Appomattox River Water Authority

21300 Chesdin Rd. - S. Chesterfield, VA 23803 - Phone (804) 590-1145 - Fax (804) 590-9285

2023 Consumer Confidence Report

Virginia PWSID No. VA4041035

Contact Person: Robert Wilson, Executive Director
Phone Number: 804-590-1145

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RTCR	Units	MCLG	MCL	Maximum	Average	Comment
Total Coliform	%	0	present in ≤5% monthly samples	0.00% (None Positive)	**0.00%** (None Positive)	Wholesale customers report directly to VDH. 216 of 216 samples were negative
E. coli	%	0	**0**	0.00% (None Positive)	**0.00%** (None Positive)	Wholesale customers report directly to VDH. 216 of 216 samples were negative
TOC (Total Organic Carbon)	n/a	n/a	TT = RAA removal ratio minimum	1.24 (min) / 1.46 (max)	**1.37**	Daily calculations of TOC removal percentages Minimum allowable RAA ratio = 1.0
Turbidity	NTU	0	TT=1 NTU max	0.089	**0.041**	No Violations
(Combined filtered water)	NTU	0	TT≤0.3 NTU 95% of readings	100.00%	**100.00%**	35040 of 35040 readings were <0.3 NTU
Radiological	**Units**	**MCLG**	**MCL**	**Highest**	**Average**	**Comment**
Beta/photon emitters	pCi/l	0	50 (*)	1.9	**1.9**	Sample Date 10/26/2020
Alpha emitters	pCi/l	0	15	<0.39	**<0.39**	Sample Date 10/26/2020
Radium	pCi/l	0	5	0.2	**0.2**	Sample Date 10/26/2020
Inorganics	**Units**	**MCLG**	**MCL**	**Min/Max**	**Average**	**Comment**
Fluoride	ppm	4	4	<0.1/ 1.04	**0.69**	3 Daily analyses at plant
Nitrate + Nitrite	ppm	10	10	0.09	**0.09**	Sample Date 10/30/2023
Barium	ppm	2	2	0.023	**0.023**	Sample Date 10/30/2023
Disinfectants	**Units**	**MRDL**	**MRDLG**	**Min/Max**	**Average**	**Comment**
Chlorine Dioxide	ppm	0.8	0.8	<0.10 / 0.10	**<0.10**	Daily at plant
Chlorine	ppm	4.0 (**)	4.0	2.3 / 3.8	**3.21**	Weekly analysis of transmission system samples.
Disinfection By-products	**Units**	**MCLG**	**MCL**	**Min/Max**	**Average**	**Comment**
Chlorite	ppm	0.8	1.0	0.0 / 0.45	**0.14**	Daily at plant
TTHMs @ plant	ppb	0	80	NA	**NA**	ARWA analyzes as needed. Localities report to VDH.
HAAs @ plant	ppb	0	60	NA	**NA**	ARWA analyzes as needed. Localities report to VDH.
Unregulated Contaminants	**Units**	**MCLG**	**MCL**	**Maximum**	**Average**	**Comment**
Sodium	ppm	N/A	N/A	17.7	17.7	Sample Date 10/30/2023
Sulfate	ppm	N/A	N/A	23.3	23.3	Sample Date 10/30/2023
Chloroform	ppb	N/A	N/A	18	18	Sample Date 10/30/2023
Bromodichloromethane	ppb	N/A	N/A	3.1	3.1	Sample Date 10/30/2023
MTBE	ppb	N/A	N/A	<5.0	<5.0	Sample Date 10/30/2023
Dibromochloromethane	ppb	N/A	N/A	<0.50	<0.50	Sample Date 10/30/2023
LT2	**Units**	**MCLG**	**MCL**	**Maximum**	**Max 12 mo. Avg.**	**Comment**
Cryptosporidium	oocyst/L	Avg. <0.075	--	0.19	**0.039**	Reservoir/SOURCE water samples collected monthly between (Mar. 2015 - Feb. 2017).

(*) The MCL for beta particles is 4 millirem/year. EPA considers 50 pCi/l to be the level of concern.

(**) The RAA (Running Annual Average) of all distribution system samples must be at or below 4.0 mg/L.

