



2018 Annual

Water Quality Report

Wright Patterson Air Force Base
PWS ID: 2903412 & 2903312



AMERICAN WATER
Military Services

This report contains important information about your drinking water. If you do not understand it, please have someone explain or translate it for you.

Este informe contiene información muy importante sobre su agua potable. Si no lo comprende, favor acudir a alguien que se lo pueda traducir o explicar.

Continuing Our Commitment

A Message From Military Services Group President Mark K McDonough

American Water's Military Services Group owns and operates water and wastewater utilities under the Utilities Privatization program and proudly provides water and wastewater services to military communities around the country, including yours. Our Company's Vision – "We Keep Life Flowing" drives everything we do for you, our customers. To reinforce our vision and maintain your trust, it's important that we share with you information about our commitment to providing high-quality water service.

I am pleased to provide you with the 2018 Annual Water Quality Report with detailed information about the source and quality of your drinking water. We have prepared this report using the data from water quality testing conducted for your local water system from January through December 2018. You'll find that we supply water that surpasses or meets all federal and state water quality regulations.

With equal importance, we place a strong focus on acting as stewards of our environment. In all of the communities we serve, we work closely with the local directorates of public works, civil engineering squadrons, local environmental departments and state regulatory agencies to protect environmental quality, educate customers on how to use water wisely, and ensure the high quality of your drinking water every day.

At American Water, our values – safety, trust, environmental leadership, teamwork, and high performance – mean more than simply making water available "on-demand". It means every employee working to deliver a key resource for public health, fire protection, the economy and the overall quality of life we enjoy – We Keep Life Flowing. For more information or for additional copies of this report, visit us online at www.amwater.com

Sincerely,

Mark K McDonough

President – American Water's Military Services Group

Water Quality Statement

The staff and management of the WPAFB American Water O&M water utility are pleased to report that the water provided to you during the past year met all the State and Federal standards set for drinking water. The 1996 amendments to the Federal Safe Drinking Water Act require that WPAFB deliver a brief annual water quality report to all customers. American Water treats water from 10 ground water wells (6 in Area A and 4 in Area B) and provides safe drinking water to your residence through the American Water distribution system which includes softener pump stations, elevated ground storage tanks, and water pipes.

WPAFB License to Operate (LTO)

In 2018, American Water O&M/WPAFB had an unconditioned LTO for two Public Water Systems, (Area A: 2903412 and Area B: 2903312) American Water took ownership of both water systems on 12/1/2018

Special Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791) or by calling our Customer Service Center at (800) 685-8660.

Water Information Sources

The Military Services Group of American Water provides water and wastewater contract services to military installations across the country as part of the federal government's Utility Privatization Program. It operates and maintains the water and/or wastewater assets at Fort A.P. Hill, VA., Fort Sill, OK., Fort Leavenworth, KS., Scott Air Force Base, Ill., Fort Rucker, AL., Fort Meade, MD., Fort Belvoir, VA., Fort Hood, TX, Fort Polk, LA., Picatinny Arsenal, NJ., Hill Air Force Base, UT and Vandenberg Air Force Base, CA., Wright-Patterson Air Force Base, OH and Fort Leonard Wood, MO.

Wright Patterson Air Force Base American Water Enterprises Military Services Group provides water service to approximately 28,000 customers at the WPAFB Military Post located in Greene County, Ohio. With a history dating back to 1886, American Water is the largest and most geographically diverse U.S. publicly traded water and wastewater utility company. The company employs more than 7,100 dedicated professionals who provide regulated and market-based drinking water, wastewater and other related services to more than 13 million people in 46 states and Ontario, Canada. American Water provides safe, clean, affordable and reliable water services to our customers to make sure we keep their lives flowing. For more information, visit amwater.com and follow American Water on Twitter, Facebook and LinkedIn.

The web sites of US EPA Office of Water, the Centers for Disease Control and Prevention, and Ohio Environmental Protection Agency (OEPA) provide a substantial amount of information on many issues relating to water resources, water conservation and public health. You may visit these sites as well as American Water's website at the following addresses:

United States Environmental Protection Agency

www.epa.gov/safewater

Ohio Environmental Protection Agency

www.epa.ohio.gov

American Water

www.amwater.com

American Water Works Association

www.awwa.org

Safe Drinking Water Hotline: (800) 426-4791

What is a Water Quality Report?

To comply with the Ohio Environmental Protection Agency (OEPA) and the U.S. Environmental Protection Agency (EPA) regulations, American Water issues a report annually describing the quality of your drinking water. The purpose of this report is to provide you an overview of last year's (2018) drinking water quality. It includes details about where your water comes from and what it contains. We hope the report will raise your understanding of drinking water issues and awareness of the need to protect your drinking water sources. For more information, please contact American Water at: 937-623-9786.

