

# Camp Ripley Drinking Water 2022 Consumer Confidence Report

The Safe Drinking Water Act (SDWA), implemented by the Environmental Protection Agency (EPA), requires community water systems to distribute an annual Consumer Confidence Report (CCR) to their customers. These reports enable Americans to make practical, knowledgeable decisions about the quality of the water they are consuming as it impacts their health. The report focuses on water quality information from the previous calendar year and is used to supplement public notification of discovery of any violation of a contaminant standard.

As stated above, the EPA requires **community** water systems to distribute annual CCRs. The Camp Ripley water system is considered “**non-community**” because it regularly supplies water to at least 25 of the same people at least six (6) months per year, but not year-round (similar to schools, factories, office buildings, and hospitals). Camp Ripley chooses to issue a CCR even though it is not required by the SDWA.

This CCR is specific to the public water supply at Camp Ripley. For information regarding the water quality of your hometown or local armory, visit the EPA’s website located at <http://ofmpub.epa.gov/apex/safewater/f?p=136:102>.

## Definitions

- **AL (action level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **EPA:** Environmental Protection Agency
- **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 and are non-enforceable public health goals.
- **Level 1 Assessment:** A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in the water system.
- **Level 2 Assessment:** A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *Escherichia coli* (*E. coli*) MCL violation has occurred and/or why total coliform bacteria have been found in the water system on multiple occasions.
- **MRDL (maximum residual disinfectant level):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **MRDLG (maximum residual disinfectant level goal):** The level of a 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 contaminants.
- **NA (not applicable):** Does not apply.
- **NTU (nephelometric turbidity units):** A measure of the cloudiness of the water (turbidity).
- **pCi/l (picocuries per liter):** A measure of radioactivity.
- **ppb (parts per billion):** One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. Ppb is the same as micrograms per liter (ug/L).
- **ppm (parts per million):** One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. Ppm is the same as milligrams per liter (mg/L).
- **PWSID:** Public water system identification.
- **TT (treatment technique):** A required process intended to reduce the level of a contaminant in drinking water.
- **Variances and Exemptions:** State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

## 2022 Camp Ripley Drinking Water Report

### **Is my water safe?**

The Minnesota Department of Health (MDH) and Camp Ripley Department of Public Works staff test all wells on Camp Ripley annually to verify conformance per State and Federal drinking water regulations. The contaminants tested for include coliform bacteria, nitrate plus nitrite nitrogen (N+N), lead, copper, total phosphorus, orthophosphate, five (5) haloacetic acids (HAAs), and four (4) trihalomethanes (THMs). The results of these tests can be viewed in Table 1 (attached).

In 2020, under direction of National Guard Bureau, Camp Ripley tested all wells for per- and polyfluoroalkyl substances (PFAS) on three (3) separate occasions. All PFAS results are displayed in Table 2 (attached) and are below any EPA health advisories or MDH guidance values. The next round of PFAS sampling at Camp Ripley will occur in 2023.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and fixtures. When a building has been unoccupied for several days or weeks, the potential for lead exposure can be minimized by flushing the taps for several minutes before using water for drinking or cooking. If you are concerned about lead in the water, contact the Facilities Management Environmental Office Drinking Water POC listed on Page 4. Additionally, information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>. In 2020, Camp Ripley was placed on a reduced lead and copper sampling schedule. The next sample will be collected in 2023.

In 2022, all drinking water wells on Camp Ripley met all state and federal drinking water health standards.

### **Where does my water come from?**

Drinking water for Camp Ripley's cantonment area is supplied from three wells ranging from 70 to 102 feet deep. The groundwater is extracted from an unconfined aquifer lying under the Camp Ripley cantonment area and extending to the northwest. This area is managed under the Camp Ripley Wellhead Protection Plan (WHPP) as the Wellhead Protection Area (red area in Figure 1). The area around the Wellhead Protection Area is managed as the Drinking Water Supply Management Area (DWSMA) shown in blue. The WHPP identifies Camp Ripley's drinking water as highly vulnerable to contaminants due to the high permeability of surface soils and aquifer sands and gravels, along with the lack of a significant confining layer. Consequently, activities such as stormwater infiltration basins, vehicle repair/maintenance, and hazardous waste generators are strongly discouraged within the DWSMA to protect the drinking water.

**Figure 1.** The Camp Ripley border (partial) is outlined in brown, the DWSMA in blue, and the Wellhead Protection Area in red.



Drinking water in Camp Ripley's down range/training area is supplied from 16 drinking water wells that serve facilities not connected to the cantonment area's drinking water distribution system. As noted above, all wells are tested annually by the Minnesota Department of Health.

