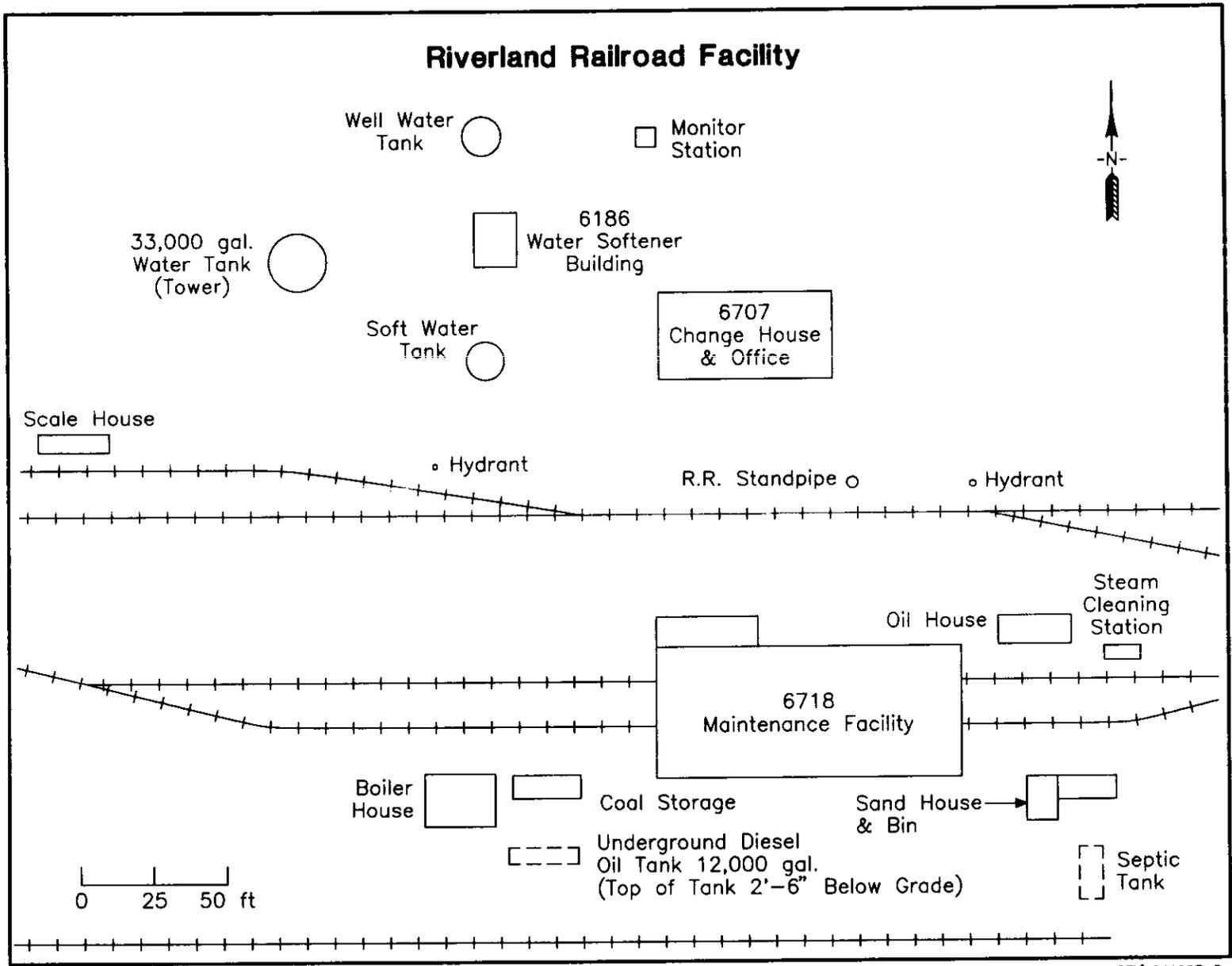
The Riverland Rail Yard (Figure 2, Location A), built in 1943, supported the Hanford Site construction and operation activities. This yard received all rail freight destined for the Hanford Site during the early years of the Hanford Manhattan Engineering District Project.

The Riverland Rail Yard Maintenance Facility (Building 6718, Figure 3) operated from 1943 until October 1954 when operations began in the 1100 Area 1171 Building railroad maintenance facility. Railcar decontamination continued in the two maintenance pits until 1956.

Radioactive decontamination was required before railroad maintenance personnel could work on the railcars and locomotives. Most decontamination activities concentrated on the wheels, axles, brake assemblies, bearing journal housings, and other rail vehicle undercarriage oil- or grease-coated parts. Diesel locomotives also had the engine compartment, radiators, and fan housings decontaminated.

The radioactive contamination levels were low and smearable. Contaminants common to the rail equipment are fission product particles (ruthenium, zirconium, niobium, iodine, etc.). These particles were dry, very light, and easily airborne. The contamination level was typically < 1 mr/hr with an occasional 200 mr/hr reading. Radiation monitoring personnel performed the decontamination to a nonsmearable level using acetone-soaked adsorbent pads. The bagged contaminated pads, gloves, and other materials were sent to the 200 West Area for burial.

Figure 3. Riverland Rail Yard.



