Charleston Water System

2020 Charleston Water System Water Quality Report

We met or surpassed all water quality requirements.

Voluntary Testing of Unregulated Compounds

All were below their EPA Health Advisory or drinking water standard.

Compounds With Health Advisories	Units	Aug 2018	Nov 2018	Feb 2019	May 2019	Oct 2020	Nov 2021	Feb 2022	May 2023	EPA Health Advisory	Secondary Drinking Water Standards
2,4-D (2,4-dichlorophenoxyacetic acid)	ppt	NA	NA	NA	8.7	NA				200,000*	
Aluminum	ppb	74	58	38	35	70				NA	50 to 200
Atrazine	ppt	22	19	7.2	16	24				700,000*	
Barium	ppb	14	12	16	17	14				7,000*	
Bromodichloromethane	ppb	5.6	3.7	3.3	2.9	5.2				100*	
Chloroform	ppb	7.2	2.7	2.6	3.2	7.1				350*	
Dibromochloromethane	ppb	2.6	2.0	1.6	1.5	1.9				700*	
Formaldehyde	ppb	NA	NA	NA	7.1	7.3				7000*	
Diuron	ppt	NA	NA	NA	NA	82				100,000*	
Manganese	ppb	13	6.4	3.3	9.6	8.5				1,600*	
Perchlorate	ppb	NA	NA	0.13	0.12	NA				25*	
PFOA	ppt	5.0	4.1	4.4	5.3	4.3				70**	
PFOS	ppt	9.7	6.1	6.3	7.0	7.5					
Simazine	ppt	NA	6.9	14	16	NA				700,000*	
Strontium	ppb	53	41	43	53	46				20,000*	
Zinc	ppb	NA	NA	6.3	NA	NA				10,000*	
Additional unregulated compounds detected during unregulated compound testing.											
1,4 Dioxane	ppb	0.11	0.14	0.32	0.33	0.11				NA	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ppt	NA	4.0	NA	NA	NA				NA	
Acesulfame-K	ppt	NA	32	160	88	46				NA	
Atenolol	ppt	NA	NA	NA	5.8	NA				NA	
Boron	ppb	37	32	26	22	28				NA	
Chromium, hexavalent	ppb	0.06	0.06	0.06	0.06	0.33				NA	
DEA (Diethanolamine)	ppt	NA	NA	NA	NA	6.2				NA	
DEET	ppt	NA	12	NA	NA	21				NA	
Iohexal	ppt	NA	19	19	51	21				NA	
Lincomycin	ppt	NA	24	NA	NA	NA				NA	
NDMA	ppt	7.5	3.4	5.6	5.1	7.7				NA	
NMEA	ppt	NA	2.5	NA	NA	NA				NA	
PFBA	ppt	7.0	NA	NA	NA	8				NA	
PFBS	ppt	3.8	4.0	3.2	3.5	2.9				NA	
PFHpA	ppt	3.2	2.9	2.3	2.8	2.6				NA	
PFHxA	ppt	5.6	5.7	4.3	5.6	4.9				NA	
PFHxS	ppt	3.3	2.8	2.1	2.2	2.7				NA	
PFPeA	ppt	7.5	7.5	4.7	5.8	5.5				NA	
Quinoline	ppt	NA	19	NA	NA	NA				NA	
Sucralose	ppt	NA	950	640	580	430				NA	
Tetrahydrofuran	ppb	NA	NA	NA	6.1	NA				NA	
Theobromine	ppt	NA	NA	16	NA	NA				NA	
Total Trihalomethanes	ppb	15.4	8.4	7.5	7.6	14.2				NA	

Notes

Compounds Analyzed:

Aug. 2018: 597
Nov. 2018: 595
Feb. 2019: 627
May 2019: 601
Oct. 2020: 573
Nov. 2021:,
Feb. 2022:
May 2023:

Definitions:
EPA Heath Advisory (HA): An estimate of acceptable drinking water levels for a substance based on health effects info. It's not a legally enforceable standard or regulation, but rather a technical guidance for regulators.