### **Source Water Assessment**

A summary of the source water assessment is available at the following website:

[https://swareport.web.health.state.mn.us/SWA\\_Default.html](https://swareport.web.health.state.mn.us/SWA_Default.html)

Type 'Ripley' in the Public Water Supply Name search box. Look up Camp Ripley ID#s 5490185 (cantonment area water supply) and 5490300 (down range water supply) for additional information on Camp Ripley's drinking water wells.

### **Why might there be contaminants in my drinking water?**

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

The sources of drinking water, for both tap and bottled water, include river, lakes, streams, ponds, reservoirs, springs, and wells. As water passes over the surface of the land or down and through the soil, contaminants may be picked up. The major source of contamination originates from runoff. Contaminants come from a variety of sources such as activities associated with humans, industry, agriculture, and animals. Contamination may also come from naturally occurring minerals contained in the soil. Contaminants that may be present include:

1. Microbial contaminants, such as viruses and bacteria, which may come from effluent from sewage treatment plants, septic systems, or agricultural livestock operations.
2. Runoff from yards and agricultural land could contain pesticides, such as herbicides, insecticides and other pest killing chemicals.
3. Inorganic contaminants, salts, metals, and petroleum-based products could be naturally occurring or may come from runoff from industrial areas, urban areas, and construction sites.
4. Industrial runoff or discharge may contain organic chemical contaminants, synthetic chemicals, volatile organic compounds, and petroleum-based products.
5. Radioactive contaminants may come from naturally occurring minerals or from industrial processes related to petroleum production and mining activities; neither of which occur on Camp Ripley.

Camp Ripley vigilantly safeguards its water supplies in order to prevent contaminants from reaching the water source and ensure that all drinking water meets all EPA and MDH regulatory standards.

In order to ensure tap water is safe to drink, the EPA prescribes regulations limiting 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.

#### **Do I need to take special precautions?**

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The Environmental Protection Agency (EPA)/Center for Disease Control (CDC) 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).

#### **Other Information**

Contact the Facilities Management Office – Environmental (JFMN-FME) section if you have any questions or concerns about the drinking water at Camp Ripley.

#### **Drinking Water POC:**

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**Table 1. 2021 drinking water results for Camp Ripley, routine samples**

Well ID	Contaminant	Date	Result	EPA Limit		Sample Collector			
				MCL	AL				
West Range Classroom	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
West Range Old Classroom	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
Center Range Classroom	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
Center Range Old Classroom	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	1.1 ppm	10 ppm	--				
TA-64 Water Point	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
D-Range	Coliform bacteria	7/19/2022	Present	1 Detection	--	MDH			
		7/27/2022	Present	1 Detection	--				
		8/4/2022	Absent	1 Detection	--				
		9/8/2022	Absent	1 Detection	--				
		7/19/2022	< 0.05 ppm	10 ppm	--				
A-4 Range	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
A-3 Range	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
A-12 Range	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	0.05 ppm	10 ppm	--				
Medical Simulation Training Center (MSTC)	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
East Range	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
F-Range/Biathlon Range	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
Infantry Squad Battle Course (ISBC)	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
Ammunition Surveillance Building	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	< 0.05 ppm	10 ppm	--				
North Range	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	0.09 ppm	10 ppm	--				
Combined Arms Collective Training Facility (CACTF)	Coliform bacteria	7/19/2022	Absent	1 Detection	--	MDH			
	N+N	7/19/2022	1.2 ppm	10 ppm	--				
Distribution System, Cantonment Area, various buildings	Lead <sup>1</sup>	NA	NA	--	15 ppb	Camp Ripley DPW			
	Copper <sup>1</sup>	NA	NA	--	1.3 ppm	Camp Ripley DPW			
	Total Phosphorus		1/4/2022	1.08 ppm	--	--	Camp Ripley DPW		
				0.792 ppm					
			4/5/2022	0.753 ppm					
				0.572 ppm					
			8/2/2022	1.05 ppm					
	Orthophosphate		1/4/2022	0.396 ppm	--	--	Camp Ripley DPW		
				0.567 ppm					
			4/5/2022	0.195 ppm					
				0.495 ppm					
			8/2/2022	0.414 ppm					
	Coliform bacteria		1/4/2022	0.888 ppm	1 Detection	--	Camp Ripley DPW		
				0.648 ppm					
			2/9/2022	0.861 ppm					
			4/5/2022	Absent					
			7/26/2022	Absent					
	N+N		8/17/2022	Absent	1 Detection	--	Camp Ripley DPW		
				10 ppm					
			2/9/2022	15 <sup>A</sup> ppb				60 ppb	--
			18 <sup>A</sup> ppb						
6/1/2022			7 <sup>A</sup> ppb						
8/17/2022	14 <sup>A</sup> ppb								
11/14/2022	3 <sup>A</sup> ppb								
TTHMs		2/9/2022	6 <sup>A</sup> ppb	80 ppb	--	MDH			
			3 <sup>A</sup> ppb						
		6/2/2022	5 <sup>A</sup> ppb						
		8/17/2022	53 <sup>A</sup> ppb						
		11/14/2022	50 <sup>A</sup> ppb						

