

START

ENVIRONMENTAL EVALUATION

REMEDIAL INVESTIGATION OF THE 1100-EM-1 OPERABLE UNIT

1.0 SUMMARY

This Environmental Evaluation (EE) addresses the potential environmental impacts from the proposed remedial investigation (RI) activities supporting Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements for the 1100-EM-1 operable unit. The primary objectives of the RI are to collect data onsite, determine waste characteristics, contaminant pathways and transport mechanisms, and to conduct treatability testing as necessary to support the evaluation of remedial alternatives.

As shown on the attached Environmental Checklist, there are several environmental impacts related to the proposed RI activities. These impacts do not contribute significantly to the overall impacts of the Hanford Site. The proposed action, as discussed in this EE, does not constitute a major federal action significantly affecting the quality of human environment within the context of the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-190, 42 United States Code, 4321 et seq.). It is recommended, therefore, that no additional environmental documentation be prepared. This EE serves as supporting documentation to the requirement for a "Memorandum-to-File" as described in Department Of Energy Guidelines (52 FR 47662).

2.0 PROJECT DESCRIPTION

The proposed activity involves remedial investigation (RI) in support of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) requirements for the 1100-EM-1 operable unit. Individual waste sites have been identified in the 1100 Area. The waste sites are:

- o Battery Acid Pit
- o Paint and Solvent Disposal Pit
- o Antifreeze and Degreaser Pit
- o Antifreeze Tank Site
- o Radioactive Contamination Spill
- o Horn Rapids Landfill
- o "Discolored Soil" Site

Because relatively little site-specific data are available for the 1100 Area, Phase 1 of the RI will be performed in two parts, Phase 1A and Phase 1B. Phase 1A activities will consist of survey techniques conducted to identify zones of potential contamination (e.g., "hot spots"), and to identify probable

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contaminants. Techniques to be used under Phase 1A include evaluation of aerial photography, geologic mapping, geophysical surveys and soil-gas surveys. Geophysical surveys may include ground penetrating radar, electromagnetic surveys, magnetometer surveys, or ground resistivity profiles and/or soundings. Soil-gas surveys involve driving a hollow probe approximately 5 feet into the ground and withdrawing an air sample for analysis by gas chromatography.

Phase 1B will consist of evaluating Phase 1A data and conducting more detailed investigation and sampling. Phase 1B could include construction activities such as shallow pits, auger holes, soil borings, and monitoring wells to investigate anomalies identified in Phase 1A. Vadose zone holes will generally be drilled using either cable-tool or hollow-stem-auger rigs. Several samples will be taken, at intervals, down to and including the saturated zone. Ground water monitoring wells will be drilled with either cable-tool, hollow-stem-auger, conventional-auger, or rotary rigs. Specific locations for sampling activities under Phase 1B will be determined on the basis of information obtained from Phase 1A. Each of the sites in the 1100 Area is unique and will require modifications based on individual conditions.

Air quality monitoring during RI activities will involve the collection of air samples upwind and downwind of the waste disposal sites. Meteorological monitoring specific to the 1100 Area will involve the installation of a meteorological tower at least 10 m (30 ft) in height.

This RI activity is planned to be initiated in fiscal year 1989 and completed in FY 1990, at an estimated cost of approximately 2.2 million dollars.

3.0 AFFECTED ENVIRONMENT

The 1100 Area is part of the approximately 560 square mile semiarid Hanford Site in southeastern Washington (Figure 1). The 1100 Area is approximately 1 mile from the Columbia River, the nearest natural watercourse. The projected 100-500-year flood does not include the 1100 Area. The nearest population center is the city of Richland, about 2 miles away. The region is categorized as one of low to moderate seismicity.

The area has a mild climate with annual precipitation of six to seven inches, and infrequent periods of high winds (up to 80 miles per hour). Tornadoes are extremely rare, and no violent tornadoes have occurred in the region surrounding Hanford. The probability of a tornado hitting any given facility on-site is estimated at ten chances in one million during any given year.

The sagebrush/cheatgrass-Sandberg's bluegrass vegetative community dominates the Hanford Site, including the 1100 Area. The important shrubs are big sagebrush and rabbitbrush, while the understory is primarily composed of cheatgrass and Sandberg's bluegrass.

Most mammal species known to inhabit the Hanford Site are small, nocturnal creatures, primarily pocket mice and jackrabbits. Large mammals found on the site are deer and elk, although the elk are almost entirely on the Arid Lands

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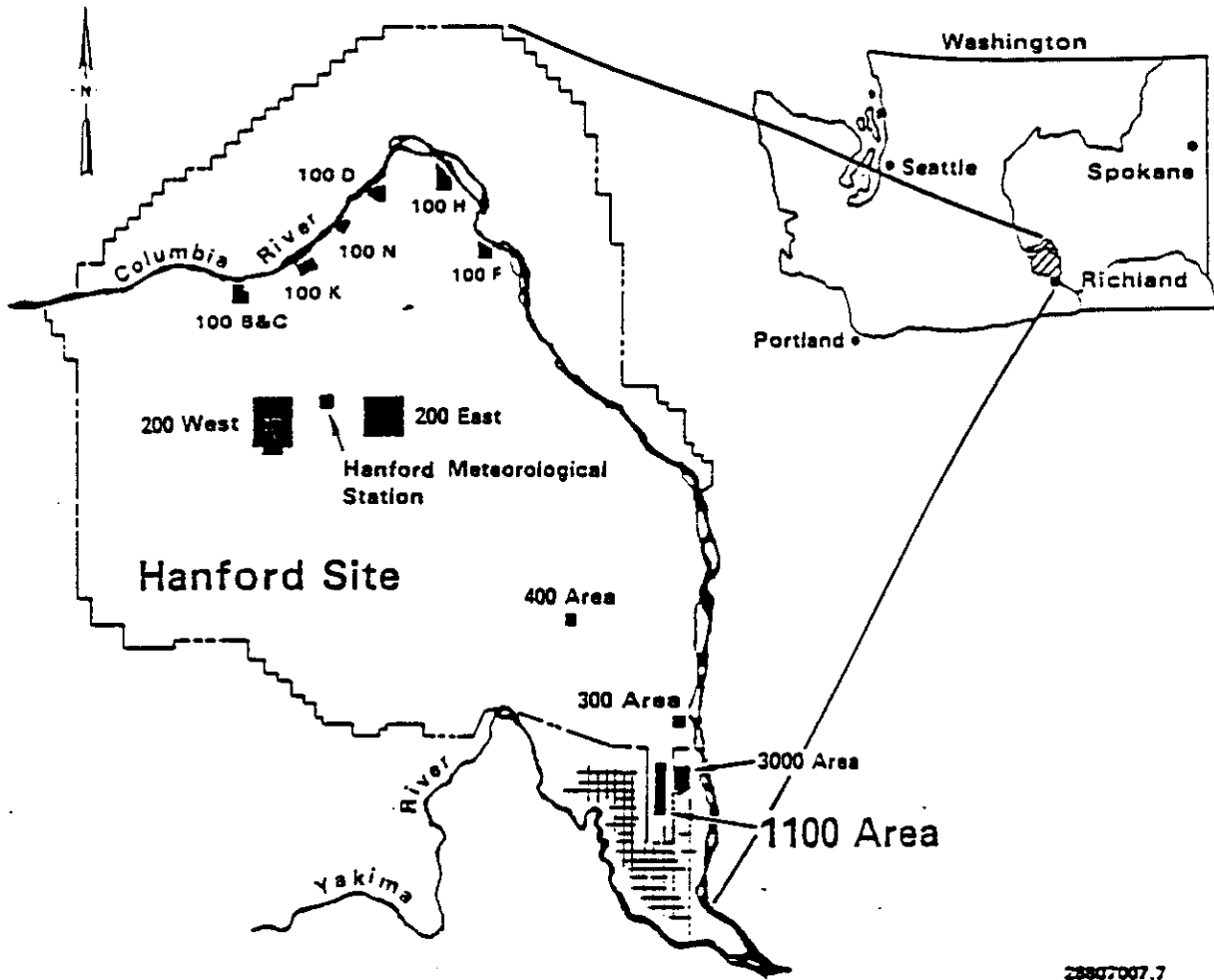


Figure 1. Hanford Site Map.

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Ecology Reserve. Coyotes and raptors are the primary predators. Only a few species of small birds nest in the steppe vegetation. Semiannual peaks in variety and abundance occur during migration seasons. The bald eagle is a winter resident, but no species of plant or animal registered as rare, threatened, or endangered are known to depend on the habitats unique to the 1100 Area. The long-billed curlew, which nests in dryland habitats around the 1100 area, is a species proposed for State Monitor classification.