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Figure 4. Riverland Rail Yard Maintenance Facility (Bldg. 6718) Floor Drain Plan.

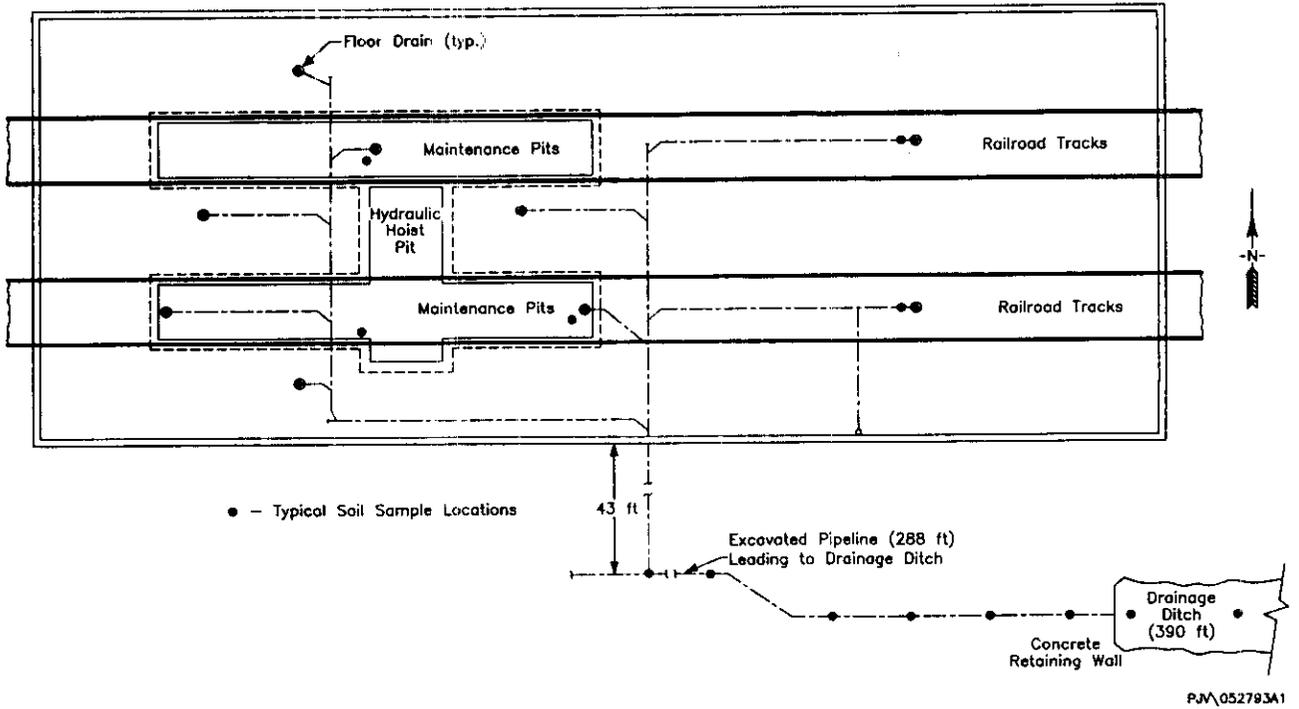
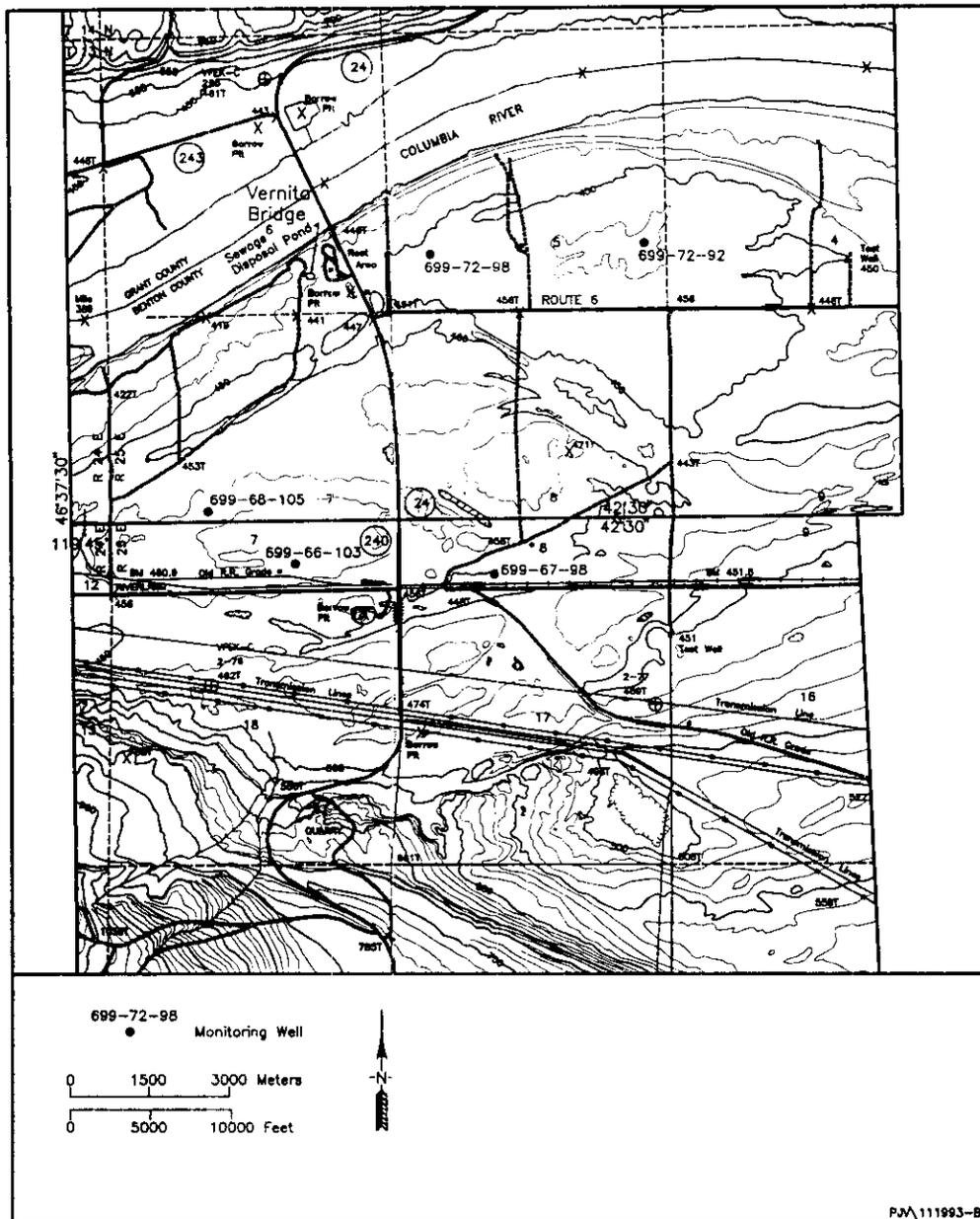


