

REVISED ACTION MEMORANDUM

**Revised Time Critical Removal Action
for
Yakima Training Center, Washington
Sub-installation to
Joint Base Lewis-McChord**

March 2025

I. Purpose

This Action Memorandum documents the approval and decision by the United States (U.S.) Army (Army) to expand the Time Critical Removal Action (TCRA) in response to the release of per- and polyfluoroalkyl substances (PFAS) associated with past operations at Yakima Training Center (YTC), Washington that have impacted off-installation drinking water supply wells.

The Army conducted a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Preliminary Assessment (PA) and Site Inspection (SI) to assess potential impacts from PFAS at YTC. Following the PA/SI, the Army initiated a Remedial Investigation (RI) to determine the nature and extent of PFAS and evaluate the risks posed to human health from the release of PFAS at and originating from source areas identified during the PA/SI. The RI is underway. Additionally, a TCRA was approved in August 2023 and is being executed to address the initially identified drinking water well locations impacted by perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). That action included bottled water provisioning and installation of point of entry treatment systems (POETS). This Action Memorandum expands POET installation only (no bottled water delivery) to additional drinking water wells impacted by PFAS in accordance with the Department of Defense, "Prioritization of DoD Cleanup Actions to Implement the Federal Drinking Water Standards for PFAS Under the Defense Environmental Restoration Program (DERP)" (03 September 2024).

The SI sampling at YTC indicated detections of PFOS/PFOA and other PFAS in groundwater at concentrations where analysis of hydrological conditions identified possible impacts to off-installation drinking water wells. To evaluate possible PFAS impacts from YTC to off-installation drinking water sources, the Army conducted off-installation sampling at private drinking water wells that appeared to be hydrologically connected to groundwater beneath YTC based on the understood groundwater flow direction.

Following identification of potential downgradient drinking water wells and receptors, eight phased field events were conducted in September 2021, January 2022, July/August 2022, May 2023, August 2023, December 2023, March 2024, and May 2024 to sample residential drinking water wells for PFAS, including PFOS/PFOA. Locations sampled were based on their geographic location, presence of a private well that is potentially used for drinking water, and the parcel owner's response to the Army's letter requesting well information and permission to sample. Evaluation of the data received during each phase dictated additional step-out sampling locations. Sampling results show that 135 wells contained PFAS at concentrations exceeding the USEPA Maximum Contaminant Levels (MCLs); those MCLs in parts per trillion (ppt) are:

- PFOS = 4 ppt
- PFOA = 4 ppt
- HFPO-DA = 10 ppt
- PFNA = 10 ppt
- PFHxS = 10 ppt

This Action Memorandum documents the Army's decision to continue to mitigate exposure to PFAS in drinking water where Army operations are the source of PFAS. The Army will prioritize actions where PFAS levels from Army releases are the highest. The Army will expand removal actions to address

drinking water wells, in accordance with the Department of Defense, "Prioritization of DoD Cleanup Actions to Implement the Federal Drinking Water Standards for PFAS Under the DERP" (03 September 2024), where concentrations are three times above the MCL. All remaining impacted drinking water wells above the MCL will be considered for POETS installation once data is collected and decisions are made regarding anthropogenic background of PFAS. Residential POETS will continue to be installed as the best, currently available approach to drinking water impacts for the immediate community area surrounding YTC.

Additionally, work efforts will be evaluated to address a potential migration pathway and source area to reduce PFAS impacts to groundwater/drinking water.

This Action Memorandum is issued in accordance with and satisfies the requirements of CERCLA, 42 U.S. Code § 9601 *et seq.*, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 Code of Federal Regulations (CFR) Part 300. The Defense Environmental Restoration Program, 10 U.S. Code §§ 2700 *et seq.*, is the environmental restoration program under which the Army conducts its CERCLA response actions. The Army Installation Restoration Program, under which the Army is conducting this TCRA, is authorized by the Defense Environmental Restoration Program. The Army has been delegated CERCLA lead agency authority Executive Order 12580 (Executive Order 12580, 1987).

II. Site Conditions and Background

A. Site Description

1. Physical Location and Description

YTC is a sub-installation of Joint Base Lewis-McChord and is located approximately 100 miles east of Joint Base Lewis-McChord and about 5 miles northeast of the city of Yakima. It encompasses 327,231 acres within Yakima and Kittitas Counties in central Washington state. The eastern border of the facility is the Columbia River. Seven areas of potential interest (AOPIs) where PFAS-containing materials were used, stored, or disposed were identified during the PA; these locations are located in the cantonment area in the southwest portion of the installation.

2. Site Operations History

The mission of YTC is to provide military training facilities, maneuver areas, and ranges for the U.S. and allied nations. Since 1941, YTC has been used for training artillery, infantry, and engineering units. It is primarily used by the Army, Army Reserve, and Washington National Guard. Prior to 1941, the facility area was privately owned and used for ranching and mining operations (U.S. Army Corps of Engineers 2012).

