

# Danger Below the Surface— Hanford’s Groundwater Threatens the Columbia River

**Public  
 Comment  
 Deadline:  
 July 8, 2020**

**INVISIBLE DANGER.** Throughout the Hanford Nuclear Site contaminated groundwater seeps closer and closer to the Columbia River, in some cases already reaching the river. Within Hanford’s Central Plateau, several groundwater plumes containing high concentrations of both radioactive and toxic chemicals—far exceeding drinking water standards—are moving toward the Columbia River. Migrating towards the Columbia, Hanford’s groundwater poses a serious and invisible threat to the River, people, and salmon.

**THE LOCATION.** The U.S. Dept. of Energy’s (Energy) plan focuses on two adjacent groundwater Operable Units (OUs): 200-BP-5, which contains the B Complex plume area, and 200-PO-1, which houses part of the C and A-AX Farm plume area.

## The Plan

Energy’s plan considered three alternatives: 1) no action; 2) pump and treat at the B Complex and C and A-AX Farm plume areas with institutional controls for groundwater; and 3) same as alternative 2 and including the Gable Gap plume area.

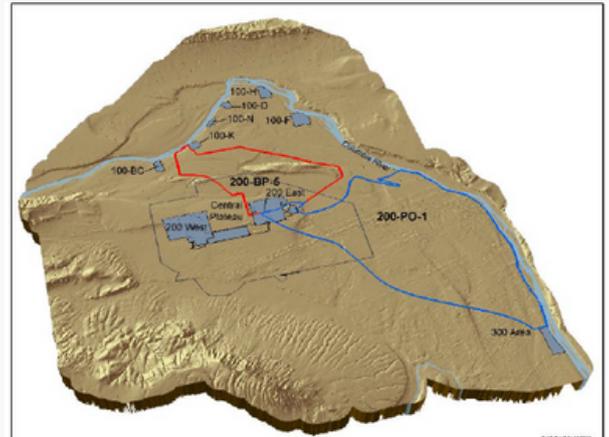


Figure 1. Location of the 200-BP-5 and 200-PO-1 Groundwater OUs at the Hanford Site

## Why Cleanup Matters

Hanford’s nuclear and chemical contamination threatens the Pacific Northwest’s people, river communities, the health of the Hanford Reach—the most productive mainstem spawning grounds for Chinook salmon—and countless other cultural and natural resources. The public continue to catch and consume fish from the Columbia River, use the river water for drinking water purposes, irrigate farms with water from the river, and recreate in the Hanford Reach and downstream from Hanford. The federal government has an obligation to ensure that Hanford’s nuclear legacy does not compromise current and future generations’ use and enjoyment of the Columbia River.

