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May 27, 2022

Washington Department of Ecology
Nuclear Waste Program
3100 Port of Benton Boulevard
Richland, WA 99354

Sent via email to Ecology's Online Submittal Form.

RE: Proposed Permit Modification for the Groundwater Monitoring Plan at the Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility.

Dear Washington Department of Ecology and U.S. Department of Energy:

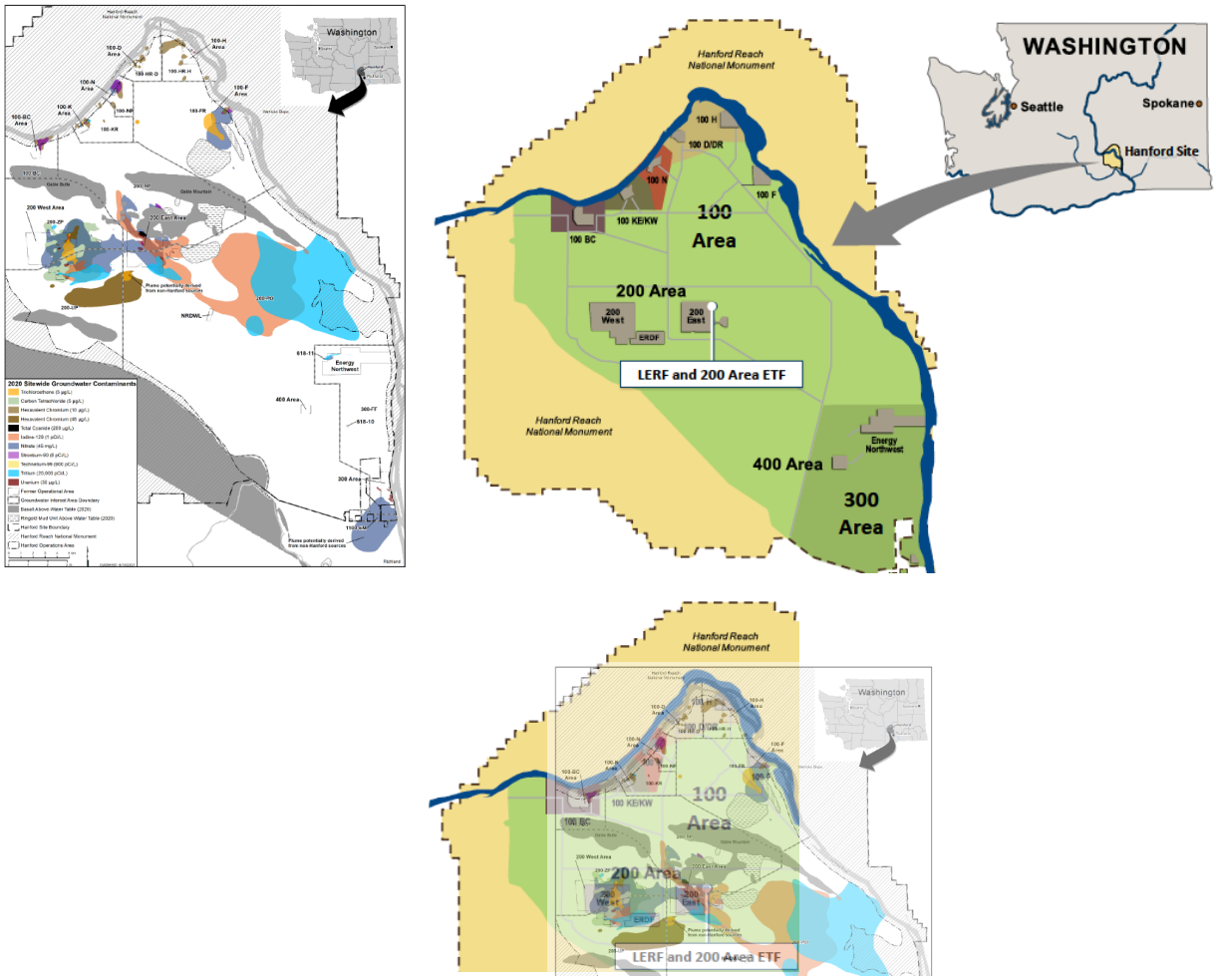
Columbia Riverkeeper (Riverkeeper) and Hanford Challenge submit the following comments on the U.S Department of Energy's (Energy) Proposed Permit Modification for the Groundwater Monitoring Plan at the Liquid Effluent Retention Facility (LERF) and 200 Area Effluent Treatment Facility (ETF), "Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility" chapter (hereinafter referred to as the Proposed Permit Modification). The proposed Addendum D reflects the addition of a new groundwater well near LERF Basin 41 and revised monitoring in consideration of pending new waste streams from the Waste Treatment Plant (WTP).