3. Current and Projected Land Use

YTC is divided into the cantonment area (approximately 1,000 acres in the southwest corner of the installation) with administrative and maintenance buildings, and the down-range areas (the bulk of the lands), which are a series of undeveloped ridges used as maneuver training areas. The cantonment area is largely covered with asphalt and administrative buildings. One heliport (Vagabond Army Heliport) is located in the cantonment area, and an airstrip (Mettie Airstrip) is located in the range area.

Open areas include fields of vegetation dominated by shrubs. The community adjacent to the cantonment area consists predominately of single-family residences located on parcels of land in excess of 1 acre.

4. Site Evaluation

Historical operations at YTC used PFAS-containing aqueous film-forming foam (AFFF) during firefighting training and other fire station activities (i.e., material storage or equipment testing). During the Army's CERCLA PFAS SI, samples were collected in September 2020 for analysis of PFAS chemicals (including PFOS and PFOA) in groundwater, soil, surface water, and/or sediment associated with the AOPIs identified during the PA. PFAS were detected in one or more of the sampled media at all seven AOPIs at YTC in soil and/or groundwater. The maximum concentrations of PFAS detected in groundwater were observed in samples collected from the Former Fire Training Pit (YFCR-53), located less than a mile from the Installation's western boundary. The Army finalized the PFAS PA/SI in October 2021.

In addition to the CERCLA PFAS PA/SI, the Army evaluated the presence of PFAS in on-installation drinking water sources. YTC uses the on-installation groundwater wells to supply drinking water to the cantonment area. These drinking water supply wells were sampled by YTC in 2019 prior to the SI sampling for analysis of PFAS chemicals (including PFOS and PFOA); results were non-detect. Nine other on-installation supply wells were also included in the sampling. These wells are not connected to the cantonment drinking water supply system. All results were non-detect, except at the Mettie (formerly Selah) Airstrip well. The Mettie Airstrip well, was put in no-use status based on detections of PFAS exceeding the applicable MCLs.

5. Release or Threatened Release into the Environment of a Hazardous Substance

Historical operations information obtained during the PA and the sampling data obtained during the SI at YTC were used to identify areas where release(s) of PFAS may impact off-installation drinking water wells. The SI data is being supplemented by data collected during the ongoing RI and a regional groundwater transport model. Due to the PFAS detections in on-installation groundwater observed during the SI, the AOPIs' proximity to the installation boundary, and the potential for groundwater migration to impact downgradient, off-installation receptors, the Army identified and sampled 381 downgradient, off-installation drinking water wells during eight (8) phased field events in September 2021, January 2022, July/August 2022, May 2023, August 2023, December 2023, March 2024, and May 2024. The locations sampled during each phase were based on letter responses from residents in each outreach area. Evaluation of the data received during each phase dictated additional sampling locations for the subsequent phase. Currently, 135 wells have PFAS detections greater than applicable MCLs. All sampling results were shared with the respective well owners. Additionally, the USEPA, Washington State Department of Ecology, Washington Department of Health, Yakima County Health Department, and Yakama Nation were notified about the off-installation sampling events and the results. The Army has completed sampling of the known private wells located within the potential impact area.

The Army is continuing CERCLA response actions, including an RI to determine the nature and extent of release from the on-installation source areas. Data collected is used to evaluate potential risks to human health on- and off-installation.

B. Other Actions

1. Previous Actions

Previous actions related to the CERCLA PA/SI are described in subsections 4 and 5, above.

2. Current Actions

The August 2023 TCRA Action Memorandum formally documented the Army's decision to provide bottled water service and install residential POET systems at homes. As of 14 September 2024, 33 POET systems are in operation, and several more are in various stages of construction and operation. The Army discontinues bottled water service based on POET performance monitoring data. The Army anticipates 135 treatment systems will be required to address currently known PFAS drinking water well impacts. This number may change as data continues to be collected. Remedial actions planned under this revised TCRA are discussed in Section IV below.

3. Federal, State, and Local Roles

The Army is coordinating its CERCLA response actions with appropriate federal and state regulatory agencies and will continue to do so as the CERCLA process continues. The stakeholders include: USEPA, Washington State Department of Ecology, Washington Department of Health, Yakima County Health Department, Yakama Nation, and local officials who were notified about the off-installation sampling events and results from each phase of the sampling.

III. Threats to Human Health or Welfare, Statutory and Regulatory Authorities

Section 300.415(b)(2) of the NCP lists the criteria to assess whether a removal action is appropriate. The factors most applicable to current site conditions related to YTC are discussed in the following subsections.

A. Threats to Human Health

Based on information gathered during the PA/SI, the ongoing RI, and Department of Defense guidance, the Army identified a potential threat to human health due to the release of PFAS that may be from past operations at YTC. Specifically, PFAS in drinking water at levels above current action levels have been confirmed at 135 off-installation private drinking water wells downgradient of suspected PFAS source areas. Based on the site-specific circumstances, a TCRA is warranted to address potential exposure of PFAS in drinking water at levels above MCLs. In accordance with the NCP, 40 CFR § 300.415(b)(2), the following factors warrant this TCRA:

- i. "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances" and
- ii. "Actual or potential contamination of drinking water supplies or sensitive ecosystems."

