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March 10, 2023

Casey Sixkiller
Regional Administrator
Environmental Protection Agency, Region 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101

Cc:
David Einan
Remedial Project Manager
Environmental Protection Agency, Region 10
825 Jadwin Ave., Suite 210

Re: Hexavalent Chromium and High-Level Waste at the Hanford Nuclear Site

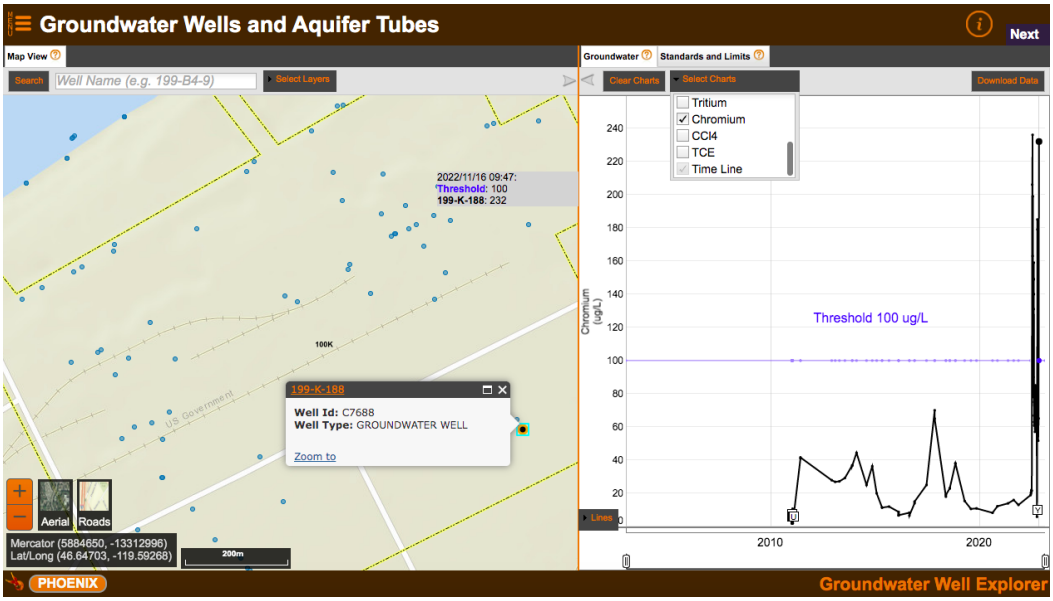
Dear Regional Administrator Sixkiller,

Thank you for your recent visit to Hanford, your engagement with the Hanford Advisory Board, and your commitment to cleanup at Hanford that protects human health and the environment. Cleanup at the Hanford Nuclear Site has reached a critical phase, and EPA plays a vital role in ensuring that the U.S. Department of Energy (Energy) fulfills its responsibilities under the Tri-Party Agreement, CERCLA, and the Nuclear Waste Policy Act. Right now, Energy is developing cleanup plans that will determine how much cancer-causing, toxic, and radioactive contamination will remain close to the Columbia River—the lifeblood of the Pacific Northwest. We are writing to address two specific, pressing issues that impact these River Corridor cleanup plans at Hanford.

I. Hexavalent chromium cleanup levels may underestimate cancer risks.

We are concerned that cleanup at Hanford may not protect people from cancer risks related to hexavalent chromium, particularly mutagenic, carcinogenic risks related to oral ingestion. Hexavalent chromium poses a persistent, toxic problem in areas where Hanford constructed and operated nuclear reactors for plutonium production. For decades, EPA has required Energy to remove, treat, and dispose of hexavalent chromium through soil excavation and pump-and-treat systems with the goal of reducing high levels of hexavalent chromium in Hanford's soil, groundwater, and in the Columbia River. Columbia Riverkeeper and our

members have urged Energy to remove as much hexavalent chromium as possible from the River Corridor, recognizing that sources of hexavalent chromium in soil contribute to contamination that spreads in dust, groundwater, and even upwells into the Columbia River—posing a risk to human health and aquatic life. Even today, in Hanford's 100-K Area, chromium concentrations exceed 200 micrograms per liter in recent groundwater monitoring wells. For example, well 199-K-188 had a concentration of 232 micrograms per liter on November 16, 2022.



Source: Pacific Northwest National Labs. PHOENIX. Groundwater Well Explorer. February 2023.