Share This Report

You are encouraged to share this important information with water users who are not customers of Wright Patterson Air Force Base American Water and therefore do not receive this report directly.

Water Conservation Tips

Conservation measures you can use inside your home include:

- Fix leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets and appliances.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.
- Do not let the water run while shaving or brushing teeth.
- Soak dishes before washing.
- Run the dishwasher only when full.

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.
- Use water-saving nozzles.
- Use water from a bucket to wash your car, and save the hose for rinsing.

Where Does My Water Come From?

The source of WPAFB's drinking water is the Great Miami Buried Valley Aquifer. This natural aquifer provides approximately one billion gallons of water each year to WPAFB.

There are six wells that serve Area A and four wells that serve Area B. Treatment includes air stripping (removes volatile organic compounds) (VOCs), chlorine disinfection (eliminates bacteria), and fluoridation (promotes strong teeth). Water from two of the wells in Area A is also treated by a granular activated carbon (GAC) system (removes perfluorinated compounds) (PFCs). Housing residents in The Bricks and The Woods receive water which is softened (removes minerals).

The Area A public water system (PWS) has interconnections with the City of Fairborn's PWS. The City of Fairborn is capable of supplying water to Area A to meet emergency needs. The Area B water system has an alternate ground water supply from wells located by Huffman Prairie.

Source Water Assessment

In 2007, the OEPA completed a study of WPAFB's source of drinking water to identify potential contaminant sources and provide guidance on protecting the drinking water source. According to this study, the aquifer that supplies water to WPAFB Areas A and B well fields has a high susceptibility to contamination. This determination is based on the following information: the lack of a protective layer of clay or other material overlying the aquifer, a shallow depth (between 5-15 feet below ground surface) of the aquifer, the presence of significant potential contaminant sources in the protection areas, and the presence of man-made contaminants in the ground water.

Tetrachloroethene was detected within the treated water above the maximum contaminant level (MCL) on 1/10/91, 4/03/91, 5/01/91, and 6/04/91. WPAFB upgraded the treatment systems in 1992. Since that time, all results have been under the MCL for Tetrachloroethene in the treated water. Nitrate was detected in the treated water above the aquifer susceptibility concentration of concern of 2.0 mg/L on some occasions. The Nitrate MCL is 10 mg/L.

The risk of future contamination can be minimized by implementing appropriate protective measures. More information about the source water assessment and what consumers can do to help protect the aquifer is available by contacting American Water at: 937-623-9786.

Substances Expected to be in Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife.

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban storm water runoff, and septic systems.

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

In order to ensure that your tap water is safe to drink, the US EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and their potential health effects can be obtained by calling **EPA's Safe Drinking Water Hotline at 800-426-4791**.

Information About Lead

Is there lead in my water?

Although we regularly test lead levels in your drinking water, it is possible that lead and/or copper levels at your home are higher because of materials used in your plumbing. If present, elevated levels of lead can cause serious problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Wright Patterson Air Force Base American Water is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead and copper exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 1-800-426-4791 or <http://www.epa.gov/safewater/lead>.

Area B Required to Perform Level 1 Assessment for Total Coliform Positive Samples

Coliforms are bacteria which are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. WPAFB found coliforms (June, 2018) indicating the need to look for potential problems in water treatment or distribution. When this occurs, they are required to conduct assessments to identify problems and to correct any problems that were found during these assessments. During the past year they were required to conduct 1 level one assessment. 1 level one assessment was conducted. In addition, they were required to take 2 corrective actions and they completed 2 of these actions.

Unregulated Contaminant Monitoring

Unregulated contaminants are those contaminants for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants and whether future regulation is warranted.

In 2014 and 2015, OEPA directed sampling for perfluorinated compounds; subsequently, WPAFB's monitoring detected Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) in the Area A distribution system. In discussion with OEPA, WPAFB performed sampling at all active wells in March 2016 and discovered that two of the six wells located in Area A had elevated levels of PFOS/PFOA. In April 2016, monitoring revealed a PFOS level of 110 parts per trillion (ppt) in the distribution system. It was suspected that the source of the PFOS and PFOA chemicals came from firefighting foam used at fire training and crash sites on the base.

On 19 May 2016, the US EPA issued a lifetime drinking water Health Advisory Limit (HAL – classified as a nonenforceable technical guidance) of 70 parts per trillion (ppt) for human exposure to PFOA and PFOS (individually and combined). On 20 May 2016, WPAFB issued a drinking water advisory for Area A informing the public that Area A had a PFOS detection that exceeded the new HAL of 70 ppt. WPAFB initiated monthly monitoring at all wells and entry points for Area A as well as quarterly monitoring for Area B.