Exclusions:
Thirty-four compounds with HAs were not analyzed because there are no analytical methods to do so.

Footnotes:
*EPA Drinking Water Equivalent Level (DWEL).
**EPA Health Advisory, as data is not available.

Position Statements:
To view our position statements on Fluoride and Unregulated Compounds, please go to www.charlestonwater.com/positionstatement.

EPA's 2020 Unregulated Contaminant Monitoring Rule (UCMR4)

Compound	Units	Raw Water		Finished Water		Distribution Water	
		Average	Range	Average	Range	Average	Range
HAA5	ppb					12.19	8.14 - 18.44
HAA6Br	ppb					5.89	4.34 - 8.42
HAA9	ppb					17.28	12.25 - 25.86
Bromide	ppb	0.04	0.03 - 0.04				
Manganese	ppb			9.38	6.15 - 14.4		
Total Organic Carbon (TOC)	ppm	7.45	6.46 - 7.98				

Water Characteristics

Parameter	Units	2020 Average	Highest Level Recommended by EPA
Chloride	ppm	13	250
Color	PCU	<1	15
Iron	ppm	<0.10	0.3
Manganese	ppm	<0.05	0.05
Total Dissolved Solids (TDS)	ppm	93	500
Sodium	ppm	8	No Standard
Alkalinity	ppm	28	
Conductivity	µmhos/cm	184	
Hardness	ppm	58 (3.38 gpg)	
Ortho-phosphate	ppm	1.2	
Silica	ppm	8.3	
Temperature	F	71.2° (22°C)	

Abbreviations:
ppm: Parts per million PCU: Platinum Cobalt Units gpg: Grains per gallon µmhos/cm: Micromohs/cm

These parameters affect aesthetics, such as taste, odor, hardness, etc. The EPA has secondary standards for some of these parameters, which are recommended guidelines.

This report is published annually in May.

Questions / Extra Copies:
Communications department: (843) 727-7146

En Español:
Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

Get Involved:
Our Board of Commissioners meets monthly and meetings are open to the public. Citizen participation is welcomed. Meetings are typically held the fourth Tuesday of every month at 9 a.m. at 103 St. Philip Street. More information: www.charlestonwater.com.

Public Water System ID#:
1010001

@CharlestonWater
@ChasWaterSystem
YouTube.com/CharlestonWater
www.charlestonwater.com
Charleston Water System

24/7 Customer Service: (843) 727-6800

Main Office (Downtown)
103 St. Philip Street
Charleston SC, 29403

North Area Office
6296 Rivers Avenue
North Charleston, SC 29418

Regulatory Testing

These were the only compounds found in our water and all were below the regulatory limit.