I. Groundwater Monitoring and Leak Detection Will Be Fundamental to Protecting Groundwater During Direct-Feed Low-Activity Waste (DFLAW) Operations.

Hanford cleanup has reached a key phase with the potential startup of the DFLAW system to immobilize low-activity high-level waste in a vitrified form. The LERF and ETF will continue to treat and store large volumes of liquid waste from across the Hanford site, and the facilities will accept liquid waste from WTP once DFLAW

operations begin. Recent additions to leak detection equipment for pipes that move wastes to and from the area are a good step towards protecting groundwater from the contaminants in the DFLAW process. Just as importantly, the Groundwater Monitoring Plan for the LERF and ETF areas will determine Energy's ability to anticipate and detect any groundwater contamination that occurs because of the operations at ETF and LERF, making it integral to the successful operation and startup of the DFLAW process.

Hanford's groundwater is severely contaminated in the 200 East Area, and contaminated groundwater plumes from the Central Plateau are approaching or already reaching the Columbia River.



Above: Left - Significant groundwater plumes emanating from the 200-East Area and the Central Plateau. Right - Location of LERF and 200 Area ETF. Center - LERF and 200 Area ETF are situated in areas with significant regional groundwater plumes. Source: Hanford Groundwater Monitoring Report for 2020. October 2021.p. iv.

To ensure that the operations at ETF and the LERF basins do not exacerbate groundwater pollution, Energy proposes to rely on monitoring for contaminants that are not expected to be in the groundwater in the 200-East Area, downgradient from the LERF Basins. The addition of new wells and new chemicals for monitoring bolsters the TPA agencies' ability to detect groundwater pollution, and so the Proposed Permit Modification will help Energy and Ecology detect contamination originating from the LERF Basins or ETF. However, the Proposed Permit Modification may still leave gaps in Energy's ability to detect pollution increases in the area.

One of the most important decisions in the Proposed Permit Modification is identifying contaminants for monitoring in the LERF and ETF area that give TPA agencies the best opportunity to understand and respond to any releases into the environment. The Proposed Permit Modification states that site-specific monitoring constituents "were identified through evaluation of effluents previously received at LERF and the planned WTP aqueous waste."[1] The planned waste from the WTP may vary in composition over time. Will Energy sample the waste and amend groundwater monitoring constituents over time to correspond with the changing concentrations of pollutants?

For example, WTP will contribute to elevated acetonitrile concentrations in waste directed to LERF and ETF. Do elevated acetonitrile concentrations pose a risk to the facilities or their protections from leaks? Should acetonitrile be added as a specific chemical to be monitored? More broadly, which compounds are most likely to compromise the liner (if any) or leak from other parts of the DFLAW process, and which contaminants are most likely to reach soils and groundwater first? What would the process be for adapting the constituent list as new waste streams come online, and the agencies gain more information about the process?

The addition of chemicals to be monitored makes the permit stronger, but we hope Energy will share more of its rationale for how the contaminants were selected and why others were excluded. A previous anonymous commenter raised related issues that Energy should address:

> Calculation RPP-RPT-62702 says that the feed to ETF will contain 60 milligrams per liter (ppm) acetonitrile, which is about 2000 times more concentrated than previous liner exposure. The (Groundwater Monitoring Plan) should know the ranges to look for from prior experience. This is particularly so given the uncertainty in WTP projected operating results.