Since that time, WPAFB Civil Engineering (CE), Bioenvironmental Engineering (BE), and American Water personnel have been working closely with the OEPA to remediate the contaminant. In June of 2017, Granular Activated Carbon (GAC) Units were installed to remove the contaminant from water being pumped from the contaminated wells. The GAC units were placed online on 2 June 2017. The wells were returned to service at that time.

American Water continues monthly monitoring at the GAC system and the entry point to the distribution system post GAC filtration. Since placing the GAC on line, the PFOS/PFOA levels have consistently been well below the HAL of 70 ppt. The current monitoring schedule for PFOS and PFOA is listed below:

Location	Frequency
Granular Activated Filtration System/EP to Area A 855	Monthly
Area B 1630 Entry Point	Monthly
Area A 172 Entry Point	Quarterly

Ensuring Water Quality

In calendar year 2018, Bioenvironmental Engineering and American Water personnel conducted sampling for bacteria, VOCs, nitrates, disinfection byproducts, radiologicals, inorganics, perfluorinated compounds, lead and copper. The Ohio Environmental Protection Agency (OEPA) requires sampling for some contaminants less than once per year because concentrations of these contaminants do not change very often. That is why some of the data may be more than one year old.

How to Read the Data Tables

American Water conducts extensive monitoring to ensure that your water meets all water quality standards. The results of our monitoring are reported in the following tables. While monitoring was conducted in 2018, OEPA requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old. For help with interpreting this table, see the "Table Definitions" section.

Starting with a **Substance**, read across. **Year Sampled** is usually in 2018 or year prior. **MCL** shows the highest level of substance (contaminant) allowed. **MCLG** is the goal level for that substance (this may be lower than what is allowed). **Average Amount Detected** represents the measured amount (less is better). **Range** tells the highest and lowest amounts measured. A **Yes** under **Compliance Achieved** means the amount of the substance met government requirements. **Typical Source** tells where the substance usually originates. Unregulated substances are measured, but maximum allowed contaminant levels have not been established by the government.

Public Participation Information

Thank you for taking time to read our annual Drinking Water Quality Report. If you would like more information about the American Water drinking water quality, or if you have any questions pertaining to the information contained in this report, please contact Lance Livesay, General Manager at (937) 623-9786.

The Bioenvironmental Engineering Office and American Water holds a Drinking Water Working Group that meets quarterly to discuss local drinking water issues involving compliance, risk reduction and continuous improvement. Public participation and comments are encouraged and can be discussed at these meetings by contacting American Water.

Table Definitions and Abbreviations

- **Action Level:** The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
- **MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- **MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **MRDL (Maximum Residual Disinfectant Level):** The highest level of disinfectant routinely allowed in drinking water. Addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (Maximum Residual Disinfectant Level Goal):** The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- **mrem/year (millirems per year):** a measure of radiation absorbed by the body.
- **MFL (Million Fibers per Liter):** a measure of the presence of asbestos fibers that are longer than 10 micrometers.
- **NA:** Not applicable
- **ND:** Not detected.
- **NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water.
- **pCi/L (picocuries per liter):** Measurement of the natural rate of disintegration of radioactive contaminants in water (also beta particles).
- **pH:** A measurement of acidity, 7.0 being neutral.
- **ppm (parts per million):** One part substance per million parts water, or milligrams per liter.
- **ppb (parts per billion):** One part substance per billion parts water, or micrograms per liter.
- **ppt (parts per trillion):** One part substance per trillion parts water, or nanograms per liter.
- **RAA (Running Annual Average):** average results for the most recent four quarters.
- **SMCL (Secondary Maximum Contaminant Level):** recommended level for a contaminant that is not regulated and has no MCL.
- **TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

REGULATED PARAMETERS (Area A: PWS 2903412 Area B: 2903312)

