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# Proposed Plan for the 100-IU-1 Operable Unit

Hanford Site, Richland,  
Washington



United States  
Department of Energy  
Richland, Washington



Approved for Public Release

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Hanford Site, Richland, Washington

Date Published  
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United States  
Department of Energy

P.O. Box 550  
Richland, Washington 99352

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## PROPOSED PLAN FOR THE 100-IU-1 OPERABLE UNIT

### Hanford Site, Richland, Washington

#### DOE, EPA AND ECOLOGY ANNOUNCE PROPOSED PLAN

This proposed plan identifies the preferred alternative for the 100-IU-1 Operable Unit known as the Riverland Rail Yard, located at the Hanford Site (Figure 1). The proposed plan is intended to be a fact sheet for public review that summarizes the information relied upon to recommend the preferred alternative.

This proposed plan is issued by the U.S. Environmental Protection Agency (EPA), the lead regulatory agency, the U.S. Department of Ecology (Ecology), the support regulatory agency, and the U.S. Department of Energy (DOE), the responsible agency. EPA, Ecology, and the DOE are issuing the proposed plan as part of their public participation responsibilities under Section 117(a) of the *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* commonly known as the "Superfund Program," and the *National Environmental Policy Act of 1969 (NEPA)*.

As presented in this proposed plan, no further action is the preferred alternative for the final resolution of the 100-IU-1 **Operable Unit**. No action is recommended because all suspected hazardous substances above cleanup levels have been removed from the site and there is no significant risk to the public health or the environment.

This preferred alternative is the initial recommendation of EPA, Ecology, and the DOE. The preferred alternative will be selected only after the public has had the opportunity to comment on this recommendation, and all comments have been reviewed and considered. Comments may be made in person at the public meetings or may be submitted in writing. Written comments must be submitted by \_\_\_\_\_. Public comments will be addressed in a responsiveness summary as part of the **record of decision (ROD)**, which is the legal decision that specifies the cleanup remedy.

The public is encouraged to review the *Riverland Expedited Response Action (ERA) Assessment Report*

Send written comments to:  
U.S. Environmental Protection Agency  
Attention: Dennis Faulk  
712 Swift Blvd., Suite 5  
Richland, WA 99352  
509/376-8631

(DOE/RL-94-30, Rev. 0). The Administrative Record which contains this document and other information used in the selection of the preferred alternative, is available for review at the information repositories identified at the end of this proposed plan.

#### MARK YOUR CALENDAR

A 45-day public comment period for the 100-IU-4 Proposed Plan is scheduled from Month \_\_ through Month \_\_.

A public meeting on this proposed plan will be held as follows:

Date: ???  
Time: ???  
Place: ???

You will have an opportunity at the meeting to direct questions to Ecology, EPA, and DOE representatives and comment on the preferred alternatives.

#### SITE BACKGROUND

The Hanford Site is located in southeastern Washington (Figure 1). The 100 Area of the Hanford Site is located along the Columbia River and includes nine reactors that were used for plutonium production between 1943 and 1987. In November 1989, the EPA placed the 100 Area on the **National Priorities List** because of soil contamination that had

resulted during past operations of the nuclear facilities.

The 100-IU-1 Operable Unit (Figures 1 and 2) boundaries are Washington State Route 240 on the east, Washington State Highway 24 on the south, the Hanford Site boundary on the west, and the Columbia River on the north. The site is about 34 square kilometers (13 square miles) in size. 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 any cleanup action in this area.

The 100-IU-1 Operable Unit contains two hazardous waste sites: the pesticide container site and the Riverland Rail Yard Maintenance Facility, and a non-hazardous munitions cache (Figure 2). Based on results of radiological surveys, the operable unit is considered nonradioactive.

The operable unit also contains a 2-4,D container site that was discovered after cleanup was underway (Figure 2). The 2,4-D container site was added as part of the 100-IU-1 operable unit waste sites.

The operable unit also contains two non-hazardous former military installations, a non-hazardous military debris dump site, and a non-hazardous former fish farm. Responsibility for clean up is a landlord maintenance activity.

The Riverland Rail Yard (Figure 2, Location A), constructed in 1943, supported Hanford construction and operation activities. This yard received all rail freight destined for Hanford 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 were transferred to the 1100 Area's 1171 Building Railroad Maintenance Facility. Rail car decontamination continued in the two maintenance pits until 1956.

Radioactive decontamination was required before railroad maintenance personnel could work on the rail cars 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. The engine compartment, radiators, and fan housings of the diesel locomotives were also decontaminated.

The radioactive contamination levels were minimal and easily removed. Contaminants common to the rail equipment are fission product particles (ruthenium, zirconium, niobium, iodine, etc.). The contamination level was typically very low. Radiation monitoring personnel performed the decontamination of the rail cars using acetone-soaked absorbent pads. The contaminated pads, gloves, and other materials were properly packaged and disposed.

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

Facility decontamination occurred about 1963. The Riverland Rail Yard facility structures were dismantled and sold. About 0.6 meters (2 feet) of soil were placed over the foundations. Follow up radiological surveys in 1977, 1978, and 1993 revealed only natural background radiation levels.

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 suggested they were placed there after the Hanford Project was well underway. Characterization activities identified aldrin and dieldrin as the **contaminants of concern**. These chemicals were produced for about 10 years from the early 1950's to early 1960's.

A munitions cache (Figure 2, Location C) that received various military explosives in the 1970's is also part of this operable unit. 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 x 0.9 x 0.6 meters (2 x 3 x 2 feet) deep. On May 22, 1986, the box with contents was removed and sent to the Yakima Firing Range for destruction (DOE-RL 1992). The empty hole was all that remained at the site.

**Groundwater** contamination is not known to be associated with the 100-IU-1 Operable Unit. There are two shallow groundwater monitoring wells (Figure 2) within the operable unit: well 699-66-103, located downgradient of the Riverland Maintenance Shop site and well 699-68-105, located downgradient and to the northwest of 699-66-103. Sample analysis data from as far back as 1971 indicate no contamination problems.

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

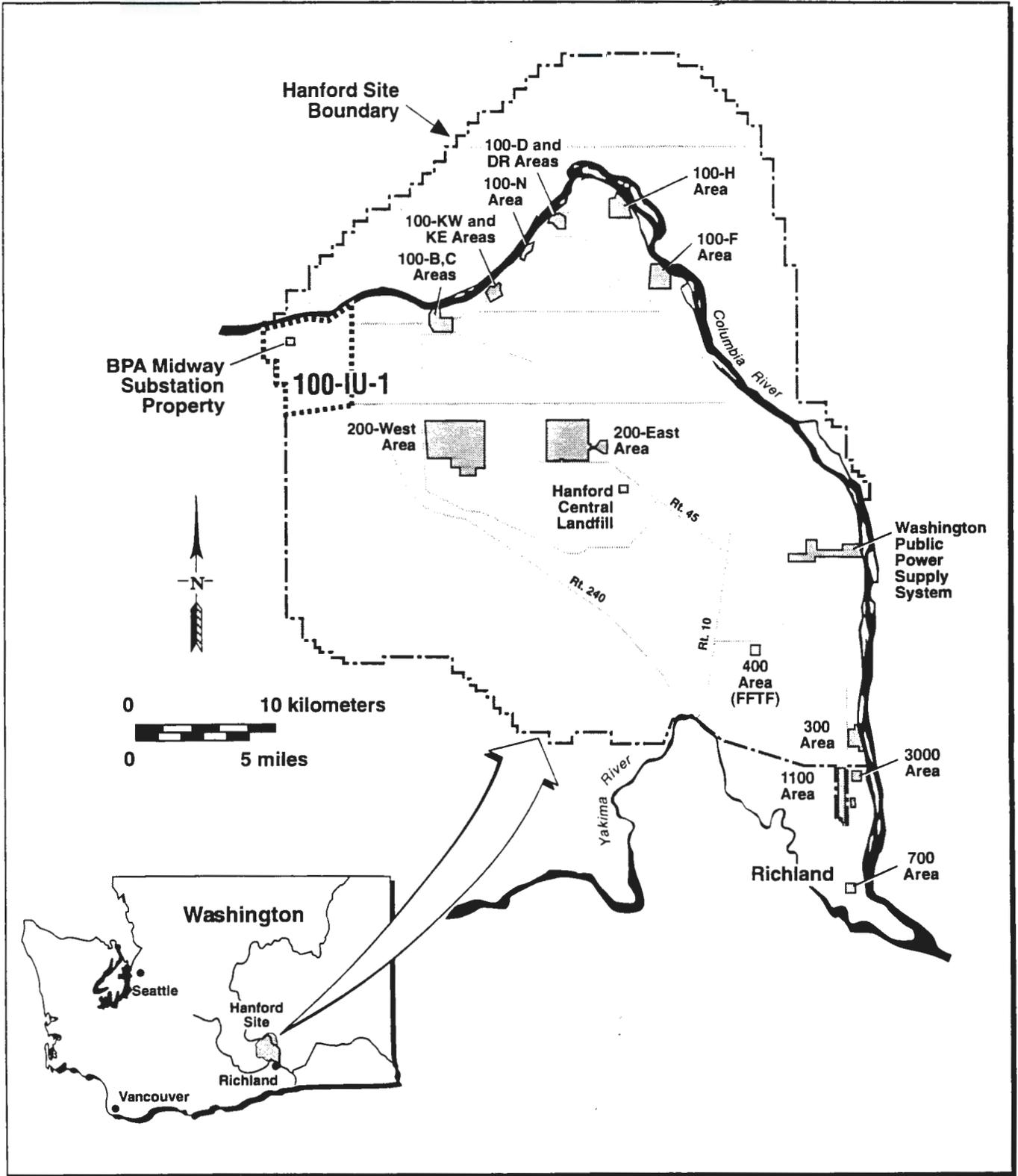


Figure 2. Waste Site Locations (USGS 1986).

