2016 Annual Drinking Water Quality Report
Town of Elkton, Cecil County, Maryland

Mayor Robert Alt and the Commissioners of the Town of Elkton are pleased to present the *2016 Annual Drinking Water Quality Report* to our citizens and water service customers in the Elkton community. This report is intended to inform you about the quality of our drinking water, and to assure you that we are providing a safe and reliable supply of drinking water to our residents, our business community, and our other customers.

The Town of Elkton's drinking water is derived from three (3) sources: 1) surface water from the Big Elk Creek; 2) groundwater from deep within the Potomac aquifer; and 3) an Interconnection with Artesian Water Maryland, Inc. Water from the Big Elk Creek, a perennial stream supplying the Elkton Water Treatment Plant (*MD 0070011*) is chemically treated, filtered, and disinfected, then pumped into the Town's distribution system, which includes both pipelines to all developed areas within the town and storage facilities that reserve water for times of peak demand and for emergency fire-fighting needs. Groundwater is obtained from two wells (*Well 1R-CE944619 and Well 3-CE045556*), *only requiring minimal treatment*, then pumped into the distribution system. Two additional wells (*Well 2R –CE100297 and Well 5-CE130053)* are in development. The Interconnection with Artesian Water Maryland provides supplemental water from Artesian Water Company (*CC-DE0000552-TP99*), about 15 % of our total daily distribution, which is derived from over fifty wells throughout New Castle County, along with water Artesian purchases from the Chester Water Authority and the City of Wilmington. Important information from the Artesian Water Quality Report is included with this report. The Artesian report, in its entirety, can also be obtained by calling Artesian at (302) 453-6930 or viewing the report on Artesian's website at www.artesianwater.com.

The Town's water treatment plant, its wells, and related facilities are operated and maintained under a contract with Severn Trent Services. Severn Trent responsibly oversees the treatment and distribution of drinking water throughout the town, as well as monitoring water quality and sampling from the distribution system to determine and ensure compliance with all Federal and State drinking water quality standards. Elkton's drinking water meets all Federal and State treatment and quality standards. The information presented in this report and the report from Artesian Water Maryland demonstrate that Elkton's drinking water does not contain contaminants at levels that are harmful to the public. This report further outlines water quality with respect to specific contaminants present or potentially present in Elkton's drinking water, and includes technical information collected and reported to the Maryland Department of the Environment during 2016.

Definitions

This report contains the following technical terms and abbreviations that we feel should be defined in order to enhance the reader's understanding of the technical information presented in this report:

Action Level - the concentration of a contaminant, if exceeded, that triggers treatment or other requirements.

Maximum Contaminant Level - The maximum allowable level (MCL) of a contaminant in drinking water. MCLs are set as close to the maximum contaminant level goal (MCLG), q.v., as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - the level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs allow for a margin of safety.

Monitoring not required, but recommended (MNR) – unregulated contaminants not subject to MCL or MCLG.

Most probable number (MPN) – a value used to calculate coliform (bacteria) density.

Non-Detects (ND) - laboratory analysis indicated that a particular substance was not detected.

Nephelometric Turbidity Unit (NTU) – using a nephelometric meter, a specific unit of measurement for water clarity or turbidity, the lower the number indicating proportionately better clarity.

Parts per billion (ppb) *or micrograms per liter* – an amount indicating one part per billion parts; corresponding, e.g., to one minute in 2,000 years or one cent in $10,000,000.

Parts per million (ppm) *or milligrams per liter (mg/l)* – an amount indicating one part per one million parts; corresponding, e.g., to one minute in two years or one cent in $10,000.

Picocuries per liter (pCI/L) – a measure of radioactivity where one picocurie is one-trillionth of 37 billion disintegrations per second.

Treatment Technique (TT) – a water treatment process intended to reduce the level of contaminant(s) in drinking water.