Microbiological Contaminants	Year Sampled	Unit of Measure	MCLG	MCL	Area A # of Positive Samples	Area A Range of Detections	Area B # of Positive Samples	Area B Range of Detections	Compliance Achieved	Typical Source
Total Coliform	2018	# Positive	0	NA	0	0	2	0-2	Yes	Naturally present in the environment
Residual Disinfectants	Year Sampled	Unit of Measure	MCLG	MCL	Area A Level Found	Area A Range of Detections	Area B Level Found	Area B Range of Detections	Compliance Achieved	Typical Source
Total Chlorine	2018	PPM	4	4	1.25	0.49 - 2.20	1.09	0.6 - 1.8	Yes	Water additive used to control microbes
Disinfection Byproducts	Year Sampled	Unit of Measure	MCLG	MCL	Area A Level Found	Area A Range of Detections	Area B Level Found	Area B Range of Detections	Compliance Achieved	Typical Source
HAA5's	2018	PPB	NA	60	2.81	ND - 2.81	2.83	2.57 - 2.83	Yes	By-product of drinking water chlorination
TTHM's	2018	PPB	NA	80	29.78	4.18 - 29.78	14.45	13.31 - 14.45	Yes	By-product of drinking water chlorination
Inorganic Contaminants	Year Sampled	Unit of Measure	MCLG	MCL	Area A Level Found	Area A Range of Detections	Area B Level Found	Area B Range of Detections	Compliance Achieved	Typical Source
Barium	2017	PPM	2	2	0.136	0.0389 - 0.136	0.134	0.0422 - 0.134	Yes	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Nitrate	2018	PPM	10	10	2.01	1.99 - 2.01	0.58	0.50 - 0.58	Yes	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Fluoride	2018	PPM	4	4	1.04	0.48 - 1.29	1.03	0.60 - 1.19	Yes	Erosion of natural deposits; Water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Radioactive Contaminants	Year Sampled	Unit of Measure	MCLG	MCL	Area A Level Found	Area A Range of Detections	Area B Level Found	Area B Range of Detections	Compliance Achieved	Typical Source
Radium 228	2017	pCi/L	0	5	1	NA	1	NA	Yes	Erosion of natural deposits
Gross Alpha	2017	pCi/L	0	15	4.32	NA	3	NA	Yes	Erosion of natural deposits
VOC/SOC	Year Sampled	Unit of Measure	MCLG	MCL	Area A Level Found	Area A Range of Detections	Area B Level Found	Area B Range of Detections	Compliance Achieved	Typical Source
Xylene	2016	PPM	10	10	ND	ND	1.07	ND - 1.07	Yes	Discharge from petroleum factories; Discharge from chemical factories
Lead and Copper - Area A										
Contaminants	Action Level	Individual Results Over Action Level	90 th Percentile Values	Compliance Achieved	Year Sampled	Typical Source of Contaminants				
Lead (PPB)	15 PPB	0	5.69	Yes	2018	Corrosion of household plumbing systems, erosion of natural deposits				
	0 of 60 samples were found to have lead levels in excess of the action level									
Copper (PPM)	1.3 PPM	0	0.626	Yes	2018	Corrosion of household plumbing systems, erosion of natural deposits				
	0 of 60 samples were found to have copper levels in excess of the action level									
Lead and Copper - Area B										
Contaminants	Action Level	Individual Results Over Action Level	90 th Percentile Values	Compliance Achieved	Year Sampled	Typical Source of Contaminants				
Lead (PPB)	15 PPB	0	1.87	Yes	2018	Corrosion of household plumbing systems, erosion of natural deposits				
	0 of 30 samples were found to have lead levels in excess of the action level									
Copper (PPM)	1.3 PPM	0	0.691	Yes	2018	Corrosion of household plumbing systems, erosion of natural deposits				
	0 of 30 samples were found to have copper levels in excess of the action level									

UNREGULATED CONTAMINANTS

Microbiological Contaminants	Year Sampled	Unit of Measure	Area A Average	Area A Range of Detections	Area B Average	Area B Range of Detections	Typical Source
Nickel	2014	PPB	6.61	ND – 6.61	ND	NA	Erosion of natural deposits
Bromodichloromethane	2018	PPB	2.91	ND – 10	3.08	1.21 – 5.7	Disinfection By-Products
Bromoform	2018	PPB	0.38	ND – 0.90	1.00	0.64 – 1.49	
Chloroform	2018	PPB	6.50	ND – 28.2	3.71	ND – 9.8	
Dibromochloromethane	2018	PPB	1.56	ND – 4.55	3.18	1.92 – 4.9	
Dichlorodifluoromethane	2018	PPB	ND	NA	ND	NA	
Chromium	2015	PPB	0.24	ND – 0.38	0.30	0.28 – 0.31	Naturally occurring element; used in making steel and other alloys
Chromium – 6	2015	PPB	0.041	0.04 – 0.05	0.12	0.12 – 0.13	
Strontium	2015	PPB	136	31.7 – 208	370	104 – 506	Naturally occurring element; commercial use in faceplate glass of cathode-ray tube televisions to block x-ray emissions
Molybdenum	2015	PPB	1.62	1.4 – 1.8	3.60	3.5 – 3.7	Naturally occurring element found in ores and present in plants, animals, and bacteria
Chlorate	2015	PPB	33.7	ND – 49.8	ND	NA	Agriculture defoliant or desiccant; used in production of chlorine dioxide
Perfluorohexanesulfonic Acid (PFHxS)	2018	PPT	2.13	ND – 9.9	19	17 – 20	Manmade chemical; used in products to make stain, grease, heat and water resistant; also used in firefighting foam
Perfluorooctanoic Acid (PFOA)	2018	PPT	0.99	ND – 4.1	6.80	5.1 – 9.6	
Perfluorooctanesulfonic Acid (PFOS)	2018	PPT	4.1	ND – 14	15.33	12 – 19	
* Unregulated contaminant monitoring helps the EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants							