

ACTION MEMORANDUM

**Time Critical Removal Action
For
Fort Riley, Kansas**

October 2021

I. Purpose

This Action Memorandum documents the approval and decision by the United States 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 Fort Riley that have impacted off-Installation drinking water.

The Army is currently conducting a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Preliminary Assessment and Site Inspection (PA/SI) to assess potential impacts from per- and polyfluoroalkyl substances (PFAS) at Fort Riley. PFOS and PFOA are two pollutants or contaminants included in the larger class of PFAS. The SI sampling at Fort Riley's Marshall Army Airfield detected PFOS and PFOA in groundwater at concentrations where analysis of hydrological modeling identified possible impacts to off-post drinking water wells. To evaluate possible PFOS/PFOA impacts from Marshall Army Airfield to off-post drinking water sources, the Army conducted off-post sampling at private drinking water wells that appear to be hydrologically connected to groundwater beneath Marshall Army Airfield based on historical particle tracking investigations (USGS 2000).

Sampling of off-post drinking water wells identified one location exceeding the United States Environmental Protection Agency's (EPA) lifetime Health Advisory (HA) level for PFOS and PFOA of 70 ng/L (parts per trillion (ppt)) individually or combined if both are detected in drinking water. This Action Memorandum documents the Army's decision to mitigate exposure to PFOS/PFOA where Army is the source of PFOS/PFOA above the EPA HA in drinking water. Bottled water will be provided as an alternative drinking water source until PFOS/PFOA levels in drinking water from an Army source no longer exceed the EPA HA. After completing the PA/SI, the Army will initiate a CERCLA Remedial Investigation (RI) to further delineate the nature and extent of the PFAS release 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, Title 42 United States Code (USC) § 9601 *et seq.*, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), Title 40 Code of Federal Regulations (CFR) Part 300. The Defense Environmental Restoration Program, 10 U.S.C. §§ 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 (EO 12580, 1987).

