

FINAL ACTION MEMORANDUM

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

August 2023

I. Purpose

This Action Memorandum documents the approval and decision by the United States (U.S.) Army (Army) to conduct a Time Critical Removal Action (TCRA) in response to the release of perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) associated with past operations at Yakima Training Center (YTC), Washington that have impacted off-installation drinking water.

The Army conducted a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Preliminary Assessment (PA) and Site Inspection (SI) to assess potential impacts from per- and polyfluoroalkyl substances (PFAS) at YTC. PFOS and PFOA are two pollutants or contaminants included in the larger class of PFAS. The SI sampling at YTC indicated detections of PFOS and PFOA in groundwater at concentrations where analysis of hydrological conditions identified possible impacts to off-installation drinking water wells. To evaluate possible PFOS/PFOA impacts from YTC to off-installation drinking water sources, the Army conducted off-installation sampling at private drinking water wells that appear 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, four phased field events were conducted in September 2021, January 2022, July/August 2022, and May 2023 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 sampling locations. Sampling results show that 69 wells serving 85 locations had PFOS/PFOA concentrations exceeding 70 nanograms per liter (ng/L or parts per trillion (ppt)).

This Action Memorandum documents the Army's decision to mitigate exposure to PFOS/PFOA in drinking water where the Army operations are the source of PFOS/PFOA greater than 70 ppt. Bottled water is being provided as an alternative drinking water source. In addition, residential point of entry treatment systems (POETS) will be installed, where possible, to allow for the provision of safe drinking water as an alternative to bottled water until PFOS/PFOA levels in drinking water from an Army source no longer pose a potential threat to human health. The PA/SI is complete for YTC; a CERCLA Remedial Investigation (RI) is underway to further delineate the nature and extent of the release of PFAS chemicals and evaluate the risks posed to human health from the release.

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 satellite 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 the YTC is to provide military training facilities, maneuver areas, and ranges for the U.S. and allied nations. Since 1941, the 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 (Selah 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 parcels of land in excess of 1 acre.

4. Site Evaluation

Historical operations at YTC used PFAS-containing aqueous film-forming foam 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. PFOS/PFOA 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 PFOS and PFOA 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 PFOS and PFOA 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 other results were non-detect, except at

the Selah Airstrip well. The Selah Airstrip well, was put in no-use status based on detections of PFOS and PFOA exceeding 70 ppt.

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

The 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 PFOS/PFOA may impact off-installation drinking water wells. Due to the detections of PFOS/PFOA 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 299 downgradient, off-installation drinking water wells during three phased field events in September 2021, January 2022, July/August 2022, and May 2023. 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. Sixty-nine (69) wells serving 85 locations had detections of PFOS/PFOA greater than 70 ppt. 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 is continuing to evaluate private drinking water wells and conduct sampling.

The Army is continuing CERCLA response actions, including a Remedial Investigation (RI) to determine the nature and extent of release from the on-installation source areas and to evaluate potential risks to human health on- and off-installation. This TCRA will mitigate exposure of off-installation residents to PFOS/PFOA in drinking water at levels above 70 ppt. YTC is not on the National Priorities List.

B. Other Actions

1. Previous Actions

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

2. Current Actions

This TCRA Action Memorandum formally documents and approves the Army's decision to provide an alternative drinking water sources to the residents whose wells contain PFOS/PFOA at concentrations above 70 ppt. The Army has provided and will continue to provide an alternate water source (i.e., bottled water treated via reverse osmosis) to those impacted residences. The design and installation of residential POETS can replace bottled water provisioning if there is an appropriate location within or outside the residence to install the system, the labor and supplies are available, and the owner accepts the system as an alternative to bottled water. In addition, the Army is currently planning the scope of its PFAS Remedial Investigation for YTC.

3. Planned Actions

The Army will continue to conduct CERCLA response actions, including the RI and evaluation of possible remedial actions, as appropriate. As part of its remedial investigation, the Army will continue to evaluate off-installation private drinking water wells and sample locations where an Army release of

PFOS/PFOA may have impacted drinking water. As a result, additional removal actions and/or a modification of this removal action may be necessary in the future to mitigate additional drinking water impacts.