DETECTED CONTAMINANTS NOT IN VIOLATION
OF THE MAXIMUM CONTAMINANT LEVEL
ELKTON WATER TREATMENT PLANT (PWSID 0070011)

Inorganic Contaminants	**Highest Level Detected**	**Range of Level Detected**	**Unit of Meas**	**MCLG**	**MCL**	**Violation**	**Likely Source of Contamination**	**Regulated / Unregulated**
Barium	0.041	0.041-0.041	ppm	2	2	No	Discharge of drilling waste/ metal refineries; Erosion of natural deposits	Regulated
Nitrate (measured as Nitrogen)	4.0	2.73-4.13	ppm	10	10	No	Fertilizer, septic tanks, erosion of natural deposits	Regulated
Radioactive Contaminants	**Highest Level Detected**	**Range of Level Detected**	**Unit of Meas**	**MCLG**	**MCL**	**Violation**	**Likely Source of Contamination**	**Regulated / Unregulated**
Combined Radium 226/228	4.1	0.0 – 4.1	pCi/L	0	5	No	Erosion of natural deposits	Regulated
Gross Alpha excluding Radon and Uranium	9.4	0 – 9.4	pCi/L	0	15	No	Erosion of natural deposits	Regulated
Synthetic Organic Contaminants	**Highest Level Detected**	**Range of Level Detected**	**Unit of Meas**	**MCLG**	**MCL**	**Violation**	**Likely Source of Contamination**	**Regulated / Unregulated**
Atrazine	0.77	0 - 0.77	ppb	3	3	No	Runoff from herbicide used on row crops	Regulated

Coliform Bacteria

Maximum Contaminant Level Goal	Total Coliform Maximum Contaminant Level	Highest No. of Positive	Fecal coliform or E. Coli Maximum Contaminant Level	Total No. of Positive E. Coli or Fecal Coliform Samples	Violation	Likely source of Contamination
0	1 Positive Monthly Sample	1		0	N	Naturally Present in the Environment

Lead and Copper
Definitions:
Action Level Goal (AGL): The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.
Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

REGULATED CONTAMINANTS DETECTED

Contaminant	Collection Date	MCLG	ACTION LEVEL	90TH PERCENTILE	NUMBER OF SITES OVER ACTION LEVEL	Unit of Meas	Violation	Likely Source of Contamination	Regulated / Unregulated
Copper	9/30/15	1.3	1.3	0.278	0	ppm	No	Corrosion of household plumbing systems; erosion of natural deposits	Regulated
Lead	9/30/15	0.00	0.015	< 0.001	0	ppm	No	Corrosion of household plumbing systems; erosion of natural deposits	Regulated

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. The Town of Elkton 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 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 800-426-4791 or at http://www.epa.gov/safewater/lead.

Contaminant	Highest Level Detected	Range of Level Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination	Regulated / Unregulated
Chlorine	1.0	0.5-1.0	MRDLG = 4	MRDLG = 4	ppm	No	Water additive used to control microorganisms	Regulated
Total Trihalomethane (TTHM) Stage 2	42	2 -53.9	No goal for the total	80	ppb	No	By-products of drinking water disinfection	Regulated
Haloacetic Acids (HAA5) Stage 2	27	2 – 34	No goal for the total	60	ppb	No	By-products of drinking water disinfection	Regulated

Not all sample results may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should occur in the future.

ADDITIONAL MONITORING

In 2016, the EPA issued a lifetime Health Advisory (HA) for PFOA and PFOC of 70 parts per trillion (ppt or ug/L). We detected PFOA at levels below the HA threshold--the maximum PFOA detected in our system was 21 ug/L or ppt. PFOA and PFOC are man-made chemicals found in consumer products, industrial applications, and fire suppression products.

If humans or other animals ingest PFASs (by eating or drinking food or water than contain PFASs), the PFASs are readily absorbed, and can accumulate in the body. PFASs stay in the human body for long periods of time. As a result, as people get exposed to PFASs from different sources over time, the level of PFASs in their bodies may increase to the point where they suffer from adverse health effects.

Studies indicate that PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animal studies. The most consistent findings from human epidemiology studies are increased cholesterol levels among exposed populations, with more limited findings related to low infant birth weights, effects on the immune system, cancer for PFOA, and thyroid hormone disruption for PFOS.