Figure 5. Groundwater Well Locations.



Periodic maintenance floor pit cleaning consisted of brushing the walls with a broom and diesel fuel then rinsing with water. The rinse drained through the pit floor drains (Figure 4).

Facility decontamination occurred about 1963. Following dismantlement, 2 ft of soil was used to cover the foundations. The Riverland Rail Yard facility structures were sold to the public. Follow up radiological surveys in 1977, 1978, and 1993 revealed only natural background radiation levels (8 to 14 $\mu\text{R/hr}$).

2.1.2 Pesticide Container Site

An operable unit visual inspection found one homestead site containing a pile of empty pesticide containers (Figure 2, Location B). The condition of the containers suggest they were placed there after the Hanford Project was well underway. Characterization activities identified aldrin and dieldrin as contaminants of concern. Aldrin and dieldrin are carcinogenic and relatively immobile in soils. The chemicals were produced for about 10 years, from the early 1950s to early 1960s.

2.1.3 Munitions Cache Site

The munitions cache (Figure 2, Location C) received various military explosives in the 1970s. The explosives were remnants left from various military exercises in the area. The site consisted of a wooden box placed in a hole in the ground about 0.6 m by 0.9 m by 0.6 m (2 ft by 3 ft by 2 ft) deep. On May 22, 1986, the box with contents went to the Yakima Firing Range for destruction (DOE-RL 1992). The empty hole is all that remains at the site.

2.1.4 2-4,D Container Site

The 2-4,D Container Site (Figure 2, Location D) was discovered in July 1994 during an archaeological survey performed by Pacific Northwest Laboratories. Two 5-gal containers were found on the surface among some sage brush. In addition, nine 5-gallon containers, with just the pour spouts exposed, were found buried among the sage brush. Only one buried container contained liquid. Partial container markings indicate that the containers may have contained 2-4,D. The condition of the containers and surrounding vegetation indicate that the containers were buried after the Hanford Project was well underway.

2.1.5 Groundwater

There is no known groundwater contamination associated with the 100-IU-1 Operable Unit. There are only two shallow depth groundwater monitoring wells (Figures 3 and 5) within the operable unit. The first, 699-66-103, is located down gradient of the Riverland Maintenance Shop site, and the second, 699-68-105, is located down gradient and to the northwest of

699-66-103. Sample analysis data from as far back as 1971 do not show groundwater contamination problems. Also, two additional groundwater monitoring wells, 699-67-98 and 699-72-92, (down gradient of the operable unit) do not indicate contamination.

2.2 CHARACTERIZATION ACTIVITIES

Characterization activities (DOE-RL 1993) confirmed the presence of diesel fuel contamination in the concrete and soil at the Riverland Maintenance Shop Site and pesticide soil contamination at the Pesticide Container Site.

Characterization of the 2-4,D container site did not find any contaminated soil around or beneath the containers. Based on results of liquid sampling at the site, the empty containers were designated nonregulated and the site was cleaned as a landlord cleanup effort.

2.3 CONTAMINANTS OF CONCERN

Based on radiological surveys, the operable unit is considered nonradioactive. Railroad Maintenance Shop primary hazardous constituents of concern at the Riverland are diesel fuel, contaminated concrete, and soils. At the pesticide container site, the primary hazardous constituents of concern are Aldrin and dieldrin contaminated soils. Both aldrin and dieldrin are relatively immobile in soils (Ecology 1992).