C. 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 the 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 and Department of Defense guidance, the Army identified a potential threat to human health due to the release of PFOS/PFOA that may be from past operations at YTC. Specifically, PFOS/PFOA in drinking water at levels above 70 ppt has been confirmed for 69 off-installation private drinking water wells downgradient of the AOPIs at YTC. Those 69 private wells provide drinking water to 85 residences. Based on the site-specific circumstances, a TCRA is warranted to address potential exposure to PFOS/PFOA in drinking water at levels above 70 ppt. 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 or pollutants or contaminants" and
- ii. "Actual or potential contamination of drinking water supplies or sensitive ecosystems."

B. Statutory and Regulatory Authorities

PFOA and PFOS are not identified as hazardous substances under CERCLA; however, they may be addressed under CERCLA and the NCP as pollutants or contaminants. PFOS/PFOA detected in 69 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 where individual or combined concentrations of PFOS/PFOA exceed 70 ppt. 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 eliminate exposure to drinking water with concentrations of PFOS/PFOA higher than 70 ppt, first, through providing an alternative water supply to impacted drinking water users (bottled water) and, second, through installation of point of exposure treatment systems, where

possible. Bottled water is being provided to impacted residences as an alternative drinking water source until the Army installs a point of use treatment system at the effected residence or drinking water no longer poses a potential threat to human health. In addition, the Army is designing residential POETS to be installed at each residence where site conditions allow and the Army receives the permission of the residence owner. The point of entry treatment systems will allow for the provision of safe drinking water as an alternative to bottled water until PFOS/PFOA levels in drinking water from an Army source no longer pose a potential threat to human health. Where it is not possible to install point of entry treatment systems, the Army will continue to provide bottled water. This Removal Action Objective protects human health by eliminating exposure to drinking water with concentrations of PFOS/PFOA at levels above 70 ppt.

B. Contribution to Remedial Performance

This removal action will eliminate human exposure to PFOS/PFOA in drinking water at levels above 70 ppt by providing an alternative drinking water supply or drinking water treatment to the affected properties. The Army will continue to conduct appropriate CERCLA response actions, consistent with the NCP, to address releases of PFOS/PFOA from past activities at YTC. This removal action will become part of any final remedial action that may be necessary for the site after further investigation during the CERCLA remedial phase.

C. Project Schedule

Bottled water has been provided to the locations with private wells with PFOS/PFOA levels above 70 ppt, beginning in October 2021 for the affected locations sampled in September 2021, beginning in February 2022 for the affected locations sampled in January 2022, beginning in August and September 2022, for the affected locations sampled in July and August 2022, and beginning in July 2023 for affected locations sampling in May 2023. Provision of bottled water is on-going. The Army will be installing the POET systems in phases. POETS pre-construction activities for the first phase are underway. Once all design and right of entry requirements are met, actual installations will commence, which is anticipated to be in September 2023.

D. Project Costs

The cost for implementing the TCRA is estimated to be an average of \$150 per month per resident for bottled water provisioning and is estimated to be an average of \$7,500 for one residential POETS. Alternate water supplies authorized by this TCRA will be provided so long as site conditions require action.

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 PFOS and PFOA at YTC on 24 March 2022, 26 May 2022, and 29 September 2022. Letters containing sampling results for those locations where PFOS/PFOA concentrations exceeded 70 ppt were hand-delivered following receipt of validated data.

Letters for those locations where PFOS/PFOA concentrations were less than 70 ppt were mailed to the residents.

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 mitigate human exposure to PFOS/PFOA in private drinking water wells in Yakima County, Washington. The decision was developed in accordance with CERCLA and is not inconsistent with the NCP. The TCRA is also consistent with the Army's PFAS Policy.

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), criteria for determining that the proposed removal action is appropriate.

VII. Authorizing Signature

The signature below 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 pollutants or contaminants or exposures that may cause unacceptable risk to human health.

Time Critical Removal Action Memorandum Approval:

Michael E. Reheuser
Director, Installation Services
Office of the Deputy Chief of Staff, G-9

Date