\*Represents a 90th percentile value.  
<sup>A</sup>Represents a running annual average  
ppb = parts per billion  
ppm = parts per million  
EPA = Environmental Protection Agency  
MDH = Minnesota Department of Health  
DPW = Department of Public Works

N+N = Nitrate plus nitrite nitrogen  
HAA5 = Sum of 5 haloacetic acids  
TTHM = Total trihalomethanes  
MCL = Maximum contaminant level  
AL = Action Level  
< = less than  
<sup>1</sup> Lead and Copper is now on a 3-year sample schedule. Next sample will be collected in 2023

**Table 2: 2020 drinking water results for Camp Ripley, PFAS samples**

Sample ID	Sample Collection Date	Units	N-ethyl Perfluorooctane Sulfonamideacetic Acid (NEFOSAA)	N-methyl Perfluorooctane Sulfonamideacetic Acid (NMFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorobutane Sulfonic Acid (PFBS)	Perfluorodecanoic Acid (PFDA)	Perfluorododecanoic Acid (PFDoA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluorohexanoic Acid (PFHxA)	Perfluorononanoic Acid (PFNA)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorotetradecanoic Acid (PFTeA)	Perfluorotridecanoic Acid (PFTriA)	Perfluoroundecanoic acid (PFUnA)	DONA	F-53B Major	F-53B Minor	HFPO-DA (GenX)	Sum of PFOA and PFOS Concentrations <sup>1</sup>
MDH Drinking Water Guidance Value		ppt	--	--	35	2,000	--	--	--	47	--	--	15	--	--	--	--	--	--	--	NE
EPA Lifetime Drinking Water Health Advisories		ppt	--	--	70	--	--	--	--	--	--	--	70	--	--	--	--	--	--	--	70
H Well, Cantonment Area	5/12/2020	ppt	<1.8	<1.8	<1.8	<b>0.7 J M</b>	<1.8	<1.8	<1.8	<b>4.3 M</b>	<1.8	<1.8	<b>1.3 J M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>1.3 J M</b>
	9/29/2020	ppt	<1.9	<1.9	<1.9	<b>1.8 J</b>	<1.9	<1.9	<1.9	<b>14 M</b>	<1.9	<1.9	<b>1.7 J M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>1.7 J M</b>
	11/23/2020	ppt	<1.9	<1.9	<1.9	<b>1.9 M</b>	<1.9	<1.9	<1.9	<b>14</b>	<1.9	<1.9	<b>2.0 M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>2.0 M</b>
L Well, Cantonment Area	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
N Well, Cantonment Area	5/12/2020	ppt	<1.8	<1.8	<b>0.59 J M</b>	<b>1.3 J</b>	<1.8	<1.8	<1.8	<b>3.0 M</b>	<b>0.72 J M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>0.59 J M</b>
	9/29/2020	ppt	<1.8	<1.8	<b>0.58 J M</b>	<b>1.6 J</b>	<1.8	<1.8	<1.8	<b>5.9 M</b>	<b>1.0 J M</b>	<1.8	<b>1.0 J M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>1.58 J M</b>
	11/23/2020	ppt	<1.9	<1.9	<b>0.70 J M</b>	<b>1.3 J</b>	<1.9	<1.9	<1.9	<b>3.8 M</b>	<b>0.94 J</b>	<1.9	<b>0.59 J M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>1.29 J M</b>
Water Treatment Plant (pre-treatment)	5/12/2020	ppt	<1.8	<1.8	<1.8	<b>0.68 J</b>	<1.8	<1.8	<1.8	<b>2.0 M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<b>0.58 J M</b>	<b>1.2 J</b>	<1.9	<1.9	<1.9	<b>3.4 M</b>	<b>0.86 J</b>	<1.9	<b>0.54 J M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>1.12 J M</b>
Water Treatment Plant (post-treatment)	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>0.74 J M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>1.2 J M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.8	<1.8	<b>0.59 J M</b>	<b>1.2 J</b>	<1.8	<1.8	<b>0.46 J</b>	<b>4.1 M</b>	<b>0.76 J M</b>	<1.8	<b>0.69 J M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>1.28 J M</b>
Ammunition Surveillance Building	5/12/2020	ppt	<b>0.83 J M</b>	<b>1.1 J M</b>	<b>0.83 J M</b>	<b>0.86 J</b>	<b>0.88 J M</b>	<b>0.62 J M</b>	<b>0.82 J M</b>	<b>0.86 J M</b>	<b>0.87 J M</b>	<b>0.72 J M</b>	<b>0.83 J M</b>	<b>0.64 J M</b>	<b>0.6 J M</b>	<b>0.75 J M</b>	<b>0.81 J</b>	<b>0.86 J M</b>	<b>0.62 J</b>	<b>0.82 J</b>	<b>1.66 J M</b>
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
D-Range	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
North Range	5/12/2020	ppt	<1.8	<b>2.9</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>3.5 M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>3.5 M</b>
	9/29/2020	ppt	<1.8	<b>2.2</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>1.4 J M</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<b>1.4 J M</b>
	11/23/2020	ppt	<1.9	<b>1.9 M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>0.79 J M</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<b>0.79 J M</b>
TA-64 Water Point	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND

**Table 2: 2020 drinking water results for Camp Ripley, PFAS samples**

Sample ID	Sample Collection Date	Units	N-ethyl Perfluorooctane Sulfonamideacetic Acid (NEFOSAA)	N-methyl Perfluorooctane Sulfonamideacetic Acid (NMeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorobutane Sulfonic Acid (PFBS)	Perfluorodecanoic Acid (PFDA)	Perfluorododecanoic Acid (PFDoA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluorohexanoic Acid (PFHxA)	Perfluorononanoic Acid (PFNA)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorotetradecanoic Acid (PFTeA)	Perfluorotridecanoic Acid (PFTriA)	Perfluoroundecanoic acid (PFUnA)	DONA	F-53B Major	F-53B Minor	HFPO-DA (GenX)	Sum of PFOA and PFOS Concentrations <sup>1</sup>
MDH Drinking Water Guidance Value		ppt	--	--	35	2,000	--	--	--	47	--	--	15	--	--	--	--	--	--	--	NE
EPA Lifetime Drinking Water Health Advisories		ppt	--	--	70	--	--	--	--	--	--	--	70	--	--	--	--	--	--	--	70
Infantry Squad Battle Course (ISBC)	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	11/23/2020	ppt	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	ND
West Range Classroom	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
West Range Old Classroom	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
Center Range Classroom	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
Center Range Old Classroom	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
East Range	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
Combined Arms Collective Training Facility (CACTF)	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
Medical Simulation Training Center (MSTC)	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
A-12 Range	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND

**Table 2: 2020 drinking water results for Camp Ripley, PFAS samples**

Sample ID	Sample Collection Date	Units	N-ethyl Perfluorooctane Sulfonamideacetic Acid (NEFOSAA)	N-methyl Perfluorooctane Sulfonamideacetic Acid (NMeFOSAA)	Perfluorooctanoic Acid (PFOA)	Perfluorobutane Sulfonic Acid (PFBS)	Perfluorodecanoic Acid (PFDA)	Perfluorododecanoic Acid (PFDoA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorohexane Sulfonic Acid (PFHxS)	Perfluorohexanoic Acid (PFHxA)	Perfluorononanoic Acid (PFNA)	Perfluorooctane Sulfonic Acid (PFOS)	Perfluorotetradecanoic Acid (PFTeA)	Perfluorotridecanoic Acid (PFTriA)	Perfluoroundecanoic acid (PFUnA)	DONA	F-53B Major	F-53B Minor	HFPO-DA (GenX)	Sum of PFOA and PFOS Concentrations <sup>1</sup>
MDH Drinking Water Guidance Value		ppt	--	--	35	2,000	--	--	--	47	--	--	15	--	--	--	--	--	--	--	NE
EPA Lifetime Drinking Water Health Advisories		ppt	--	--	70	--	--	--	--	--	--	--	70	--	--	--	--	--	--	--	70
A-3 Range	5/12/2020	ppt	<1.8	<1.8	<1.8	<b>0.49 J</b>	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<b>0.55 J</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<b>0.90 J</b>	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
A-4 Range	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
F-Range/Biathlon Range	5/12/2020	ppt	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	ND
	9/29/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND
	11/23/2020	ppt	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	ND

**Notes:**  
 Detections are shown in **BOLD**  
 < = Indicates concentration was not detectable above Limit of Quantitation (LOQ).  
 J = Flagged as estimated indicating the analyte was positively identified but the quantitation is an estimation.  
 M = Flagged as manual integrated  
 MDH = Minnesota Department of Health  
 ND = Not detected above Minimum Reportable Level  
 NE = Not established  
 ppt = parts per trillion  
 USEPA = United States Environmental Protection Agency  
 1 = Calculated manually from laboratory results.