B. Statutory and Regulatory Authorities

PFOA and PFOS are identified as hazardous substances under CERCLA and are therefore addressed under CERCLA and the NCP as such. PFAS detected in 135 residential drinking water wells are determined to pose a potential threat to human health. Army will take action in accordance with the Department of Defense and Army policy to mitigate drinking water impacted by PFAS. The TCRA presented in this Action Memorandum is taken in accordance with 40 CFR §§ 300.415(b)(1), (b)(2)(i) & (ii), and (b)(3).

IV. Proposed Actions

A. Proposed Action Description

The proposed action is to prioritize the mitigation of exposure of private drinking water wells where PFAS concentrations are known to be at or above three times the MCL values through the installation of POET systems and lining of an irrigation canal..

Where background levels are not a contributing variable, a POET system will be installed at locations above MCLs with priority based on the analysis of gathered data, focusing on the highest concentrations first as per the Department of Defense, "Prioritization of DoD Cleanup Actions to Implement the Federal Drinking Water Standards for PFAS Under the DERP" (03 September 2024). The POET systems will be implemented consistent with DoD criteria.

Hydrogeologic data collected by the U.S. Geological Survey (USGS) confirm that seepage occurs through unlined irrigation canals that flow through sections of YTC, in excess of 1 million gallons per day. Additionally, laboratory data confirm that the channels aid in the migration of PFAS from YTC to downgradient off-installation areas thus impacting downgradient drinking water wells. To mitigate this pathway, the Army will line or pipe sections of the irrigation canals, within the Installation boundary, to prevent future seepage through the bottom of the channel. Data collection associated with project planning is ongoing.

B. Contribution to Remedial Performance

These removal actions will mitigate human exposure to PFAS in drinking water at levels above MCLs by providing drinking water treatment to the affected properties and removing and/or controlling contaminant mass migrating to the subsurface. The Army will continue to conduct appropriate CERCLA response actions, consistent with the NCP, to address releases of PFAS from past activities at YTC. These removal actions will become part of any final remedial action that may be necessary for the site after further investigation during the CERCLA RI phase.

C. Project Schedule

POET system installations were initiated in August 2023 and progress continues. The proposed actions of piping on-installation sections of the irrigation canals and removal of impacted soils in select areas is planned for calendar year 2025.

D. Project Costs

The costs for implementing the TCRA are estimated as follows:

- POET Installation – estimated average of \$50,000 for one residential POET system
- Irrigation Canal – estimated at \$2.371M for 14,920 feet

V. Public Participation

PFAS information packets were provided to all potential well owners located in the downgradient off-installation area identified. Press releases, Congressional notification, and local government notification were completed in July 2021 as well as throughout the process. The Army held public meetings for the public to learn more about how the Army is addressing PFAS at YTC on 24 March 2022, 26 May 2022, 29 September 2022, 15 November 2023, 16 March 2024, and 29 June 2024. Since Fall 2023, open house-style public meetings have focused on the ROE documents and POET systems and addressing property owner concerns and questions.

A public comment period of not less than 30 days will be held for this TCRA in accordance with 40 CFR § 300.820(b)(2).

VI. Approval

This Action Memorandum documents the decision for the TCRA to further mitigate human exposure to PFAS in private drinking water wells in Yakima County, Washington. The decision was developed in accordance with CERCLA and the Department of Defense, "Prioritization of DoD Cleanup Actions to Implement the Federal Drinking Water Standards for PFAS Under the DERP" (03 September 2024), and is consistent with the NCP.

This Action Memorandum will be incorporated into the Administrative Record File for YTC. Conditions in the residential drinking water wells meet the NCP, 40 CFR § 300.415(b)(2), and criteria for determining that the proposed removal action is appropriate.

VII. Authorizing Signatures

The signature documents the decision made to conduct the TCRA. The decision may be reviewed and modified in the future if new information becomes available that indicates the presence of hazardous substances or exposures that may cause unacceptable risk to human health.

VIII. References

- Army. 2018. Army Guidance for Addressing Releases of Per-and Polyfluoroalkyl Substances. May.
- Army. 2021. Army Environmental Per- and Polyfluoroalkyl Substances (PFAS) Policy. January.
- Army. 2024. DoD PFAS CERCLA Guidance for Implementation of EPA MCLs. September.
- Executive Order 12580. 1987. Superfund Implementation. Washington: Federal Register. January.
- National Oil and Hazardous Substances Pollution Contingency Plan (NCP). 40 CFR Part 300.
- OSD. 2024. Prioritization of Department of Defense Cleanup Actions to Implement the Federal Drinking Water Standards for Per-and Polyfluoroalkyl Substances Under the Defense Environmental Restoration Program. September.
- U.S. Army Corps of Engineers. 2012. Periodic Review Report, Yakima Training Center, Yakima, Washington. September.
- USEPA. 2009. Superfund Removal Guidance for Preparing Action Memoranda. September.
- USEPA. 2016. Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate. EPA-HQ-OW-2014-0138; FRL-9946-91-OW. Federal Register/ Vol. 81. No. 101. May 25.
- USEPA. 2024. 40 CFR Parts 141. PFAS National Primary Drinking Water Regulation. June.

Time Critical Removal Action Memorandum Approval:



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Date