Contaminant	Average	Range Detected	Units	Use or Environmental Source	Regulated /Unregulated
perfluorooctanesulfonic Acid (PFOS) 1763-23-1	0	0-0	ug/L	Surfactant or emulsifier; used in fire-fighting foam, circuit board etching acids, alkaline cleaners, floor polish, and as a pesticide active ingredient for insect bait traps; U.S. manufacture of PFOS phased out in 2002; however, PFOS still generated incidentally	Unregulated
perfluorooctanoic acid (PFOA) 335-67-1	0.0115	0.0042 - 0.021	ug/L	Perflourinated aliphatic carboxylic acid; used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives, and photographic films	Unregulated
perfluorononanoic acid (PFNA) 375-95-1	0-0	0-0	ug/L	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Unregulated
perfluorhexanesulfonic acid (PFHxS) 375-85-9	0-0	0-0	ug/L	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Unregulated
perfluoroheptanoic acid (PFHpA) 375-85-9	0-0	0-0	ug/L	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Unregulated
perfluorobutanesulfonic acid (PFBS) 375-73-5	0-0	0-0	ug/L	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Unregulated

DRINKING WATER TURBIDITY

Turbidity describes the relative clarity of water, ranging from perfectly clear and transparent to cloudy, hazy, or opaque. Turbidity in water is caused by suspended matter, such as clay, silt, finely divided organic and inorganic material, colored organic chemicals, algae and other microscopic organisms. Turbidity is measured by using a *nephelometric turbidity meter* (NTM), and measurements are expressed as *Nephelometric Turbidity Units (NTUs)*. The treatment and filtration of water at the Elkton Water Treatment Plant reduces turbidity to very low levels, detectible only to special electronic measuring devices, such as the NTM. The following table indicates turbidity monitoring at the Elkton Water Treatment Plant during 2016:

Turbidity	**Limit Treatment Technique**	**Level Detected**	**Units**	**Violation**	**Likely Source of Contamination**
Highest Single Measurement	1.0	0.48	NTU	No	Soil Runoff
Lowest Monthly % meeting limit	0.3	99.62%	NTU	No	Soil Runoff

It is important to understand that the detection of these substances in the drinking water does not constitute a known threat to public health because they were found only at levels less than the MCL, and below the level that EPA currently feels may constitute a health threat. MCL's are set at very stringent levels and the Town's water has proved to be below those levels for the contaminants listed above. As you can see by the table, our system had *no violations*. We are confident that your drinking water meets or exceeds all Federal and State requirements. Although some contaminants have been detected in finished water, the EPA has determined that your water **IS SAFE** at these levels.

Total Organic Carbon
The percentage of Total Organic Carbon (TOC) removal was measured each quarter and the system met all the TOC removal requirements set, unless a TOC violation is noted in the violations section.

Consumer Confidence Rule			
The Consumer Confidence Rule requires community water systems to prepare and provide to their customers annual consumer confidence reports on the quality of the water delivered by the system.			
Violation Type	Violation Begin	Violation End	Violation Explanation
LEAD CONSUMER NOTICE (LCR)	01/01/2016		We failed to provide the results of lead tap water monitoring to the consumers at the location water was tested. These were supposed to be provided no later than 30 days after learning the results. Results were mailed out within 30 days. MDE did not get certification within that time.

SUMMARY

The sources of public drinking water (tap and bottled) include rivers, lakes, streams, ponds, reservoirs, springs and wells, and are subject to potential contamination by substances that are naturally occurring or manmade in origin. 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, and wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or the result of urban stormwater 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 stormwater runoff, and residential uses; Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; and Radioactive Contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. More information about the potential human health effects by contaminants in public drinking water and information relating to the Safe Drinking Water Act can be obtained by contacting the U.S. Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791 or via the Internet at www.epa.gov/drink/index.cfm In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

For nitrates and other contaminants that were detected at levels lower than the allowable MCL, it is important to understand that the EPA has determined that drinking water is safe at these allowable levels. To experience the possible health effects described for many of the regulated constituents a person would have to drink two liters of water every day containing a constituent at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

Although the Town of Elkton adheres to all Federal and State regulations relating to the treatment, distribution and testing of drinking water to ensure a safe and dependent supply, some people may be more vulnerable to contaminants than the general population. An immune compromised person may be adversely affected by one or more contaminants in drinking water, e.g., a person undergoing chemotherapy, an organ transplant recipient, a person with HIV / AIDS or other immune system disorder, the elderly, and some infants who may be at risk for infections. These people should seek advice about drinking water and potential contaminants that could affect their health from a qualified and knowledgeable health care provider. More information about the potential health effects by contaminants in public drinking water may be obtained by contacting the United States Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791 or on the Internet at www.epa.gov/drink/index.cfm .