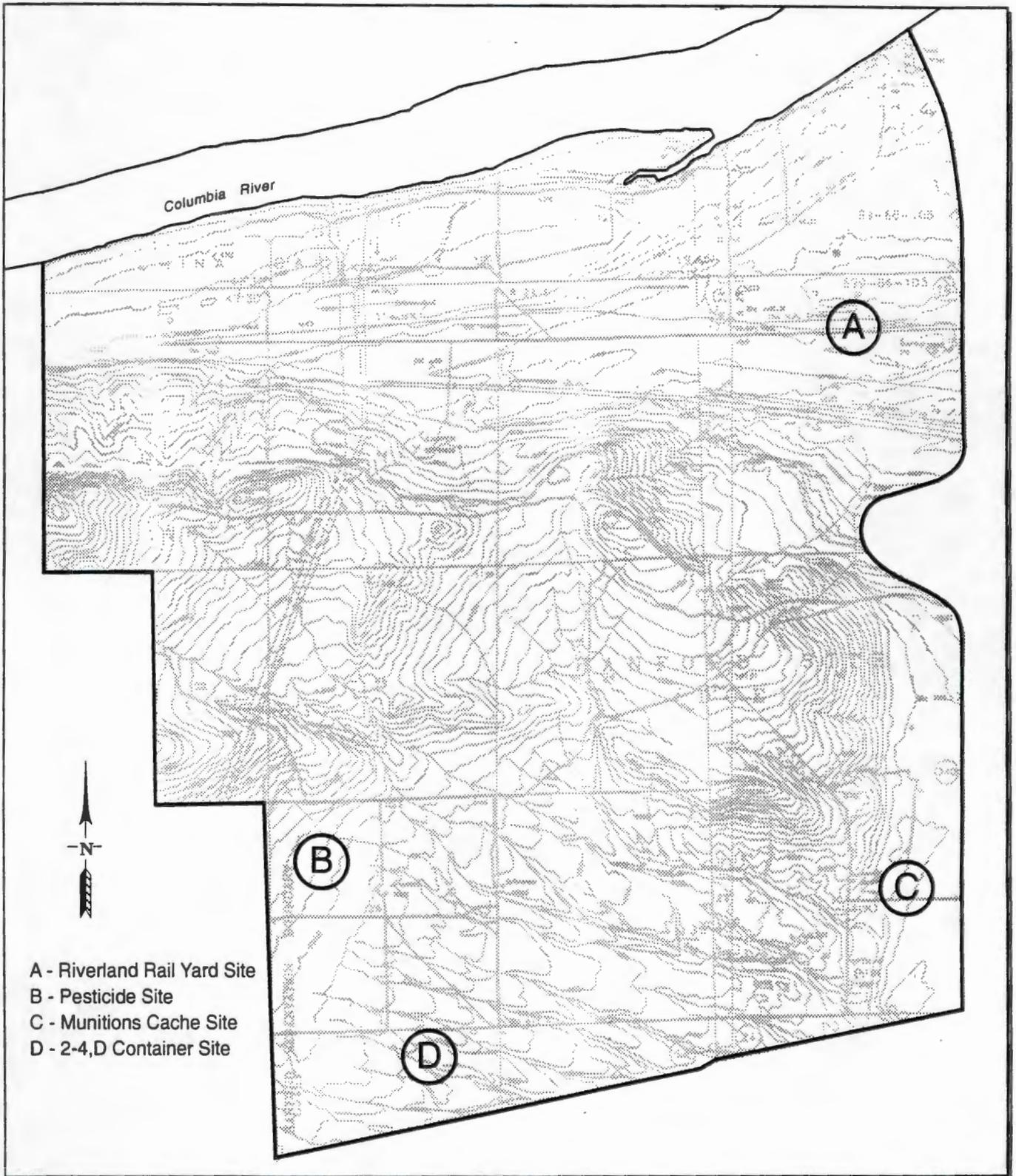


Figure 3. Riverland Rail Yard.

### Riverland Railroad Facility

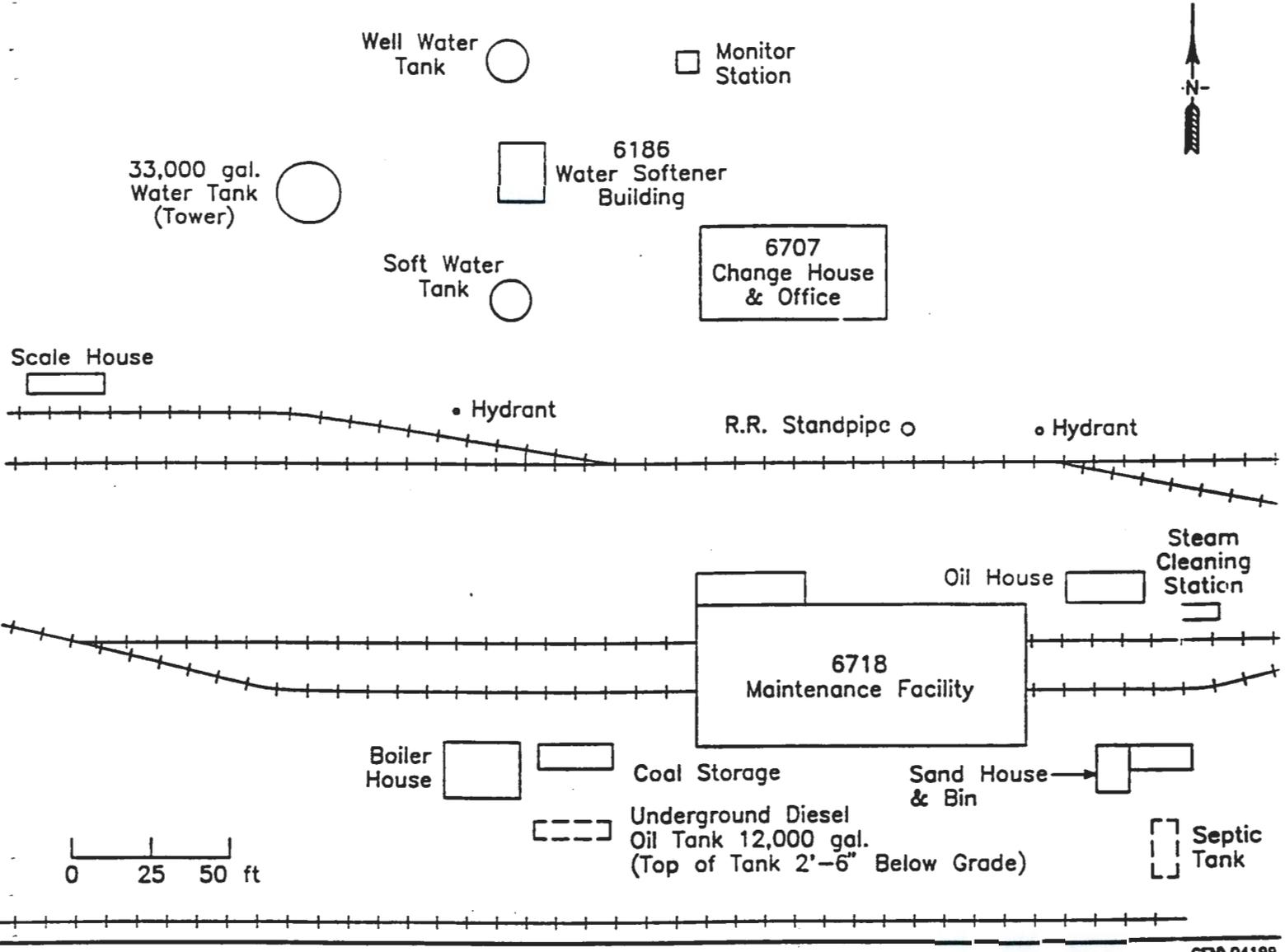
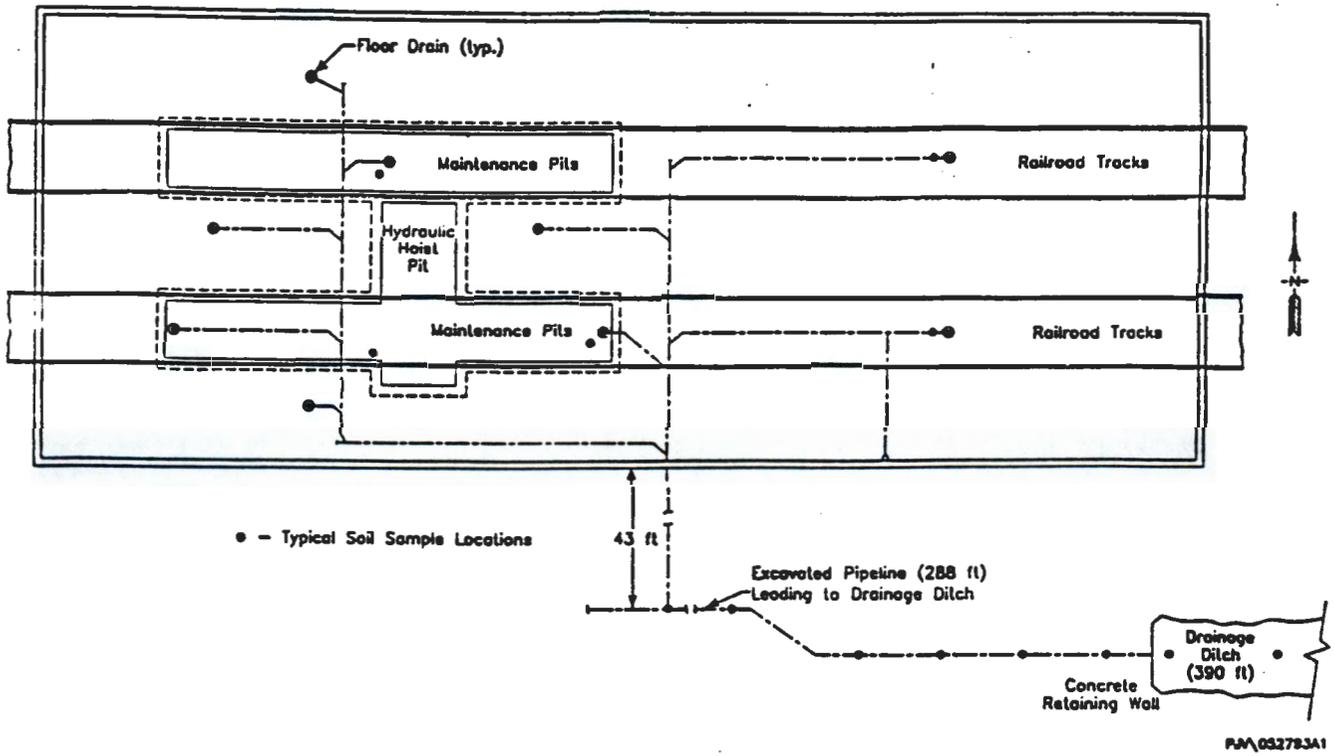


Figure 4. Riverland Rail Yard Maintenance Facility (Building. 6718) Floor Drain Plan



The 1990 *Hanford Federal Facility Agreement and Consent Order* stated that where immediate danger to the public or environment is possible, expedited response actions are to be pursued to accelerate remediation of the Hanford Site. An expedited response action is a mechanism that allows for the elimination of potential hazards that can cause immediate threat to the public or environment. In 1992 the EPA and Ecology selected the 100-IU-1 Operable Unit for remediation as an expedited response action.

In April 1992, DOE prepared an engineering evaluation/cost analysis that evaluated technologies applicable to remedial alternatives available for 100-IU-1. The engineering evaluation/cost analysis is presented as part of the Riverland Expedited Response Action Proposal (DOE/RL-93-01). The proposal was reviewed by the EPA and Ecology, and was made available for a 30 day public comment period. An Action Memorandum issued in June 1993 by the EPA and Ecology directed DOE to clean up the Riverland Rail Yard Maintenance facility and the pesticide container sites, perform an ordnance survey, and fill in the munitions cache hole.

#### EXPEDITED RESPONSE ACTION SUMMARY

At the Rail Yard Maintenance facility, about 260 cubic meters (340 cubic yards) of concrete was removed and recycled through a concrete recycling plant. About 330 cubic meters (430 cubic yards) of diesel contaminated soil were removed and bioremediated on a 100 C Area concrete pad.

The 330 cubic meters (430 cubic yards) of diesel contaminated soil has not been verified to be free of hydrocarbons. Soil sampling is currently under way. If the soil is clean, the above statement will remain. If hydrocarbons are still present, the statement will be rewritten to indicate bioremediation will continue as part of the 100-BC Operable Unit.

At the pesticide site, onsite field screening was used to monitor cleanup activity success. Final excavated site dimensions were 2.1 x 5.3 meters (7 x 17.5 feet). The depth varied from 15-20 cm (6-8 in) on the east end to 61-76 cm (24-30 in) on the west end. A total of twenty seven 208 liter (55 gal) drums were filled with waste. Two drums contained 15 crushed pesticide containers. The remaining twenty five

drums contain aldrin and dieldrin contaminated soils. All drums were sent to the Hanford Central Landfill.

Following the removal of contaminated soil, the remaining soil was sampled and analyzed for diesel fuel, heavy motor oil, aldrin, and dieldrin. At the Rail Yard Maintenance Shop site a total of 24 soil samples were collected for diesel fuel and heavy motor oil analysis. No diesel fuel or heavy motor oil contamination above detectable levels was found during sampling. At the pesticide site, five soil samples were collected. The highest reading concentration was 3.6 microgram per kilogram or 3.6 parts per billion (ppb) for dieldrin.

The munitions cache hole was filled with clean soil.

The 2-4,D Container Site (Figure 2, Location D) was discovered in July, 1994 during an Pacific Northwest Laboratory archaeological survey. Two 5-gallon 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 held 2-4,D. The condition of the containers and surrounding vegetation indicates that the containers were buried after the Hanford Project was well underway. No contaminated soil around or beneath the containers was found during characterization of the 2-4,D site. Based on sampling results of liquid collected at the site, the empty containers were designated non-regulated and the site was cleaned as a landlord cleanup effort.

The Riverland Expedited Response Action Ordnance Survey was performed as part of the Hanford site wide ordnance and explosive waste (OEW) archive search conducted by the U. S. Army Corps of Engineers (*Ordnance and Explosive Waste Records Search Report*, DOE/RL-94-07, Rev. 0).

#### SUMMARY OF SITE RISKS

A risk assessment performed before starting the expedited response action cleanup activities identified cleanup levels for diesel, aldrin, and dieldrin that would present no risk to the public and environment.