II. Site Conditions and Background

A. Site Description

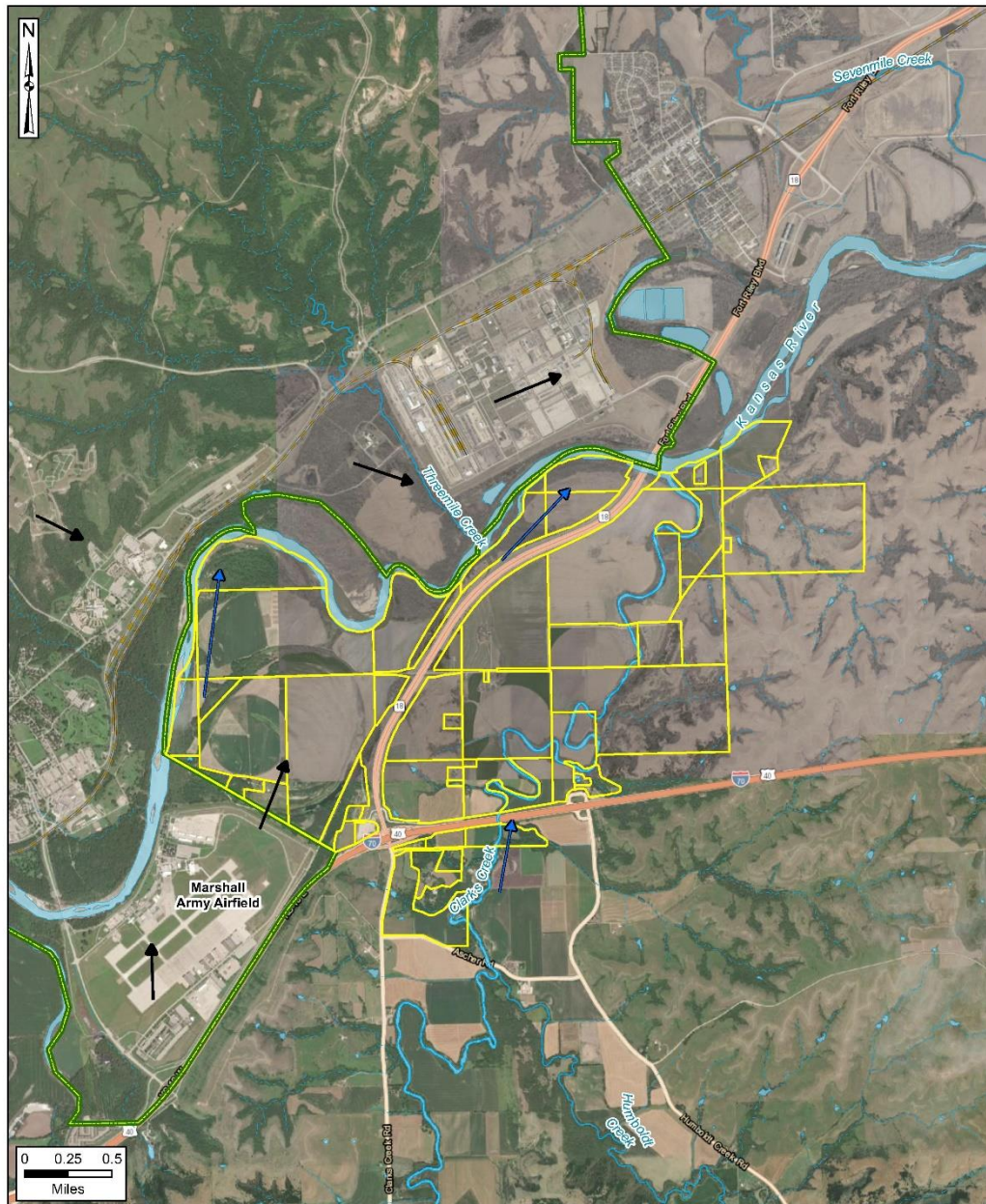
1. Physical Location and Description

Fort Riley is located in northeast Kansas at the confluence of the Republican and Smoky Hill rivers, which combine to form the Kansas River. Milford Lake bounds part of the western side of the installation. The installation occupies 100,775 acres within portions of Riley, Geary, and Clay counties, with the majority of the installation within Riley and Geary counties (Fort Riley 2016, Malcolm Pirnie, Inc. [Malcolm Pirnie] 2009). Fort Riley is located one mile east of Milford, three miles west of Manhattan, 50 miles west of Topeka, 130 miles northwest of Wichita, and 135 miles west of Kansas City, Kansas.

Portions of the installation are bounded by the city limits of Riley, Junction City, and Ogden, Kansas (Malcolm Pirnie 2009). The Marshall Army Airfield areas of potential interest (AOPIs) for possible PFAS releases are located at the southern portion of the installation within one mile of the installation boundary. The Marshall Army Airfield is adjacent (east) to the Kansas River (**Figure 1**).



Figure 1
PFAS PA/SI Sampling Locations for Off-Post Parcels
Fort Riley, KS



- Installation Boundary
- Off-Post Parcel for PFAS Sampling
- ~ River/Stream (Perennial)
- - - Stream (Ephemeral/Intermittent)
- Water Body
- Surface Water Flow Direction
- Approximate Groundwater Flow Direction

Data Sources:
EDR Well Data, 2019
KGS Well Data, 2019
ESRI ArcGIS Online, Aerial Imagery

Coordinate System:
WGS 1984, UTM Zone 14 North

2. Site Operations History

Fort Riley was established in 1852 as a temporary military camp, known as Camp Center. In 1853, it was renamed Fort Riley in honor of Major General Bennett Riley and became a permanent Cavalry post. The post served as Cavalry and Light Artillery schools from the 1880s to the 1940s (U.S. Army Corps of Engineers 2012). Activity at the installation increased during World War II (Malcolm Pirnie 2009). Fort Riley has historically functioned as both a small municipality and a light industrial complex for services, and functions as a military training, equipment supply, and maintenance center for on-post activities (U.S. Army Corps of Engineers 2012).

3. Current and Projected Land Use

The land use on Fort Riley can be divided into four main categories: the cantonment areas, training and maneuver areas, firing ranges, and duded impact areas (Malcolm Pirnie 2009). There are six different cantonment areas at Fort Riley, which total approximately 11,000 acres: Main Post, Camp Forsyth, Camp Funston, Camp Whitside, Marshall Army Airfield, and Custer Hill. Most of the land surrounding Fort Riley has historically been used for agricultural production, but recently agricultural land has been increasingly parceled, sold, and developed for residential use (Department of Defense 2016).

4. Site Evaluation

During the course of the Army's CERCLA PFAS PA/SI, PFOS/PFOA were detected at multiple sites on Fort Riley, with maximum concentrations identified at Marshall Army Airfield. Historical operations at the Marshall Army Airfield used PFAS-containing aqueous film-forming foam (AFFF) for firefighting activities and training, for fire station activities, and within hangar fire suppression systems.

The SI sampling identified PFOS and PFOA concentrations in on-post soil and groundwater at the Marshall Army Airfield. Due to the level of the PFOS/PFOA concentrations in on-post groundwater, AOPI proximity to the installation boundary, and the potential for groundwater migration to impact down gradient, off-post receptors, the Army identified and sampled 23 down gradient, off-post drinking water wells. Only one residential well had detections above the EPA HA. All sampling results were shared with EPA, the Kansas Department of Health and Environment (KDHE), and the respective well owners. The Army will continue its CERCLA response actions, to include an RI, to determine the nature and extent of release from these source areas and to evaluate potential risks to human health.

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

The Fort Riley SI sampling data identified areas where release(s) of PFOS/PFOA may have impacted off-post drinking water wells. Off-post sampling for PFOS/PFOA identified one drinking water well that contained PFOS/PFOA, believed to be from an Army source, over the EPA HA. This TCRA will mitigate exposure of off-post residents to PFOS/PFOA above the EPA HA in drinking water.