[1] U.S. Department of Energy, Submittal of Class 2 Permit Modification Notification C2-LERF/ETF-2020-01 to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion for the LERF and 200 Area ETF. (March 22, 2022.) Addendum D, p. D.125

Energy and Ecology should address whether acetonitrile or other contaminants will impact the operation of ETF or LERF, including the durability of liners in LERF.

II. Cleanup at Hanford Must Employ a Whole-Site Cleanup Strategy for Groundwater.

We urge Ecology and Energy to establish and adhere to requirements ensuring that waste management activities are protective of human health and the environment, now and in the future. This task will become more complicated as DFLAW operations take shape. Although Energy monitors groundwater across the site, Energy should take a whole-site approach to managing groundwater pollution at Hanford. Pollution in groundwater emanating from the Central Plateau reaches the Columbia River, underscoring the necessity of a site-wide approach to groundwater. Soils and groundwater near LERF and ETF already contain pollution above standards at levels that could pose a risk to people now and into the future. New waste streams added to the area could exacerbate these issues by adding the same or different pollutants to the environment, should unexpected releases occur.

In this case, Energy is altering its Groundwater Monitoring Plan to exclude monitoring for regional plumes affecting the area, which seems counterproductive for efforts to address pollution across the whole of the site.[2] The Proposed Permit provides as a justification for removing upgradient constituents, "Regional upgradient constituents and groundwater quality parameters are not included in the plan." Notably, the previous plan included regional upgradient constituents nitrate and sulfate. While removing nitrate as a regional groundwater contaminant, Energy now proposes to monitor nitrite as an indicator constituent. The permit clarifies that indicator constituents are included at the discretion of Ecology. Are regional upgradient constituents also monitored at the discretion of Ecology, and if so, what is the justification for removing nitrate and sulfate from the Groundwater Monitoring Plan? The agencies should provide a more detailed justification for eliminating monitoring for regional upgradient plumes in the area, data that could be valuable for assessing the trajectory and severity of future groundwater issues.

People plan to use the Hanford site in the future and currently use the Columbia River at Hanford. While the proposed permit modifications improve Energy's ability to avert further contamination from the DFLAW process, improvements to Energy's

[2] U.S. Department of Energy, Submittal of Class 2 Permit Modification Notification C2-LERF/ETF-2020-01 to the Hanford Facility Resource Conservation and Recovery Act Permit, Dangerous Waste Portion for the LERF and 200 Area ETF. (March 22, 2022.) Addendum D, p. D.125.

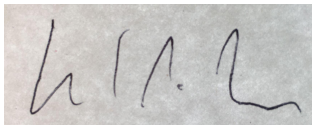
Groundwater Monitoring Plan will help to provide TPA agencies with a clearer picture of the impact of DFLAW and the LERF and ETF area's contribution to groundwater issues across the site.

III. Conclusion.

The careful management of the 200 Area and facilities is vital to cleanup, and we appreciate the attention the agencies are directing towards leak detection and groundwater monitoring in LERF and ETF. These facilities receive liquid waste from across Hanford, and toxic and radioactive groundwater plumes extend through the 200 area including near ETF and LERF. The addition of WTP-originating waste to the LERF and ETF area will create new challenges and pollution risks. We urge the TPA Agencies to be as transparent as possible with regard to acetonitrile concerns, both worker safety issues and any additional impacts to LERF and ETF systems from high acetonitrile concentrations. Finally, we reiterate our concern that Energy should manage groundwater contamination more holistically: please provide justification for not including upgradient regional plumes in this iteration of the Groundwater Monitoring Plan for the LERF and ETF areas.

Thank you for considering our input on the Proposed Permit Modification.

Sincerely,



Dan Serres, Conservation Director, Columbia Riverkeeper

Nikolas Peterson, Executive Director, Hanford Challenge