



**U.S. Department of Energy
Hanford Site**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10

21-SGD-002239

July 22, 2021

Laurene Contreras, Program Manager
Environmental Restoration/
Waste Management Program
Confederated Tribes and Bands
of the Yakama Nation
1019 South 40th Avenue
Yakima, Washington 98901

Dear Ms. Contreras:

FACT SHEET FOR THE 100-KR-4 EXPLANATION OF SIGNIFICANT DIFFERENCES

The U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) are planning a modification to the groundwater cleanup decision for the 100-K Area of the Hanford Site. This modification will be documented in an Explanation of Significant Differences (ESD), expected to be issued by the end of September 2021. We appreciate the opportunity to have met with Yakama Nation staff during the development of this ESD and have included the fact sheet that was requested on May 4, 2021.

If you have any further questions on this ESD, please contact Karen Lutz, DOE Site Stewardship Division Director on (509) 376-4766, or Roberto Armijo, EPA Project Manager, on (509) 376-3749.

William F. Hamel
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Date: 2021.07.29 16:09:39 -07'00'

William F. Hamel, Assistant Manager
for the River and Plateau
Richland Operations Office

David R. Einan
Digitally signed by DAVID EINAN
Date: 2021.07.28 10:20:28 -07'00'

David R. Einan
Hanford Program Manager
U.S. Environmental Protection Agency

SGD:JMC

Attachment:
100K ESD Fact Sheet

cc: See page 2

Ms. Contreras
21-SGD-002239

-2-

July 22, 2021

cc: D. B. Bowen, Ecology
K. Welsch, Ecology
Administrative Record (100-K)
Environmental Portal

Explanation of Significant Differences for the 100-KR-4 Interim Record of Decision

Fact Sheet

The Tri-Party Agreement agencies – the U.S. Environmental Protection Agency (EPA), the Washington State Department of Ecology, and the U.S. Department of Energy (DOE) – signed an interim record of decision (ROD) in 1996 to identify pump and treat (P&T) as the selected remedy for groundwater cleanup in Hanford’s 100-KR-4 Operable Unit. Changes to the interim ROD that do not fundamentally alter the overall cleanup approach require an Explanation of Significant Differences (ESD) under the federal *Comprehensive Environmental Response, Compensation, and Liability Act*. This fact sheet highlights the changes incorporated in an ESD expected to be issued in 2021.

Background

The 580-square-mile Hanford Site in southeastern Washington state was created in 1943 as part of the Manhattan Project to produce plutonium for the nation’s defense program. Today, waste management and environmental cleanup, including protection of the Columbia River, are Hanford’s primary missions.

In 1996, the Hanford cleanup agencies signed an [interim ROD](#) for cleanup of groundwater in the 100-KR-4 Operable Unit (OU). The 100-KR-4 OU addresses groundwater contamination near Hanford’s former K East and K West Reactors located along the river. Since then, three P&T systems have been installed and continue to operate in the 100 K Area.

An ESD is expected to be issued in 2021 to incorporate the addition of an enhancement to the P&T system and document costs associated with increased duration of P&T operations from the cost estimates provided in the interim ROD and a [2009 ESD](#).

This ESD addresses two significant changes from the 1996 interim ROD, as modified by the 2009 ESD:

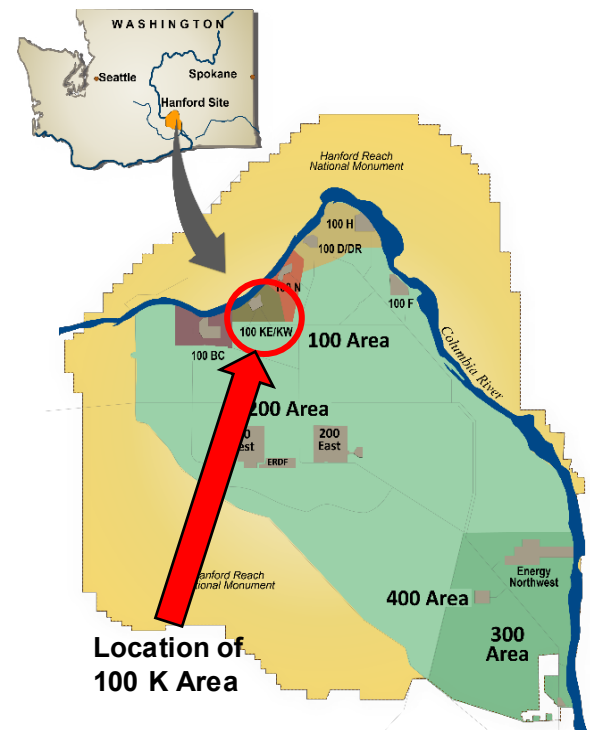
- Adds soil flushing at the 183.1 K East Headhouse area as an enhancement to groundwater P&T remedy
- Updates overall costs for the approved remedy



An infiltration gallery was installed in 2019 to test a more effective method for removing residual chromium from deep soil in the K West Area.



Piping supports soil flushing at 100 K West.



Location of 100 K Area



Explanation of Significant Difference for the 100-KR-4 Interim Record of Decision (cont.)

Summary of 100-KR-4 OU Explanation of Significant Differences

A soil flushing treatability test began in 2019 to address residual concentrations of chromium in the 100 K West Area, where P&T efforts have reduced the area of chromium contamination in groundwater by more than 75% since 2010. Soil flushing uses clean water to move residual chromium through soil to groundwater, which is then captured by extraction wells.

During the first 7 months of the treatability test, 38 pounds of chromium were captured by the P&T system, compared to only 7 pounds the previous 7 months without soil flushing. The groundwater monitoring results along the Columbia River shoreline did not show any increase in chromium or other contaminants as a result of the test.

The treatability test showed that chromium was successfully flushed through the soil and captured by the existing P&T system.

With the success of soil flushing in the K West Area, installation of an infiltration system is now planned for the K East Area.

The ESD also updates costs for extended operations of P&T systems. The 1996 interim ROD anticipated the construction and operation of one P&T system for a period of 5 years at a cost of about \$12.3 million. Since 1996, two additional P&T systems were added to broaden groundwater cleanup. Current costs for the construction and operation of all three systems through 2019, plus operations through 2032, are anticipated to be about \$241 million.

If soil flushing is not implemented at the 183.3 K East Headhouse, the P&T system would need to operate at least 30 years longer and would cost an additional approximately \$30 million.

For more information on the 100-KR-4 Explanation of Significant Differences, please contact Ellwood Glossbrenner, U.S. Department of Energy, Richland Operations Office, at (509) 376-5828 or ellwood.glossbrenner@rl.doe.gov