4.0 POTENTIAL ENVIRONMENTAL IMPACTS

This section contains a detailed explanation of the potential environmental impacts from the proposed upgrades and improvements as indicated on the Environmental Checklist (Section 9.0 of this report).

- 1.a. Minor amounts of equipment exhaust emissions (e.g., from vehicle and drilling motors) may result from RI activities.
- 1.b. Some dust may occur as a result of the activities of construction vehicles.
- 1.c. Equipment (i.e., power tools, vehicles,) used during RI activities may release minor amounts of heat to the atmosphere.
- 2.a. Raw water may be sprayed on the ground during construction activities to mitigate dust. Nonradioactive purge water (from well drilling operations) with chemical contaminants below concentration guidelines may be discharged directly to the ground surface.
- 2.g. Monitoring wells will be installed during the RI activity.
- 3.d. Miscellaneous solid wastes (e.g., construction scrap) generated during the construction phase of the proposed project will be disposed of in the Central Landfill. Soils contaminated with hazardous materials will be packaged and handled as hazardous waste.
- 4.a. Although not specifically required, the proposed monitoring wells will be constructed using the guidance provided in 40 CFR 264 and 40 CFR 265. WAC 173-303-400 and applicable requirements of WAC 173-160 and WAC 173-162 will be met. Well-drilling operators will be appropriately licensed under RCW 18.104.070. The RI activities support CERCLA requirements for the 1100-EM-1 operable unit.
- 4.b. Equipment (e.g., motors) will temporarily increase noise levels in the immediate vicinity during the construction phase.
- 4.c. The surrounding communities have some known archaeological and historical Indian settlement sites. Prior to construction, the project sites will be surveyed for archaeological materials. If archaeological materials are found, the significance of the find will be evaluated. If the find is significant, there may be delays until a plan to mitigate construction impacts can be devised and implemented.

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- 4.f. The long-billed curlew, which nests in dryland habitats around the 1100 area, is a species proposed for State Monitor classification.
- 4.g. Building materials, such as steel for well casing, and cement to seal the casing, represent a long-term commitment of nonrenewable resources. None of these materials will be used in substantial quantities when compared with daily national consumption.
4. k. The ground water monitoring wells may be added to the Sitewide Environmental Surveillance Program.

5.0 COORDINATION WITH FEDERAL, STATE, REGIONAL, OR LOCAL PLANS

This project provides no known conflicts with federal, state, regional, or local agencies or their environmental plans. The Department of Energy will continue to coordinate CERCLA efforts at the Hanford Site with the U. S. Environmental Protection Agency and the State of Washington Department of Ecology.

6.0 ALTERNATIVES

No viable alternatives were identified for the proposed activity. Data are required to pursue CERCLA requirements. A no action alternative would not provide the necessary data.

7.0 PERSON/AGENCIES CONTACTED

Westinghouse Hanford Company (WHC)

M. R. Adams	Environmental Engineering
R. G. McCain	Environmental Engineering

8.0 PERMITS/APPROVALS

No permits from outside agencies are known to be required for this activity. Appropriate Westinghouse Hanford Company permits (e.g., electrical tie-in permit, drilling permit) will be obtained prior to construction activities as needed. Hanford standards and national consensus codes and standards (e.g., Occupational Safety and Health Standards) as developed by such organizations as the American National Standards Institutes, International Conference of Building Officials, American Society of Mechanical Engineers,

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National Fire Protection Association and the Institute of Electrical and Electronics Engineers will be used. All applicable WHC guidelines and DOE orders, prescribed codes, and standards will be followed. The latest editions of all codes and standards in effect at the start of the design will be used. Specific codes and standards sections used in the preparation of the conceptual design report will be identified in that document.

9.0 ENVIRONMENTAL EVALUATION CHECKLIST

See the attached EE checklist.

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REMEDIAL INVESTIGATION OF THE 1100-EM-1 OPERABLE UNIT

Potential Environmental Impacts: A detailed explanation of all "yes" answers is required and is provided in the text.