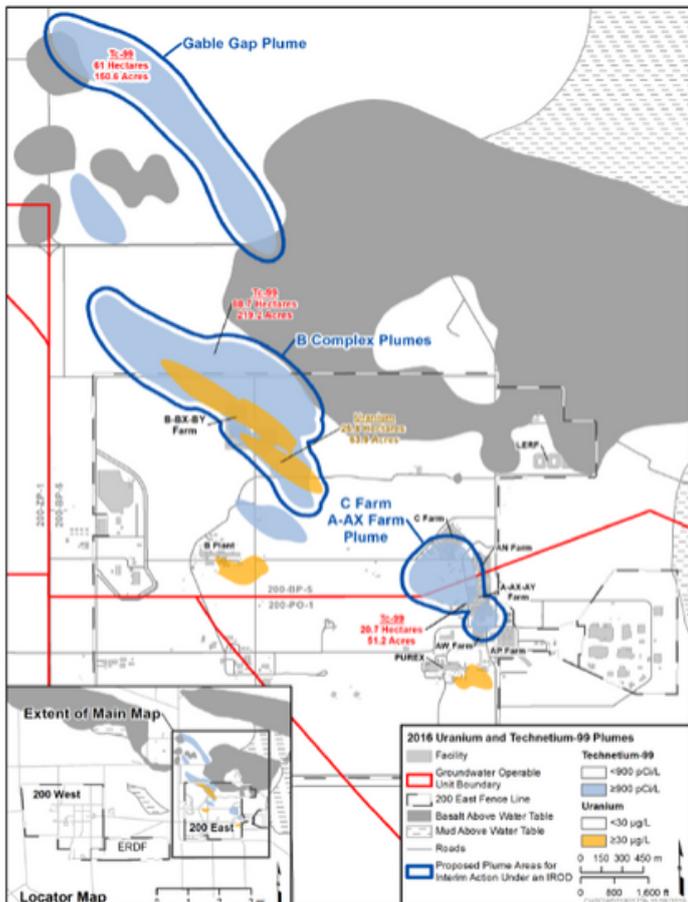


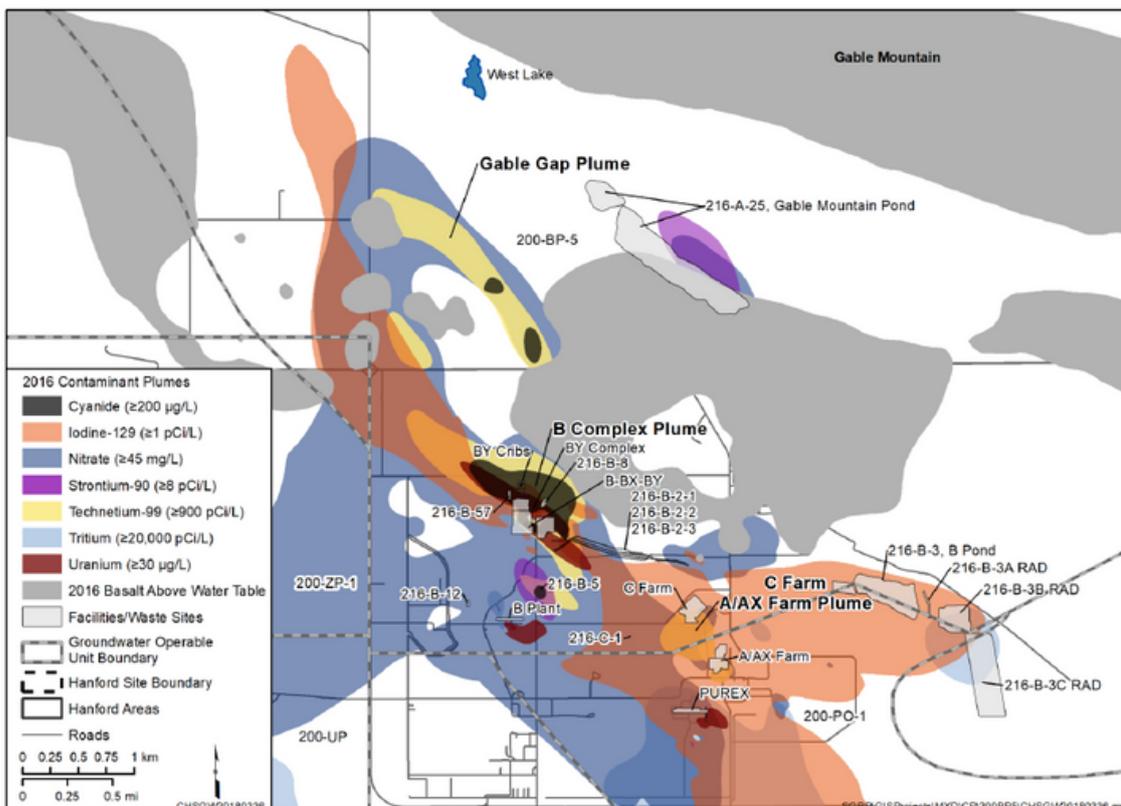
Figure 2. Uranium and Technetium-99 Plumes in the 200-BP-5 and 200-PO-1 OUs

## The Timeframe for Cleanup

Without active cleanup, and without a continued source of pollution, the time required for the groundwater contamination concentrations to reach drinking water standards is 65 years for uranium in the B Complex plume area, 800 years for technetium-99 in the Gable Gap plume area, and 15 years for technetium-99 in the C and A-Ax Farms plume areas. Energy's proposed plan estimates that it will take 25 years to achieve drinking water standards in the B Complex uranium and technetium-99 plume areas and 10 years for the C Farm and A-AX Farms technetium-99 plume area.

The groundwater plumes in the target remediation area contain the following contaminants which exceed drinking water standards: uranium, technetium-99, tritium, I-129, nitrate, cyanide, arsenic, cesium-137, cobalt-60, fluoride, hexavalent chromium, gross alpha, plutonium-239.240, strontium-90, and tritium. Energy's proposed plan focuses on only pump and treat for uranium and technetium-99.

**CONTAMINATION SOURCES.** Hanford's Central Plateau included major processing areas, such as the 200 East Area which is home to the B Plant and the Plutonium-Uranium Extraction (PUREX) Plant, both of which lie above the groundwater plumes with continuing sources of pollution. Since the 1940s, and throughout the plutonium production phase of Hanford, contaminated liquid waste was discharged directly to the soil in the 200 Areas. Liquid waste was also discharged into open ditches and ponds, while radiologically and chemically contaminated process waste was discharged into unlined cribs and trenches. This liquid waste was then allowed to infiltrate directly into the soil. Radioactive and hazardous liquid waste which was directed into underground tanks has infiltrated the soil due to tank and piping overflowing as well as leaking.



Uranium Concentrations  
 200-BP-5 OU: 422 ug/L  
 200-PO-1 OU: 26 ug/L  
 Federal Drinking Water  
 Standard: 30 ug/L

Technetium-99  
 Concentrations  
 200-BP-5 OU: 11,391 pCi/L  
 200-PO-1 OU: 1,291 pCi/L  
 Federal Drinking Water  
 Standard: 900 pCi/L

Figure 4. Groundwater Contaminant Plumes Exceeding DWS near the 200 East Area Within the 200-BP-5 and 200-PO-1 OUs

PUMP and TREAT. Is a process designed to remove high concentrations of contaminants from the water by extracting groundwater and conveying it via above ground pipes to the existing 200 West Pump and Treat facility for treatment. Once the water undergoes treatment it is injected back into the ground.



## Hold the Government Accountable

1. Tell Energy that you strongly support pump and treat cleanup of groundwater.
2. Energy must look at the other contaminants present in the plume areas and not just weed contaminants out of the cleanup plan because they may prove more difficult to remove from the groundwater. This includes providing a detailed accounting to the public of all contaminant concentration in the plumes.
3. Energy must provide more information on the continuing sources of contamination located above the groundwater plumes and how cleanup on the surface is being pursued in conjunction with pump and treat.
4. Energy should explain in greater detail how a final cleanup plan will address the Gable Gap plume area.

Take Action  
Public Comment Deadline:  
July 8, 2020

- Online : <http://bit.ly/HanfordPetition>
- By Mail:  
U.S. Department of Energy  
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P.O. Box 450, H6-60  
Richland, WA 99352

Columbia Riverkeeper's mission is to protect and restore the water quality of the Columbia River and all life connected to it, from the headwaters to the Pacific Ocean.

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Healthy Rivers  
Our Future



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