Energy may release studies and plans that determine its final cleanup approach for the 100-K Area and 100-N Area as soon as this year. In reviewing Energy's plans and regulating Energy's actions, EPA Region 10 should recognize hexavalent chromium as a mutagenic carcinogen and specifically carcinogenic to humans by the oral route of exposure. Energy's previous cleanup studies and plans dealing with hexavalent chromium did not incorporate an oral slope factor for hexavalent chromium in developing cleanup levels, instead focusing on cancer risks caused by inhalation of hexavalent chromium. Additionally, new science demonstrating hexavalent chromium's mutagenic effects will lower cleanup levels further. For example, EPA's most recent cleanup plan in the River Corridor for the 100-B/C Area used a soil cleanup level of 2 mg/kg and a groundwater cleanup level of 10 µg/L. Using EPA's updated regional screening levels that consider an oral cancer slope factor for hexavalent chromium and the mutagenic effects of hexavalent chromium, there is potential for cleanup levels to be lowered by a factor of more than 100. In July 2021, Washington's Department of Ecology adopted the California EPA oral cancer slope factor of 0.5 kg-day/mg for hexavalent chromium.

Does EPA plan to use current information about hexavalent chromium as a mutagenic carcinogen via oral ingestion—with disparate impacts on those with early-life exposures to hexavalent chromium—in developing Hanford cleanup plans going forward? Will EPA review the impact of new information about the mutagenicity and carcinogenicity of hexavalent chromium on the adequacy of previous cleanup decisions at Hanford?

On behalf of our 16,000 members and supporters, Columbia Riverkeeper urges EPA to revise the 100–K Area Risk Assessment and future risk assessments with this new science, ensuring that proposed plans and cleanup will be more protective of all people. EPA's adoption of more protective standards should have a significant impact on cleanup decisions such as the final cleanup plan for the 100-K Area. The change could result in dramatically reduced allowable levels of residual soil and groundwater contamination for unrestricted use of the River Corridor, for instance. Final plans should provide for a cleanup that protects people from the carcinogenic and mutagenic effects of hexavalent chromium. Yet, Energy's current approach could expose people to unsafe levels of hexavalent chromium indefinitely at Hanford.

II. Soil contamination beneath the 324 Building contains high-level waste.

In 1986, Energy spilled liquid high-level waste containing cesium-137 and strontium-90—liquid directly derived from spent nuclear fuel—into the 324 Building, and this waste has leaked into the soil beneath the building in Hanford's 300 Area. Decades later, just 300 hundred yards from the Columbia River, soil contamination beneath the 324 Building remains lethally dangerous. After more than one half-life of decay for cesium and strontium, hundreds of thousands of curies of radioactive cesium and strontium remain beneath the 324 Building. Radiation exposure rates have exceeded 12,000 R/hr in the most contaminated areas. In recent months, Energy's cleanup contractor discovered unexpectedly high levels of strontium-90 in a new area beneath the 324 Building. As a result, cleanup of soil beneath the 324 Building represents an evolving, pressing challenge in Hanford's River Corridor.

We are concerned that Energy's plan for disposing of highly radioactive soil from beneath the 324 Building does not acknowledge that the contaminated soil contains high-level waste, or even evaluate if the contaminated soil contains high-level waste. Federal law defines high-level waste as the irradiated fuel from a nuclear reactor and the waste generated when that fuel is processed to extract other products. Federal laws further require high-level nuclear waste be treated to make it stable and then disposed of in a deep geologic repository. The waste spilled from the 324 Building meets the definition of high-level waste. Currently, Energy is planning to dispose of contaminated soil either in Hanford's onsite landfill, the Environmental Restoration Disposal Facility (ERDF), or offsite if Energy determines that it is Greater Than Class C waste. Under the Nuclear Waste Policy Act, Energy should regard the soil contamination beneath the 324 Building as high-level waste. By law, high-level waste should not be shipped to ERDF.

Does EPA consider high-level waste spilled into soil to be high-level waste? Does high-level waste cease to be high-level waste when it escapes into the environment, as occurred beneath the 324 Building? We are concerned that Energy's approach will result in high-level waste being abandoned in Hanford's soils or disposed of illegally in ERDF. We urge EPA to hold Energy accountable to cleaning up the 324 Building in a manner consistent with the Nuclear Waste Policy Act.

III. Conclusion

In conclusion, Energy's River Corridor cleanup remains far from complete, as evidenced by high levels of toxic and radioactive contamination in the 100-K, 100-N, and 300 Areas. EPA's ongoing work to regulate cleanup at Hanford remains vital to protecting people and the

environment from highly toxic and radioactive contamination very close to the Columbia River. New information requires engagement from EPA to ensure that Energy pursues cleanup in a way that accurately treats hexavalent chromium as a mutagenic, cancer-causing chemical. Further, we urge EPA to ensure that Energy appropriately addresses high-level liquid waste leaked into soil beneath the 324 Building.

We are counting on EPA to hold Energy accountable for protecting the Columbia River—the lifeblood of the Northwest—and all the people connected to it.

Sincerely,

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