Definitions

MCL - Maximum Contaminant Level - The highest level of a contaminant allowed in drinking water. The MCLs are set as close to the MCLG 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 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
RAA - Running Annual average - removal ratio and the range of the removal for the individual months
NTU - Nephelometric Turbidity Units - The measure of turbidity in the water.
AL - Action Level - The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow.
TT - Treatment Technique - A required process intended to reduce the level of a contaminant in drinking water.
ppm - parts per million - (1/1,000,000) or milligrams per Liter (mg/l)
ppb - parts per billion - (1/1,000,000,000)
pCi/L - picocuries per Liter (a measure of radioactivity)
NA - Not Applicable
ND - Not Detected
LT2 - Long Term 2 Enhanced Surface Water Treatment Rule
RTCR - EPA's Revised Total Coliform Rule

Major Sources in Drinking water

Total Coliform Bacteria	Naturally present in the environment.
Fecal Coliform & *E. coli*	Human and animal fecal waste.
E. coli	Naturally present in the environment.
Cryptosporidium	Microbial pathogen found in surface water primarly from animal fecal waste.
Turbidity	Soil runoff.
Beta/photon emitters	Decay of natural and man-made deposits.
Alpha emitters	Erosion of natural deposits.
Radium	Erosion of natural deposits.
Barium	Erosion of natural deposits.
Fluoride	Erosion of natural deposits. Water additive which promotes strong teeth; discharge from fertilizer and aluminum runoff.
Nitrates	The runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Sodium	Naturally present in the environment and a by-product of drinking water disinfection.
Sulfate	Naturally present in the environment.
MTBE - finished water	Fuel additive that was used to help fuels burn cleaner.
Chlorine Dioxide	Water additive to control microbes, organics, iron, and manganese.
Chlorine	Water additive to control microbes.
Chlorite	By-product of drinking water disinfection.
TTHM (Total Trihalomethanes)	By-product of drinking water disinfection.
HAA_5 (Haloacetic Acid 5)	By-product of drinking water disinfection.
Chloroform	By-product of drinking water disinfection.
Bromodichloromethane	By-product of drinking water disinfection.
Dibromochloromethane	By-product of drinking water disinfection.
Pharmaceuticals	Residential and agricultural wastes and improper disposal of medications into the environment.

Notes

1) The ARWA provides water to the Cities of Colonial Heights & Petersburg and the Counties of Chesterfield, Dinwiddie & Prince George.

2) The Authority obtains its source water from Chesdin Reservoir, a surface water impoundment of the Appomattox River.

3) Surface/Source water is pumped from the Chesdin Reservoir to the treatment plant for coagulation, sedimentation, filtration, and finally disinfection with chlorine and chloramines.

4) The Virginia Department of Health updated a source water assessment of the system during May 2019. Any source water type that is surface water and has any 1 or more potential sources of contamination within a 5-mile fixed radius of the raw water intake (Zone 1) are automatically ranked as having a "high" susceptibility. The Chesdin Reservoir Raw Water Intake was ranked to have a "high" susceptibility to contamination, using this criteria developed by the State in its EPA-approved Source Water Assessment Program. The explanation provided says "surface water source exposed to an inconsistent array of contaminants at varying concentrations due to changing hydrologic, hydraulic and atmospheric conditions with potential sources of contamination of concern in the Zone 1 assessment area."[1] The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern and documentation of any known contamination within the last five years from the date of the assessment. The report is available by contacting Robert Wilson, Executive Director, at (804) 590-1145.

1. Source Water Assesment Report dated 5-31-2019

5) Currently, no significant sources of contamination to the Chesdin Reservoir have been identified. The Farmville wastewater treatment plant forty miles upstream, numerous animal feed lots and farms exist in the drainage area.

6) Turbidity is a measure of the cloudiness of the water. It is monitored as an indicator of the effectiveness of the filtration system.

7) *Cryptosporidium* is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium,* the most commonly-used filtration methods can not guarantee 100% removal. Our monitoring indicates the presence of these organisms in our source water and/or finished water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

8) Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than 6 months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

9) 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 home plumbing. [Insert name of waterworks] 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 exposure by flushing your tap for 30 seconds to 2 minutes before using the 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 (1-800-426-4791) or at http://www.epa.gov/safewater/lead.

10) Drinking water does not play a significant role in sodium exposure for most individuals. Those that are under treatment for sodium-sensitive hypertension should consult with their health care provider regarding sodium levels in their drinking water supply and the advisability of using an alternative water source or point-of-use treatment to reduce the sodium. For individuals on a very low sodium diet (500 mg/day), EPA recommends that drinking-water sodium not exceed 20 mg/L. The World Health Organization has established a drinking water guideline of 200 mg of sodium/L on the basis of esthetic considerations (i.e., taste).

11) Additional information can be obtained from EPA's Safe Drinking Water Hotline (1-800-426-4791).