THE HANFORD SITE

Groundwater Pump-and-Treat Operations

Fact Sheet – May 2021

The 200 West Pump and Treat Facility provides treatment of contaminated groundwater from Hanford's Central Plateau.

The U.S. Department of Energy (DOE) and contractor Central Plateau Cleanup Company (CPCCo) are safely cleaning up groundwater at the Hanford Site in southeastern Washington state.

Background

The DOE and contractor CPCCo apply pump-and-treat technology to diminish large contaminant plumes as part of a multitechnology groundwater strategy. In addition to pump-and-treat methods, the strategy includes using passive approaches and targeted source treatment to effectively clean up the groundwater and protect the Columbia River.

During historical Hanford activities of fuel fabrication, nuclear reactor operation, and chemical processing to extract targeted nuclear materials, significant quantities of solid and liquid wastes were discharged to the environment as planned and unplanned releases. These discharges caused multiple, large-scale groundwater contaminant plumes at the Hanford Site. Contaminants include long-lived radionuclides and other chemicals that pose risks needing to be addressed for the protection of human health and the environment.

Mission

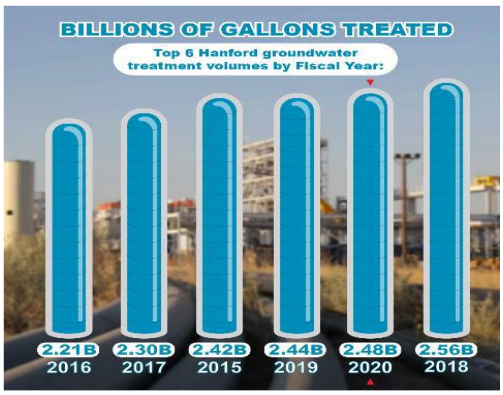
Hanford's groundwater program includes a network of more than 2,000 wells and other tools. Five operating pump-and-treat systems along the Columbia River and one at the center of the Hanford Site combined treat more than 2.2 billion gallons of groundwater annually — enough water to fill trucks lined up from Los Angeles to New York. The treatment systems will continue to remove contaminants from the groundwater.

A worker samples groundwater along the Columbia River.

Groundwater containing the contaminant hexavalent chromium is sampled from wells near the Columbia River.

U.S. DEPARTMENT OF ENERGY

Groundwater Pump-and-Treat Operations (continued)



Hanford treated 2.48 billion gallons of contaminated groundwater in fiscal year 2020, marking the second-highest annual volume in its history.

A soil flush treatability test was initiated in 2019 to expedite the cleanup of hexavalent chromium.

Workers collect more than 25,000 samples a year to monitor soil and groundwater contamination.

Well-drilling operations on Hanford's Central Plateau.

Cleanup Legacy

Two main areas at the Hanford Site have contaminated groundwater: the area along the river, called the Columbia River corridor, and center of the Site, called the Central Plateau. Pump-and-treat systems remove the contaminants of concern listed below:

- Columbia River corridor:
  - hexavalent chromium
  - strontium-90
- Central Plateau:
  - uranium
  - carbon tetrachloride
  - technetium-99
  - trichloroethylene
  - tritium

Safety and Efficiency

Process improvements have resulted in substantial progress in the removal of groundwater contaminants, potentially shortening the period required to meet cleanup goals and resulting in significant cost savings.

DOE and CPCCo are always seeking more safe, efficient and cost-effective ways to improve the performance of the groundwater treatment network, with protection of the Columbia River the ultimate goal.

Progress

Through the life of the cleanup mission, Hanford has treated more than 23 billion gallons of groundwater and removed more than 500 tons of contaminants, including the majority of the chromium along the Columbia River corridor and hundreds of tons of nitrates on the Central Plateau, as well as other contaminants of concern such as carbon tetrachloride, technetium-99 and uranium.

Despite the challenges posed by the COVID-19 pandemic, Hanford Site groundwater treatment continued largely uninterrupted, treating 2.48 billion gallons of contaminated groundwater last year.

In the first quarter of fiscal year 2021, the 200 West Pump and Treat Facility alone treated more than 300 million gallons of contaminated groundwater on Hanford's Central Plateau, a record volume for any quarter since the plant began operating in 2012.

Future

Groundwater treatment will continue to support Hanford cleanup activities to protect the Columbia River. Groundwater sampling helps inform decisions about future well placement and configuration to maximize treatment effectiveness.