B. Other Actions

1. Previous Actions

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

2. Current Actions

While this TCRA Action Memorandum formally documents and approves the Army's decision to provide an alternative water source to the residents whose well contains PFOS/PFOA over the EPA HA, the Army has been providing the alternate water source (i.e., bottled water) to the one residence with PFOS/PFOA over the EPA HA of 70 ng/L. The Army is completing the PFAS PA/SI.

3. Planned Actions

The Army will continue to conduct CERCLA response actions, including the RI and evaluation of possible remedial actions, as appropriate.

C. Federal, State, and Local Roles

The Army is coordinating its CERCLA response actions with appropriate federal and state regulatory agencies, including EPA and KDHE, and will continue to do so as the CERCLA process continues. SI sampling results were shared with EPA and the KDHE.

III. Threats to Human Health, 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 Fort Riley are discussed in the following subsections.

A. Threats to Human Health

Based on information gathered during the SI, the Army identified a potential threat to human health due to the release of PFOS/PFOA that appear to be from past operations at the Marshall Army Airfield. Specifically, the exceedance in drinking water of the EPA HA level for PFOS/PFOA has been confirmed for an off-post private drinking water well down gradient of the Marshall Army Airfield. Based on the site-specific circumstances, a TCRA is warranted to address potential exposure to PFOS/PFOA in drinking water above the EPA HA. 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 as determined by CERCLA; however, they may be addressed under CERCLA and the NCP as pollutants or contaminants. PFOS/PFOA detected in a residential drinking water well above the EPA HA poses a potential threat to human health based on Department of Defense (DoD) and Army policy to take action to mitigate drinking water where individual or combined concentrations PFOS/PFOA exceed the EPA HA level of 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 Removal Action Objective (RAO) protects human health by providing an alternate water supply (i.e., bottled water) when PFOS/PFOA concentrations in off-post drinking water exceed the EPA HA.

B. Contribution to Remedial Performance

This removal action will eliminate human exposure to drinking water with levels of PFOS/PFOA above the EPA HA by providing bottled water to the affected property. The Army will continue to conduct appropriate CERCLA response actions, consistent with the NCP, to address releases of PFOS/PFOA from past activities at Fort Riley.

C. Project Schedule

Beginning in January 2021, bottled water has been provided to the residence and bottled water will be provided until detections of PFOS/PFOA are below the EPA HA in the resident's well or until another appropriate CERCLA action is implemented to address unacceptable risk from PFOS/PFOA.

D. Project Costs

The cost for implementing the TCRA over the next three months is estimated at \$4,500. The alternate water supply authorized by this TCRA will be provided so long as site conditions require the action.

V. Public Participation

PFAS information packets were provided to all residents located in the down-gradient off-post area identified for sampling prior to the sampling event. Press releases, Congressional notification, and local government notification were completed in October 2020. Letters containing sampling results were provided to the residents following the sampling event.

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 a private drinking water well in Geary County, Kansas. 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 decision is based on the administrative record file for Fort Riley, and this Action Memorandum will be incorporated into the larger Administrative Record File for Fort Riley. Conditions in the residential drinking water well meet the NCP, 40 CFR § 300.415(b)(2), criteria for determining that the proposed removal action is appropriate.

VII. 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.
- Department of Defense. 2016. Integrated Natural Resources Management Plan, Fort Riley, Kansas. Department of Interior, and State of Kansas. July 5.
- Executive Order 12580. 1987. Superfund Implementation. Washington: Federal Register. January.
- Fort Riley. 2016. FY2016 Fort Riley Army Defense Environmental Restoration Program Installation Action Plan. August 24.
- Malcolm Pirnie. 2009. Draft Final Operational Range Assessment, Program Phase I Qualitative Assessment Report, United States Army Garrison Fort Riley, Fort Riley, Kansas. March.
- National Oil and Hazardous Substances Pollution Contingency Plan (NCP). 40 CFR Part 300.
- Office of the Secretary of Defense (OSD). 2019. Memorandum: Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program. October.
- U.S. Army Corps of Engineers. 2012. Third Five-Year Review Report Draft Final Fort Riley Junction City Geary, Clay and Riley Counties Kansas. September 27.
- United States Environmental Protection Agency (USEPA). 2009. Superfund Removal Guidance for Preparing Action Memoranda. September.
- United States Geological Survey (USGS). 2000. Characterization and Simulation of Groundwater Flow in the Kansas River Valley at Fort Riley, 1990–98.

VIII. 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 pollutants or contaminants or exposures that may cause unacceptable risk to human health.

Time-Critical Removal Action Memorandum Approval

Authorizing Signature

MICHAEL E. REHEUSER
Director, Installation Services
Office of the Deputy Chief of Staff, G-9

DATE