2.4 ACTION MEMORANDUM

The Action Memorandum (Appendix A) required the removal of all contaminated pesticide soils, filling in the munitions cache hole, performing an explosive ordnance survey, and cleaning up the diesel contaminated concrete and soils at the Riverland Railroad Maintenance Shop.

2.4.1 Munitions Cache Hole

The munitions cache hole was filled in on July 27, 1993.

2.4.2 Ordnance Survey

The Riverland ERA Ordnance Survey is part of the Hanford Site-wide ordnance and explosive waste (OEW) archive search conducted by the U. S. Army Corps of Engineers (DOE 1995). Because the land use of the site may not significantly change in the foreseeable future, and because of the small potential that OEW may be present over about 1,800 m², this report recommends no OEW field surveys.

2.4.3 Waste Removal Activities

The Action Memorandum directed waste removal activities to start July 6, 1993 and to be completed October 19, 1993.

2.4.3.1 Pesticide Container Site

The Pesticide Container Site cleanup activities started on July 6, 1993. On site immunoassay field screening was used to monitor cleanup activity success. Final excavated site dimensions were 2.1 m by 5.3 m (7 ft by 17.5 ft). The depth varied from 15.2 - 20.3 cm (6-8 in.) on the east end to 60 - 76.2 cm (24-30 in.) on the west end.

A total of 27 55-gal drums were filled with waste. Two drums contained 15 crushed pesticide containers. The remaining 25 drums contained aldrin and dieldrin contaminated soils. All drums were sent to the Hanford Central Landfill.

The site was backfilled on September 1, 1993 after offsite laboratory sample results confirmed that the soil contamination levels were below 2 parts per million (ppm) for dieldrin and aldrin.

2.4.3.2 Riverland Railroad Maintenance Shop

The Riverland Railroad Maintenance Shop cleanup activities started on July 12, 1993 when the soil covering the shop concrete pad was removed. The entire cleanup action was monitored with immunoassay field screening kits that detected diesel (tph) concentrations at or above 200 ppm.

Abrasive blasting activities started on July 14, 1993. Blasting was stopped on July 16, 1993 because field screening results indicated that the concrete diesel contamination depth was greater than was consistent with economical abrasive blasting practice.

Additional concrete samples were collected with the use of a jack hammer. Onsite and offsite analysis confirmed that diesel contamination existed throughout the concrete. A hazardous identification analysis (Appendix B) determined the concrete contamination levels to be nonhazardous. Based on this designation, the decision was made to recycle the concrete.

Demolition of the concrete pad began on September 21, 1993. Thirty-four dump truck loads of concrete (10 yd³) were taken to the 100-B concrete stock pile. The concrete was recycled through a concrete crusher system.

Diesel contaminated soil removal started on September 27, 1993. The contaminated soil consisted of soils beneath the concrete pad, clay drain pipes and associated soils, and drainage ditch soils. A total of 43 dump truck loads of soil (10 yd³ each) were removed and hauled to a 100-C Area concrete pad for bioremediation.

All excavations were backfilled with existing onsite clean soils, and the pad site was leveled by October 19, 1993.

3.0 RESULTS

All post-activity offsite laboratory sampling data show that the hazardous waste sites are below the applicable clean up standards (DOE-RL 1993).

The cleanup level for the pesticide site was 2 ppm (DOE-RL 1993). The pesticide site final cleanup levels are in the very low parts per billion (ppb) range as shown in Table 1.

The cleanup level for the Riverland Maintenance Shop diesel contaminated concrete and soil was 200 ppm (DOE-RL 1993). As shown in Table 2, diesel was not detected. Four existing groundwater monitoring wells were sampled for diesel fuel contamination. These groundwater samples did not show diesel contamination.

Table 1. Pesticide Offsite Laboratory Analysis Results.

Riverland ERA Remediation Offsite Lab Data			
HEIS Sample No.	Pesticide Site Soil Sample Locations.	Aldrin (ppb)	Dieldrin (ppb)
B08NP7	Equipment blank silica sand	ND	ND
B08NQ6	Soil composite, east excavation portion	0.45 J	2.0 J
B08NQ7	Soil composition, west excavation portion	0.32 J	1.5 J
B08NQ8	Split of B08NQ6	ND	3.6
B08NQ9	Background, 30 m (100 ft) north of site	ND	1.2 J

HEIS = Hanford Environmental Information System.

J = Laboratory estimated value.

ND = Not detected at the specific limits.

Table 2. Maintenance Shop and Groundwater Well Offsite Lab Data.

