



Proposed cleanup plan to address contaminated groundwater in Hanford's central area

The U.S. Department of Energy (DOE) and U.S. Environmental Protection Agency (EPA) invite you to provide input on the proposed cleanup of contaminated groundwater in the 200 UP-1 Groundwater Operable Unit (OU) located under the central part of the Hanford Site, about 20 miles north of Richland, Washington.

DOE and EPA have issued a Proposed Plan that describes the proposed cleanup options and identifies the preferred cleanup alternative. The Proposed Plan is being issued for a 30-day public comment period from **July 17 through August 16, 2012**. The Washington State Department of Ecology has determined that the cleanup alternative selected by DOE and EPA meets the state's dangerous waste permit corrective action requirements.

U.S. Department of Energy • Washington State Department of Ecology • U.S. Environmental Protection Agency

BACKGROUND

The 200-UP-1 Groundwater OU is located in the central portion of the Hanford Site (Figure 1), referred to as the Central Plateau. The Central Plateau is divided into the Outer and Inner Areas. It is the Tri-Party agencies' goal to clean up groundwater in this area so that it could be used as a potential source of drinking water. Currently, this groundwater is contaminated and restricted from being used.

From the 1940s through the early 1990s, liquid wastes from materials used and produced at the Hanford Site were disposed to the ground through cribs, ditches, ponds, and trenches. Some of these waste disposal sites overlie the groundwater in the 200-UP-1 OU. The major waste streams that contributed to groundwater contamination in 200-UP-1 were associated with plutonium separation and uranium recovery operations.

DOE has completed its investigation and evaluation of this OU through a comprehensive remedial investigation (RI) and feasibility study (FS) process. The RI/FS Report concluded that without remedial action, contaminants in groundwater would present an unacceptable level of risk to human health if that groundwater was used for domestic purposes such as for drinking, cooking, or bathing.

The contaminants of concern (COCs) are carbon tetrachloride, uranium, nitrate, chromium (total and hexavalent), iodine-129 (I-129), technetium-99 (Tc-99), and tritium. Figure 2 is a map of the 200-UP-1 groundwater plumes (locations and size). The 200-ZP-1 OU groundwater plumes, located to the north of 200-UP-1, are shown as well.

WHAT IS BEING PROPOSED?

DOE and EPA have evaluated cleanup alternatives for an interim remedial action consisting of a combination of active remediation through groundwater pump-and-treat technology, monitored natural attenuation (MNA), institutional controls (ICs), and hydraulic containment of iodine-129. The three cleanup alternatives (numbered Alternatives 2 through 4), along with a legally-required "No Action" alternative, are described in Table 1. DOE and EPA have identified Alternative 3 as their preferred alternative for cleanup of the 200-UP-1 OU.

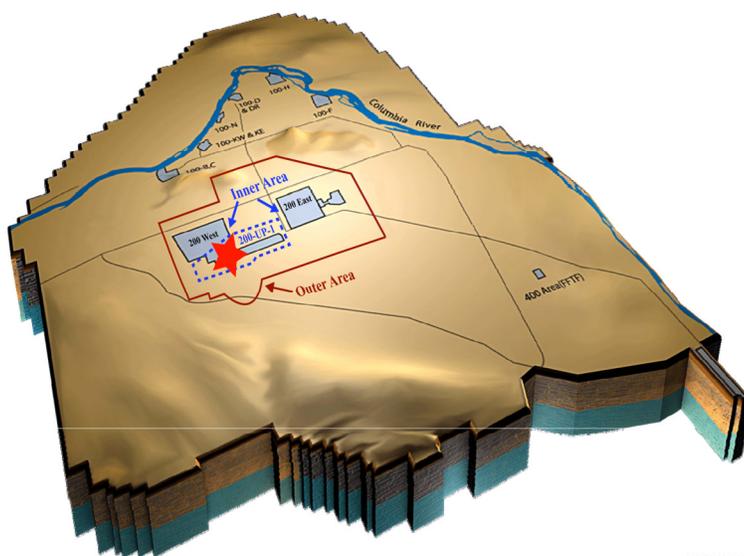


Figure 1: Location of the 200-UP-1 Groundwater OU

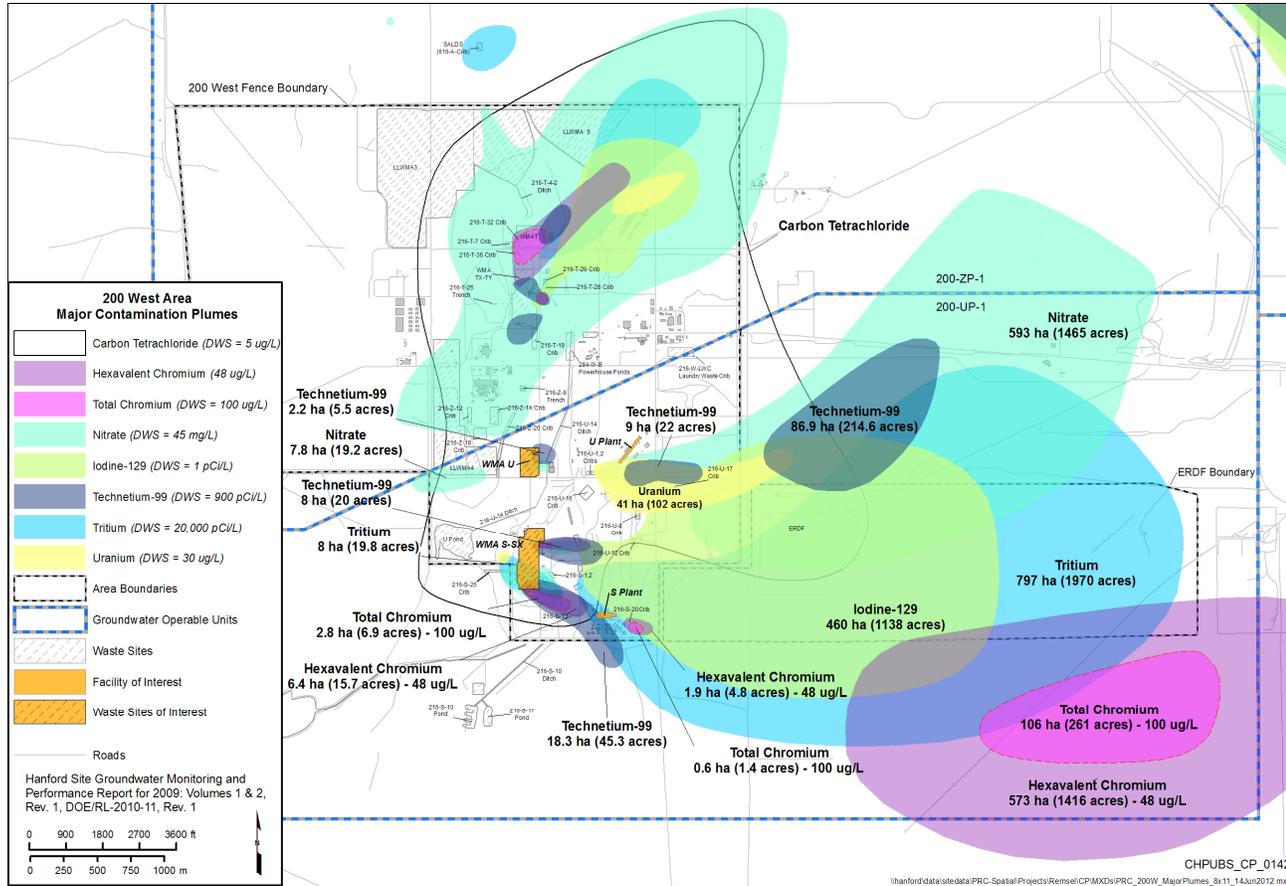


Figure 2. 200-UP-1 OU and 200-ZP-1 OU Groundwater Plume Map

Table 1. Overview of Cleanup Alternatives for 200-UP-1 OU

Remedy Components	No Action	Alternative 2—45 Years Active Remediation, MNA, Hydraulic Containment and ICs	Alternative 3—35 Years Active Remediation, MNA, Hydraulic Containment and ICs	Alternative 4—25 Years Active Remediation, MNA, Hydraulic Containment and ICs
Institutional Controls	The National Contingency Plan (40 CFR 300.430 (e)(6)) requires consideration of a No Action Alternative.	ICs are used prevent exposure to groundwater until cleanup levels are achieved. Examples of ICs are deed restrictions, fences, warning signs, and site access controls. (up to 125 years for all remedial alternatives)		
Groundwater pump-and-treat		45 years of pump-and-treat for carbon tetrachloride, uranium, concentrated nitrate plume areas, chromium (total and hexavalent) and Tc-99. Estimated pumping rate of 330 gallons/minute (gpm).	35 years of moderately aggressive pump-and-treat for carbon tetrachloride, uranium, concentrated nitrate plume areas, chromium (total and hexavalent) and Tc-99. Estimated pumping rate of 430 gpm.	25 years of highly aggressive pump-and-treat for carbon tetrachloride, uranium, nitrate plume areas (high and low concentrations), chromium (total and hexavalent) and Tc-99. Estimated pumping rate of 530 gpm.
MNA		Tritium concentrations decrease through natural radioactive decay. The low-concentration parts of nitrate plume and the remaining carbon tetrachloride plume would decrease through dispersion and diffusion processes.		Tritium and the remaining parts of the carbon tetrachloride plume. (The entire nitrate plume is addressed through pump-and-treat.)
Hydraulic Containment of I-129		There is no available treatment technology that can achieve the federal drinking water standard (DWS) of 1 pCi/L for I-129. Hydraulic containment will be used to prevent further migration of this contaminant.		
Cost (Net Present Value)		Not applicable	\$304 Million	\$319 Million

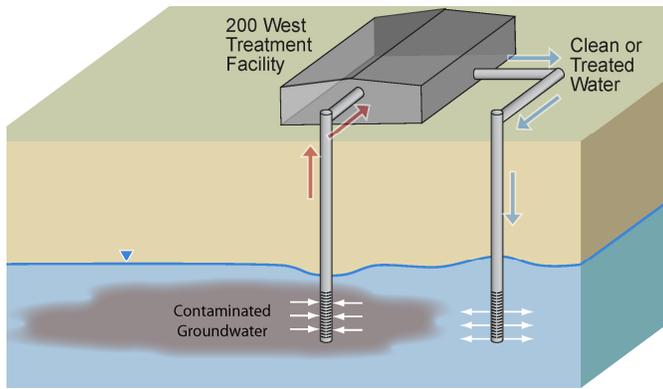


Figure 3. Conceptual Sketch of a Groundwater Pump-and-Treat System



Figure 4. Aerial View of 200 West Groundwater Treatment Facility

A major component of these cleanup alternatives is the use of groundwater pump-and-treat technology. Figure 3 provides a conceptual overview of a groundwater pump-and-treat system. Extraction wells remove contaminated groundwater from the aquifer and reduce or prevent further plume migration. Injection wells are used to inject treated water back into the aquifer and to control groundwater flow. A large pump-and-treat system, known as the 200 West Groundwater Treatment Facility, has been constructed to treat contaminated groundwater on Hanford’s Central Plateau. Figure 4 is an aerial photograph of the facility.

How can the public participate in making this cleanup decision?

You can participate in the decision-making process by reading the Proposed Plan, which is available on the Administrative Record (AR) ([200-UP-1](#)) and on the Hanford Events Calendar at <http://www.hanford.gov/pageAction.cfm/calendar>. These links also provide access to other supporting documents. Additionally, the Proposed Plan is available for review at the public information repositories (PIRs) listed below and at www2.hanford.gov/arpir/. Please send in your comments by **August 16, 2012**.

Please send your comments to **Tiffany Nguyen**, U.S. Department of Energy, Richland Operations Office, at the following addresses:

Mail: P.O. Box 550, A7-75
Richland, WA 99352
Email: 200UP1PP@rl.gov
Phone: (509) 376-3361

At this time, a public meeting is not scheduled. To request a meeting in your area, please contact Emerald Laija, EPA, no later than **July 31, 2012** at:

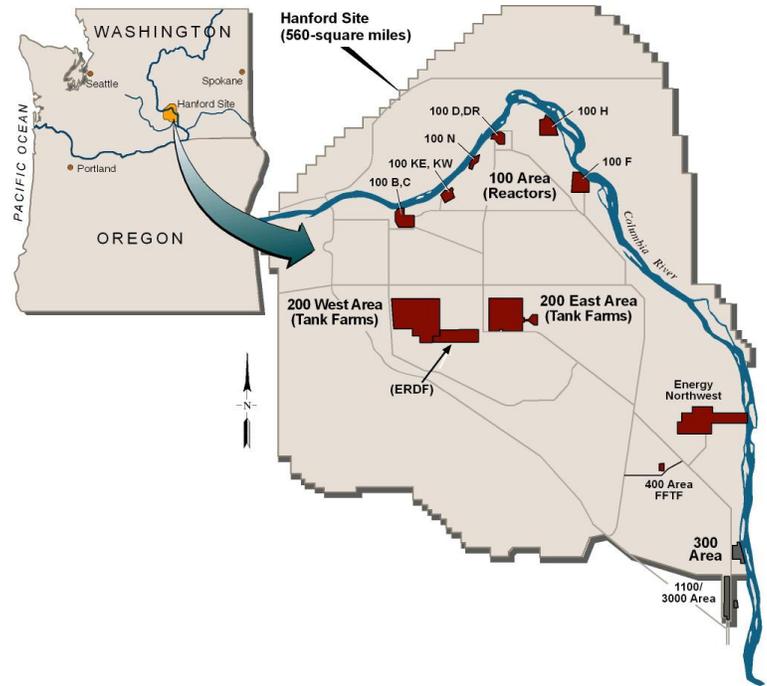
Mail: 309 Bradley Blvd. Suite 115
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Phone: (509) 376-4919

Public input is a key element in the decision-making process. The Tribal Nations, stakeholders and the public are encouraged to read and provide comments on any of the alternatives presented in this Proposed Plan, including the Preferred Alternative. After the comment period, DOE and EPA will consider the input received and any new information gathered during the comment period and then select an alternative for implementation. The Preferred Alternative could be modified or another alternative selected in response to public comment or new information. DOE and EPA will then prepare a Record of Decision (ROD). This ROD will identify the chosen alternative (i.e., remedy) and include a responsiveness summary containing agency responses to the comments received during the comment period.

<p>Richland PIR Washington State University Consolidated Information Center Room 101L Richland, WA 99352 (509) 375-3308</p>	<p>Seattle PIR University of Washington Suzzallo Library, Govt Pubs Dept Box 352900 Seattle, WA 98195 (206) 543-5597</p>	<p>Spokane PIR Gonzaga University Foley Center Library East 502 Boone Ave. Spokane, WA 99258 (509) 313-6110</p>	<p>Portland PIR Portland State University Government Information Brandford Price Millar Library 1875 SW Park Avenue Portland, OR 97207-1151 (503) 725-4542</p>
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Hanford Public Involvement Opportunity

**We want to hear from you
on a proposed cleanup plan
for contaminated
groundwater at Hanford!**



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