	CONSTRUCTION		OPERATION			CONSTRUCTION		OPERATION	
	YES	NO	YES	NO		YES	NO	YES	NO
1. <u>AIR</u> : Will the proposed project/activity:					3. <u>LAND USE</u> : Will the project:				
a. Result in any gaseous discharges to the environment? (If yes, provide description, physical/chemical characterization.)	<u>X</u>	—	—	<u>X</u>	a. Conflict with existing zoning or land use?	—	<u>X</u>	—	<u>X</u>
b. Result in any particulate or droplet releases to the atmosphere?	<u>X</u>	—	—	<u>X</u>	b. Be located on the 100-year or 500-year floodplain?	—	<u>X</u>	—	<u>X</u>
c. Result in any thermal discharges to the environment?	<u>X</u>	—	—	<u>X</u>	c. Be located on wetlands?	—	<u>X</u>	—	<u>X</u>
d. Cause any other atmospheric disturbance?	—	<u>X</u>	—	<u>X</u>	d. Generate a volume of solid waste for disposal? (1) Hazardous? (2) Radioactive? (3) Other?	<u>X</u>	—	—	<u>X</u>
e. Violate any federal/state or local emission standards?	—	<u>X</u>	—	<u>X</u>	e. Cause erosion?	—	<u>X</u>	—	<u>X</u>
f. Be subject to federal or state standards of performance for new stationary sources? (WAC 173-400-115)	—	<u>X</u>	—	<u>X</u>	f. Be located on the Arid Land Ecology Reserve?	—	<u>X</u>	—	<u>X</u>
g. Violate any applicable ambient air quality standards (e.g., CO, hydrocarbons, particulates, NO ₂ , etc.)?	—	<u>X</u>	—	<u>X</u>	g. Conflict with National Environmental Policy Act activities?	—	<u>X</u>	—	<u>X</u>
2. <u>WATER</u> : Will the proposed project/activity:					h. Impact prime or unique farmland?	—	<u>X</u>	—	<u>X</u>
a. Result in any liquid discharges to the environment? (If yes, provide description, physical/chemical characterization.)	<u>X</u>	—	—	<u>X</u>	4. <u>GENERAL</u> : Will the proposed project/activity:				
b. Discharge heat to surface or subsurface water?	—	<u>X</u>	—	<u>X</u>	a. Be subject to any other federal, state, or local environmental regulations not otherwise addressed in this checklist?	<u>X</u>	—	—	<u>X</u>
c. Alter stream flow rates?	—	<u>X</u>	—	<u>X</u>	b. Increase noise level?	<u>X</u>	—	—	<u>X</u>
d. Significantly alter natural evaporation rates?	—	<u>X</u>	—	<u>X</u>	c. Disturb or alter the ground surface potentially impacting known or undiscovered archaeological, historical, or native American religious sites?	<u>X</u>	—	—	<u>X</u>
e. Release soluble solids to natural waters?	—	<u>X</u>	—	<u>X</u>	d. Require use of carcinogens, pesticides, or toxic substances?	—	<u>X</u>	—	<u>X</u>
f. Interconnect aquifers?	—	<u>X</u>	—	<u>X</u>	e. Impact wildlife or habitat (terrestrial or aquatic)?	—	<u>X</u>	—	<u>X</u>
g. Require installation of wells?	<u>X</u>	—	—	<u>X</u>	f. Affect endangered species or critical habitat?	<u>X</u>	—	—	<u>X</u>
h. Require review/permit under the Federal National Pollutant Discharge Elimination System?	—	<u>X</u>	—	<u>X</u>	g. Require long-term commitment of nonrenewable resources?	<u>X</u>	—	—	<u>X</u>
i. Require a Corps of Engineers or other permit?	—	<u>X</u>	—	<u>X</u>	h. Require new utilities or modifications to existing utilities?	—	<u>X</u>	—	<u>X</u>
j. Violate any state water quality standards (COD, BOD, TOC, DO, TDS, pH, temperatures, etc.)?	—	<u>X</u>	—	<u>X</u>	i. Increase offsite radiation dose?	—	<u>X</u>	—	<u>X</u>
k. Require an Oil and Chemical Spill Control and Prevention Plan?	—	<u>X</u>	—	<u>X</u>	j. Impair recreation?	—	<u>X</u>	—	<u>X</u>
					k. Require modifications to the Sitewide Environmental Surveillance Program?	<u>X</u>	—	—	<u>X</u>