HEIS Sample No.	Maintenance Shop Concrete and Soil Sample Locations Groundwater Well Locations	TPH - Die sel (pp m)
B08NR0	6718 Bldg/composite soil below pipe system at drains A and B, depth ~ 0.9 m (3 ft)	ND
B08NR1	Pipeline soil/composite/tee in line and 7.6 m (25 ft), east of tee, depth ~ 0.9 m (3 ft)	ND
B08NR2	Pipeline soil/composite 22.8 and 42.6 m (75 and 140 ft), east of tee, depth ~ 0.9 m (3 ft)	ND
B08NR3	Pipeline soil/composite 55.4 and 69 m (182 and 227 ft), east of tee, depth ~ 3 m (10 ft)	ND
B08NR4	Equipment blank silica sand	ND
B08NR5	Ditch soil/head of ditch ~ 1.5 m (5 ft)	ND
B08NR9	Ditch soil/30 m (100 ft), east of ditch head, depth ~ 1.2 m (4 ft)	ND
B08NS6	Ditch soil/15.2 m (50 ft) east of ditch head depth ~ 1.5 m (5 ft)	ND
B08NS7	Duplicate of B08NS6	ND
B08NS8	Split of B08NS6	ND
B08NS9	Ditch soil/45.7 m (150 ft) east of ditch head depth ~ 0.9 m (3 ft)	ND
B08NT0	6718 Bldg/soil below pipe system at drain G. Depth ~ 3.6 m (12 ft)	ND
B08NT1	6718 Bldg/soil below southwest corner of hydraulic hoist pit depth ~ 6 m (20 ft)	ND
B08NT2	6718 Bldg/soil below pipe system at drain H. Depth ~ 6 m (20 ft)	ND
B08NT3	Duplicate of B08NT2	ND
B08NT4	Split of B08NT2	ND
B08NT9	Well 699-67-98	ND
B08NV0	Duplicate of B08NT9	ND
B08NV1	Split of B08NT9	ND
B08NV2	Split of B08NT9	ND
B08NV3	Well 699-66-103	ND
B08NV4	Equipment Blank	ND
B08NV5	Well 699-68-105	ND
B08NV7	Well 699-72-92	ND

HEIS = Hanford Environmental Information System.

ND = Not detected at the specific limits.

4.0 COST ANALYSIS

Table 3. Cost Analysis.

ERA Activity	Estimated (thousands)	Actual (thousands)	Net Savings (thousands)
Site Characterization			
Labor	\$132.0	\$102.9	\$ 19.1
Materials and Supplies	18.5	1.7	16.8
Administration	206.4	95.0	111.4
Analytical Services	<u>10.0</u>	<u>12.5</u>	<u>- 2.5</u>
Subtotal	\$366.9	\$212.1	\$144.8
ERA Proposal			
Labor	\$ 64.5	\$40.3	\$24.2
Materials and Supplies	10.5	5.0	5.5
Administration	<u>66.3</u>	<u>42.7</u>	<u>23.8</u>
Subtotal	\$141.3	\$88.0	\$53.5
Cleanup Implementation and Closeout			
Labor	\$146.3	\$138.8	\$ 7.5
Materials and Supplies	21.4	22.9	- 1.5
Administration	163.7	167.8	- 4.1
Analytical Services	72.1	57.7	14.4
Waste Disposal	<u>18.1</u>	<u>18.1</u>	<u>0.0</u>
Subtotal	\$421.6	\$405.3	\$16.3
Total	<u>\$929.8</u>	<u>\$705.4</u>	<u>\$214.6</u>

5.0 RECOMMENDATION

The 100-IU-1 Operable Unit is ready for unrestricted land use. This meets the requirement for "No Further Action" under CERCLA guidance.

6.0 REFERENCES

- DOE-RL, 1991, *Hanford Facility Dangerous Waste Permit Application*, DOE/RL-91-28, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE-RL, 1992, *Hanford Site Waste Management Units Report*, DOE/RL-83-30, Rev. 1, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE-RL, 1993, *Riverland Expedited Response Action Proposal*, DOE/RL-93-01, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- DOE-RL, 1995, *Ordnance and Explosive Waste Records Search Report*, DOE/RL-94-07, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.
- Ecology, EPA, and DOE, 1991, *Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.
- Ecology, 1992, *Chemicals of Special Concern in Washington State*, 92-66, Washington State Department of Ecology Toxics Cleanup Program, Policy and Technical Support Section, Olympia, Washington.
- USGS, 1986, *Coyote Rapids, Wash.*, map no. 46119-F5-TF-024, U. S. Geological Survey, Denver, Colorado.

APPENDIX A
ACTION MEMORANDUM



DOE/RL-94-30

Rev. 0

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

JUN 23 1993

Reply To
Attn Of: HW-124

Leo E. Little, Assistant Manager
Environmental Management
U.S. Department of Energy
P.O. Box 550, A3-42
Richland, Washington 99352

Re: Action Memorandum: Expedited Response Action Proposal;
Riverland Site, U.S. Department of Energy Hanford Site,
Richland, Washington

Dear Mr. Little:

This Action Memorandum constitutes approval of the U.S. Department of Energy's (Energy) proposed removal action as outlined in the Engineering Evaluation/Cost Analysis (EE/CA) for the Riverland Site.

Public comments on the EE/CA were received and a response has been issued by the U.S. Environmental Protection Agency (EPA). The public raised concerns over the high costs associated with what they perceived to be a minimal scope of work. In addition, the Yakima Indian Nation expressed concerns regarding both cultural and ecological impacts this project may produce.