The Riverland Railroad Maintenance Shop's primary hazardous contaminant of concern was concrete and soils that had been contaminated with diesel fuel. The diesel cleanup level for soil is 200 milligram per kilogram (mg/kg) or 200 parts per million (ppm) based on residential clean up levels as specified in the

regulations implementing the *Model Toxics Control Act* Method A. No diesel fuel or motor oil above detection limits were found during the final cleanup sampling.

At the pesticide container site, the primary hazardous contaminants of concern were aldrin and dieldrin contaminated soils. According to the risk assessment, the cleanup level must be below 2 ppm to present no risk to the human health or the environment. The final cleanup sampling results (3.6 ppb maximum for dieldrin) are below the risk assessment level.

The risk calculations indicate that there is unlikely to be significant risk to human health or the environment associated with the constituents detected in the soil at the 100-IU-1 Operable Unit.

#### **PREFERRED ALTERNATIVE**

The expedited response action concluded that the site poses no significant threat to human health or the environment. Therefore, the preferred alternative recommended for the 100-IU-1 Operable Unit is no further action. Ecology and EPA support the no further action alternative.

SUPPORTING DOCUMENTS	ADMINISTRATIVE RECORD
<p>The public is encouraged to review the following documents to gain a comprehensive understanding of the 100-IU-1 Operable Unit.</p> <ul style="list-style-type: none"> <li>• <i>Riverland Expedited Response Action Proposal</i> (DOE/RL-93-01)</li> <li>• <i>Riverland Expedited Response Action Assessment Report</i> (DOE/RL-94-30)</li> <li>• <i>Ordinance and Explosive Waste Records Search Report</i> (DOE/RL-94-07)</li> </ul>	<p>These reports are available for review at the following repositories:</p> <p>U.S. Department of Energy - Richland Operations Public Reading Room 2440 Stevens Center Place Richland, Washington 99352 509/376-7411 Hrs: Mon-Fri 8-12am and 1-4:30pm</p> <p>EPA Region 10 Superfund Record Center 1200 Sixth Avenue Park Place Building, 7th Floor Mail Stop: HW-074 Seattle, Washington 98101 206/553-4493 Hrs: 8am - 4:30pm</p> <p>Washington State Department of Ecology Nuclear Waste Library 719 Sleater-Kinney Road SE Capital Financial Building, Suite 200 Lacey, Washington 98503 206/407-7097 Hrs: Mon-Fri 8am - 5pm</p>
POINTS OF CONTACT	INFORMATION REPOSITORIES
<p><u>Department of Energy Representative</u> Glen Goldberg 100 Area Manager 509/376-9552</p> <p><u>U.S. Environmental Protection Agency Representative</u> EPA (Region 10) Dennis Faulk Unit Manager 509/376-8665</p> <p><u>Washington State Department of Ecology Representative</u> Dib Goswami Unit Manager 509/736-3027</p>	<p>University of Washington, Suzzallo Library Government Publications Room Mail Stop FM-25 Seattle, Washington 98195</p> <p>Gonzaga University, Foley Center E. 502 Boone Spokane, Washington 99238</p> <p>Portland State University, Branford Price Millar Library, Science and Engineering Floor SW Harrison and Park P.O. Box 1151 Portland, Oregon 97207</p> <p>U.S. Department of Energy Richland Public Reading Room, Washington State University, Tri-Cities 100 Sprout Road, Room 130 Richland, Washington 99352</p>

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## GLOSSARY

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**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** - This is a federal law that establishes a program that enables the Environmental Protection Agency to identify hazardous waste sites, ensure that they are cleaned up, and allow other government entities to evaluate damages to natural resources. CERCLA is also known as the "Superfund law."

**Contaminants of Potential Concern** - These are chemical and radioactive constituents that must be addressed by remedial action.

**Groundwater** - Underground water that fills the spaces between particles of soil, sand, gravel, or fractures in rocks.

**National Priorities List** - A list of top-priority hazardous waste sites in the United States that are eligible for investigation and cleanup under the Superfund law.

**Operable Unit** - This is a subset of a larger Superfund CERCLA site; it is typically the subject of Operable Unit-specific investigations and remedial actions.

**Record of Decision** - The formal document in which the lead regulatory agency sets forth the selected remedial measure and the reasons for its selection.