	Required Regulatory Report	Maximum Contaminant Level (MCL) set by EPA	Maximum Contaminant Level Goal (MCLG)	Actual Level in CWS Water for 2020	Year Sampled	Possible Sources in Water
	Turbidity A measure of the amount of suspended particles in the water (cloudiness); an indicator of overall water quality and filtration effectiveness.	Requires a specific treatment technique; 95% of monthly samples must be less than 0.3 NTU	NA	0.12 NTU Highest level detected 100% of monthly samples met the limit Range: 0.07 - 0.12	2020	Soil runoff
	Cryptosporidium A parasite spread through human and animal waste that causes gastrointestinal illness.	None	Zero Cryptosporidium oocysts per 1 liter of water	0.0	2020	Human and animal sources
	Giardia A parasite spread through human and animal waste that causes gastrointestinal illness.	None	Zero Giardia oocysts per 1 liter of water	0.0	2020	Human and animal sources
Inorganic Compounds	**Copper** A metal widely used in household plumbing that may corrode into water.	90th percentile of all samples collected must be less than the 1.3 ppm action level	1.3 ppm	0.12 ppm (No samples exceeded the action level) Range: 0 to 0.18 ppm	2018	Corrosion of household plumbing materials EPA requires testing for copper and lead once every three years.
Inorganic Compounds	**Lead** A metal no longer used in water pipes, but may be present in plumbing fixtures or old pipes; may corrode into water.	90th percentile of all samples collected must be less than the 15 ppb action level	0 ppb	90th percentile = 2.3 ppb (No samples exceeded the action level) Range: 0 to 11 ppb	2018	Corrosion of household plumbing materials EPA requires testing for copper and lead once every three years.
Inorganic Compounds	**Nitrate/Nitrite** Nitrates and nitrites are nitrogen-oxygen compounds that can become a source of pollution in the form of unwanted nutrients.	10 ppm	10 ppm	0.18 ppm	2020	Runoff from fertilizers
Inorganic Compounds	**Fluoride** A substance that is naturally occurring in some water sources, particularly groundwater. It is also added to drinking water to help prevent tooth decay.	4 ppm	4 ppm	0.11 ppm in source water 0.50 ppm in finished water Range 0.45 to 0.67 ppm	2020	Naturally occurring in source water and adjusted during treatment to prevent tooth decay.
Disinfectants	**Chlorine Dioxide** A disinfection agent added in small amounts to protect against microbes.	800 ppb	800 ppb	260 ppb Range: 0 to 260 ppb	2020	Added for disinfection
Disinfectants	**Chloramine Residual** A compound of chlorine and ammonia added in small amounts to treated water to protect against microbes.	4 ppm MRDL	4 ppm MRDLG	3.0 ppm Running Annual Average Range: 2.0 – 3.0 ppm	2020	Added for disinfection
Disinfection Byproducts	**Total Trihalomethanes (Stage 2)** Stage 2 of the Disinfectants and Disinfection Byproducts Rule requires the locational running annual average (LRAA) for each sampling location to be below the MCL. CWS has eight sampling locations.	Locational Running Annual Average must be below 80 ppb	NA	Highest level detected: 15.93 ppb Range: 4.32 – 15.93 ppb	2020	Byproduct of disinfection
Disinfection Byproducts	**Total Haloacetic Acids (Stage 2)** Stage 2 of the Disinfectants and Disinfection Byproducts Rule requires the locational running annual average (LRAA) for each sampling location to be below the MCL. CWS has eight sampling locations.	Locational Running Annual Average must be below 60 ppb	NA	Highest level detected: 20.86 ppb Range: 5.8 – 20.86 ppb	2020	Byproduct of disinfection
Disinfection Byproducts	**Chlorite** A byproduct formed when chlorine dioxide is used to disinfect water.	1 ppm	0.8 ppm	Highest level detected: 0.73 ppm Range: <0.02 – 0.73 ppm	2020	Byproduct of disinfection
Organics & Bacteria	**Total Organic Carbon (TOC)** The measure of organic substances in a body of water, mostly from naturally occurring sources such as plant material. TOC provides a measurement for the potential formation of disinfection byproducts.	No MCL; EPA requires a specific treatment technique.	Required % removal varies from 35% - 55% TOC removal, depending on source water quality	Removal Range: 57% to 65% 61.4 % removed	2020	Naturally present in the environment
Organics & Bacteria	**Total Coliform Bacteria** A group of bacteria whose presence in water indicates possible contamination with soil or waste from warm blooded animals.	Presence of coliform bacteria greater than or equal to 5% of monthly samples	0%	2.4% highest % of positive monthly samples Range: 0 – 2.4% All repeat samples were satisfactory	2020	Naturally present in the environment

Abbreviations: ppm: Parts per million (mg/L) ppb: Parts per billion (ug/L) ppt: Parts per trillion (ng/L) LRAA: Locational Running Annual Average RAA: Running Annual Average NTU: Nephelometric Turbidity Units

DEFINITIONS

Maximum Contaminant Level Goal (MCLG)
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.

Maximum Contaminant Level (MCL)
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.

Action Level (AL)
The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water system must follow.

Treatment Technique (TT)
A required process intended to reduce the level of a contaminant in drinking water.

Maximum Residual Disinfectant Level (MRDL)
The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG)
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 contamination.