Public perception is that the cost of this action is too high for the environmental benefit. The approval to proceed is being granted to align with the recommendations for unrestricted land use for this area made by the Future Site Uses Working Group in their final report. This action is also being taken in order to facilitate land transfer. The Riverland Site is located between the North Slope area and the Arid Lands Ecology. Energy has committed to clean up of these two areas by October 1994, and it is reasonable that the Riverland Site should also be completed during this time frame.

On June 16, 1993, representatives from EPA, Energy, and the Washington State Department of Ecology (Ecology) accompanied representatives from the Yakima Indian Nation on a tour of the Riverland Site. As a result of that discussion, we have

determined that a removal would be consistent with the ecological or cultural resources identified by the Yakima Indian Nation.

This removal action may remove any further threats to the environment from this Site and may constitute the final action taken at the Riverland Site. If this is the case, a Record of Decision (ROD) will need to be issued to address this operable unit. Such a ROD could be combined with another operable unit, such as North Slope, to minimize the amount of administrative actions.

1. PURPOSE

The purpose of this action is to mitigate any threat to public health and the environment from the Riverland Site and may be the final remedial action taken for the Site and the 100-IU-1 Operable Unit.

II. BACKGROUND

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA proposed the 100 Area of the Hanford Site for inclusion on the National Priorities List (NPL) on June 24, 1988. In November 1989, the 100 Area was included on the NPL.

A. Site Description

The Riverland Site, part of the 100-IU-1 Operable Unit, is located west of Highway 240 and north of Highway 24 in the northwest corner of the Hanford Site. The area is about 13 square miles. It formerly contained a large rail yard where railcars were maintained, cleaned, and decontaminated during Hanford's early years. It operated from 1943 to 1957. The railcar maintenance shop included maintenance pits where the railcars were radiologically decontaminated, as well as two anti-aircraft gun emplacements, a commercial fish farm, military exercise positions, and several homesteads.

In 1963, the rail yard and anti-aircraft facilities were demolished, cleaned up, and the sites decommissioned; however the extent of cleanup was not well documented. Field activities conducted during the Expedited Response Action (ERA) identified diesel fuel and pesticide contamination which will require cleanup. In addition, the site was used for military maneuvers and will require a munitions survey as part of the action, due to the possible presence of live rounds of ammunition.

Rail Yard Site

The Riverland Rail Yard was constructed in 1943 to support Hanford construction and operation activities and was the terminus of the Milwaukee Railroad. All rail freight destined for Hanford was delivered to this yard during the early years of the Hanford Manhattan Engineering District Project. There was a 12,000 gallon underground diesel fuel storage tank and distribution piping system.

The Riverland Rail Yard Maintenance Facility (Building 6718) operated from 1943 until October 1954 when operations began in the 1100 Area 1171 Building railroad maintenance facility. Railcar decontamination continued in the two maintenance pits until 1956.

Radioactive decontamination allowed railroad maintenance personnel to work on railcars and locomotives. Most decontamination activities concentrated on the wheels, axles, brake assemblies, bearing journal housings, and other rail vehicle undercarriage oil or grease-coated parts. Diesel locomotives also had the engine compartment, radiators, and fan housings decontaminated.

Contaminants common to the rail equipment were fission product particles (i.e., ruthenium, zirconium, niobium, iodine). Radiation monitoring personnel performed decontamination of the equipment using acetone-soaked adsorbent pads. This decontamination step removed the loose contaminants from the surface of the equipment. The bagged contaminated pads, gloves, and other materials were sent to the 200 West Area for burial.

Periodic maintenance floor pit cleaning consisted of brushing the walls with a broom and diesel fuel and rinsing with water. The rinsate drained through the pit floor drains into a large tile field.

Facility decontamination occurred about 1963. The Riverland Rail Yard facility structures were sold to the public. About 2 feet of soil covers the foundations. Followup radiological surveys in 1977, 1978, and 1993 revealed only natural background radiation levels.

Munitions Cache

The munitions cache received various military explosives in the 1970s. The explosives were remnants left from various military exercises in the area. The site consisted of a wooden box placed in a hole in the ground about 2 by 3 by 2 feet deep. On May 22, 1986, the box with contents were sent

to the Yakima Firing Range for destruction. The empty hole is all that remains at the site.

Pesticide Container Site

A visual inspection found one homestead site containing a number of empty herbicide/pesticide containers. The condition of the containers suggests that they were placed there after the Hanford Project was well underway.

Other Potential Waste Sites

The Anti-Aircraft (AA) sites were established in 1951. Nike missile battery sites replaced the artillery sites beginning in 1954. Only a rock walkway and concrete step remnants remain at the H71 AA site. A few covered foundations and cleared areas remain at the H70 AA site. There are no visible signs of any hazardous waste locations.

Past military exercises have left discarded battery packs, communication wire, ammunition, and debris scattered across the southwest portion of the operable unit.

Debris piles, cisterns, irrigation pipe, and fence wire mark various homestead sites. These homesteads are eligible for inclusion on the National Register of Historic Places (36 CFR Sections 60 and 800).

There are remains of a commercial fish farm at the McGee Ranch site. There are many plastic-lined ditches with a connecting plastic pipe water distribution system.

B. Site Characterization

Site characterization activities included geophysical non-intrusive ground-penetrating radar (GPR) and electromagnetic induction (EMI) surveys, sample trenches, soil, and soil gas sampling. At the Riverland Rail Yard site, GPR and EMI surveys located the maintenance pits. The surveys further indicated that the underground fuel tank had been removed.

AA site GPR and EMI surveys were conducted only at the H70 AA site. The H70 AA site visual inspection found some man-made mounds. Three mounds were chosen based on their appearance. These surveys did not identify any anomalies to warrant further investigation. The H71 AA site visual inspection found only concrete steps and a rock walkway.

Based on the Riverland Rail Yard Maintenance Facility GPR surveys, concrete samples were taken at the uncovered floor drains. Background concrete samples were collected at a

concrete pad north of the maintenance facility. The drainpipe was sampled about 43 feet south of the maintenance facility at the sewer line connection. The sample was from soil inside the pipe. Soil gas sample analysis confirmed the former location of the underground diesel fuel tank.

The soil analysis at the munitions cache and homestead pesticide/herbicide site indicated elevated levels of total petroleum hydrocarbons (TPH) diesel fuel (220 to 1,800 ppm), TPH heavier than diesel (motor oil) (2,210 ppm) at the rail yard site, and pesticide contamination (38 ppm) at the pesticide container area. Field radiological surveys of the Riverland Rail Yard did not detect radiation levels above natural background.

III.

THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

A. Present Conditions

The limited field investigations conducted at the site indicated cleanup action is required at the rail yard site and the pesticide container waste site. Sampling data, geophysical surveys, and visual inspections indicate no hazardous constituents are located at the other waste sites in the operable unit.

Energy is proposing two other cleanup actions in the 100-IU-1 Operable Unit. Since the area was used for military exercises and a live round of munitions was found during the limited field investigation, Energy is proposing that a munitions survey be conducted in conjunction with the cleanup. The U.S. Army Corp of Engineers (COE) will complete this task. Any munitions found during the survey will be marked and plans will be developed for subsequent removal.

Energy is also proposing to clean up the physical hazards associated with the site. The primary focus of this work will be to fill in the trenches at the commercial fish farm. In addition, Energy will remove a number of abandoned cars from the site.

The above actions are being taken to allow for potential release of the land for other uses. In general, public comments received on the project supported a no action alternative rather than a cleanup response. The public expressed major concern with the costs associated with the cleanup in comparison to the apparent low risk present.

B. Applicable or Relevant and Appropriate Requirements

The cleanup action will be conducted in accordance with 40 CFR 300, Subpart E; the Hanford Federal Facility Agreement and Consent Order (part 3, Article XIII, Section 38); and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). In addition, this action will comply with the State of Washington Model Toxics Control Act (MTCA) cleanup standards (Chapter 173-340 WAC).

IV. PROPOSED ACTION AND ESTIMATED COSTS

Westinghouse Hanford Company (WHC), as the Energy contractor, prepared an EE/CA concerning technologies that were appropriate for the Riverland Rail Wash Site. Energy submitted the proposal for concurrent review by the regulator and the public. The EE/CA proposed four remedial alternatives. They are as follows:

A. NO ACTION ALTERNATIVE

The no action alternative will leave the operable unit as it is. This option is not acceptable since the characterization sample results exceed cleanup levels in certain cases.

B. OPERABLE UNIT CLEANUP ACTION LASER ALTERNATIVE

Cleanup activities will include the following:

1. Pesticide Can Site--Crush the pesticide cans and place in a waste drum for off-Site disposal. Perform field screening to define the area and depth of soil contamination. Excavate the contaminated soil and place in drums for off-Site hazardous waste disposal at an approved facility. Perform confirmatory sampling after completion of the removal activity.
2. Ordnance--Since a machine gun ammunition belt was found and the munitions cache held various discarded munitions, an ordnance survey will be performed by the COE. It will determine the existence/nonexistence of any additional ordnance in the operable unit. There is a slight possibility that some ordnance may be buried in the unit. Any ordnance found will be disposed of according to established U.S. Army ordnance disposal practices.

3. Fill in munitions cache hole with clean soil.
4. Riverland Rail Yard Maintenance Facility--The cleanup goal is to reduce the diesel fuel residue to below 200 ppm. Cleanup activities will consist of excavating fill material from the wash pits and removing vitrified clay drain pipes and contaminated soils. The soil and pipe fragments will be bioremediated and the soil placed back into the excavation after confirmation samples indicate that contaminants in the soil are below regulatory levels. The xenon flash lamp will be used for concrete decontamination. The lamp raises the surface temperature of the concrete to approximately 1500°C in a short period of time, resulting in the removal of the total petroleum hydrocarbon contaminants. Perform confirmatory sampling after completion of the cleanup activity.
5. Landlord Cleanup--Perform a landlord cleanup of the operable unit. Landlord cleanup is defined as removing physical and non-hazardous constituents from the site as part of best management practices. The cleanup activities will include trash and debris removal. All waste will be disposed of at an appropriate waste disposal facility.

The estimated costs for this proposal is \$ 457,000.00. The high cost is associated with laser technology.

C. HAZARDOUS WASTE REMOVAL AND OFF-SITE DISPOSAL ALTERNATIVE

Activities will include the following:

1. Pesticide Can Site--Crush the pesticide cans and place in a waste drum for off-Site disposal. Perform field screening to define the area and depth of soil contamination. Excavate the contaminated soil and place in drums for off-Site hazardous waste disposal at an approved facility. Perform confirmatory sampling after completion of the removal activity.
2. Ordnance--Since a machine gun ammunition belt was found and the munitions cache held various discarded munitions, an ordnance survey will be performed by the COE. It will determine the existence/nonexistence of any additional ordnance in the operable unit. There is a slight possibility that some ordnance may be buried in the unit. Any ordnance found will be disposed of according to established U.S. Army ordnance disposal practices.
3. Fill munitions cache hole with clean soil.

4. Riverland Rail Yard Maintenance Facility--Remove the concrete-lined pits and drain pipes. Send the total petroleum hydrocarbon contaminated concrete, soil, and pipes for off-Site hazardous waste disposal. Perform sampling of soil beneath the pits for diesel fuel contamination. Place any contaminated soil in the barrels for off-Site hazardous waste disposal at an approved facility. Perform confirmatory sampling after removal of contaminated materials from the site.
5. Landlord Cleanup--Perform a landlord cleanup of the operable unit. The cleanup activities will include trash and debris removal. All waste will be disposed of at an appropriate waste disposal facility.

The estimated cost for this cleanup alternative is \$ 448,000.00. The high cost of this alternative is associated with shipping all materials off-Site for disposal.

D. OPERABLE UNIT CLEANUP ACTION SANDBLASTING ALTERNATIVE

Cleanup activities are the same as cleanup option B with the exception that sandblasting will be used instead of laser technology to decontaminated the concrete areas.

The estimated cost of this alternative is \$ 227,500.00. The reduced cost on this alternative is choosing sandblasting over laser technology for the concrete decontamination. It should be noted, this alternative excludes the landlord cleanup from the cost estimates.

Implementation

Labor.....	\$ 40,600.00
Material and supplies.....	12,700.00
Analytical services.....	16,000.00
Off-Site disposal.....	5,700.00
Munitions survey.....	100,000.00
 SUB TOTAL.....	 \$ 175,000.00
30% Contingency.....	52,500.00
 TOTAL.....	 \$ 227,500.00
 Landlord cleanup.....	 add \$ 85,300.00
(not included in recommendation by EPA and Ecology)	

V.

RECOMMENDATION

This decision document represents the selected removal (Option D, Section IV) action excluding the landlord cleanup portion of the alternative for the Riverland Site of the Energy Hanford Site located near Richland, Washington. The landlord cleanup section was removed from this action memorandum since EPA and Ecology have no authority to mandate cleanup of non-hazardous substances pursuant to CERCLA or MTCA. This proposal was developed in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substance Pollution Contingency Plan (NCP). This decision is based on the administrative record for this project.

EPA is the lead regulatory agency for this project. If you have further questions, please contact Dennis Faulk of EPA's Hanford Project Office at (509) 376-8631.

sn Kathryn M. Davidson
 Randall F. Smith, Director
 Hazardous Waste Division
 EPA, Region 10

June 21, 1993
 Date

cc: Randall F. Smith, EPA
 George Hofer, EPA
 Andrew Boyd, EPA
 Becky Austen, WHC
 Jack Donnelly, Ecology
 Paul Pak, DOE
 Administrative Record

Roger Stanley
 Roger Stanley, Director
 Nuclear and Mixed Waste Program
 Washington State Department
 of Ecology

June 22, 1993
 Date

* ins - Tri Party Agreement Implementation
 A-9

APPENDIX B
CONCRETE WASTE DESIGNATION

DISPOSAL REQUEST NO. 22831ISSUE DATE SEP 08 1993GENERATOR LOGBOOK NO. EFSG-93-RLDCCTIDW CoordinatorNAME G.G. HopkinsADDRESS N3-06GENERATING FACILITY Environmental Field ServicesPHONE 376-2625ACCEPTANCE SERVICESDISPOSAL ANALYSIS BY: Brent PorterPHONE 372-0689APPROVAL Richard J. O'Quinn
B. R. Porter

REQUEST FOR HAZARD IDENTIFICATION

Environmental Investigation Instruction 4.3 (EII 4.3), "Control of CERCLA and Other Past Practice Investigation Derived Waste", directs the cognizant waste coordinator to transmit to Acceptance Services the pertinent investigation derived waste (IDW) sample analytical results to facilitate the dispositioning of waste generated during past practice waste site investigative drilling operations.

As detailed in EII 4.3, the analytical results for the constituents of concern (COC's) for the operable unit in which the IDW is generated are sufficient to disposition the waste.

Based on the information provided, the following identifications were made regarding the concrete pad potentially contaminated with solvents at the Riverland ERA project:

1) Does the material meet or exceed Washington State Dangerous Waste Limits?

X NO _ YES

2) Does it qualify as a Dangerous Waste (DW) or Extremely Hazardous Waste (EHW)?

X NO _ YES

3) Do you have any special packaging recommendations?

X NO _ YES

According to the information recieved per lab analysis and using Chevron Diesel Fuel no. 2 for the benzene constituent, the concrete samples are below regulatory limits and are not regulated.

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