Este informe contiene información muy importante sobre su agua de beber. Tradúzcalo ó hable con alguien que lo entienda bien. (This report contains very important information about your drinking water. Translate it, or speak with someone who understands it).

If you have any technical questions regarding the 2016 Annual Drinking Water Quality Report, please contact the Town of Elkton, Administration Office, Elkton Municipal Building, 100 Railroad Avenue, Elkton, Maryland 21921 Telephone: (410) 398-0970 Facsimile: (410) 392-6633 Email: administration@elkton.org
TTY users should contact the Administration Office through the Maryland Relay Service at 711.

"The Town of Elkton's water resources are critical to the continuing health, prosperity and growth of our community. Consequently we will continue to strive toward the goals of maintaining the highest quality of water and developing additional sources to meet future demands. We encourage our residents and our business community to conserve and respect our most valued natural resource."

Mayor Robert J. Alt

A copy of Artesian Water Company's Water Quality Report for 2016 is included with this report, since Elkton purchases approximately 15 % of its daily water distribution from Artesian.

TOWN OF ELKTON
100 Railroad Avenue
Elkton, Maryland 21921

TOWN OF ELKTON
2016 Annual Drinking Water Quality Report
Town of Elkton, Cecil County, Maryland

Artesian Water Company Water Quality Report for 2016

Artesian Water Company • 664 Churchmans Road • Newark, Delaware 19702 PWSID# DE0000552 Spring 2017

Superior Water Quality

We are pleased to present our annual Water Quality Report for 2016. Each spring this report is published in accordance with the requirements of the United States Environmental Protection Agency (EPA) and the Delaware Division of Public Health (DPH). The Water Quality Report describes 2016 results from our monitoring and testing data and valuable information relating to the quality of our water supply. We encourage you to take the time to review the report. If you have any questions about this report or the quality of your tap water, call us at (302) 453-6930 or (800) 332-5114. Our Customer Service Representatives and our Water Quality Department are ready to assist you.

Commitment to Quality

Artesian crews work around-the-clock to monitor water quality and supply. Our treatment includes disinfection, multiple filtration processes, pH adjustment, and corrosion control as needed to ensure our systems are meeting all state and federal regulations. In addition to our treatment, we conduct over 36,000 water quality monitoring and compliance tests each year utilizing our internal and external laboratory. We routinely monitor for Organics, Inorganics, Metals, Disinfection By-Products, Lead and Copper, and Radionuclides to make certain our water quality is exceeding standards.

Our commitment since 1905 has been to provide our customers with high quality and reliable water service. As part of meeting that commitment, Artesian operates multiple wells strategically located throughout the system and when there has been a concern about water quality based upon the results of our testing, we have removed wells from service while not impacting our ability to assure supply to your home. These wells are not returned to service until treatment has been installed to allow us to ensure our water can continue to exceed water quality standards.

This report is also available on our website at *www.artesianwater.com.*
As always, it is our pleasure to serve you.

ARTESIAN WATER COMPANY

WATER QUALITY REPORT

Information concerning public water system

DE0000552

EPA WaterSense PARTNER

www.epa.gov/watersense/

A Safe Water Source

The Artesian Water Company public water system is supplied with water from 50 wells located throughout northern New Castle County. These wells are in the Columbia, Potomac, Cockeysville Marble and Mount Laurel formations. Our ground water wells use the natural filtering capability of the aquifer to remove harmful bacteria and other substances from the water. These wells are located in confined aquifers that provide additional protection from surface-borne contaminants. Our treatment stations use the best available technology to ensure that we are providing water that meets or exceeds all Environmental Protection Agency (EPA) and State Division of Public Health water quality parameters. Regular testing also helps us ensure high quality.

In 2016, we purchased an average of 3.0 million gallons per day of surface water from the Chester Water Authority and an additional 0.04 million gallons per day from the City of Wilmington. The Chester Water Authority's supply comes from the Susquehanna River basin, while the City of Wilmington's supply comes from the Brandywine River basin. You can view the water quality report for Chester Water Authority at *www.chesterwater.com/waterquality/CCR2016.pdf* and the City of Wilmington's water quality report at *www.wilmingtonde.gov/government/waterreports*. This purchased water meets all State and Federal regulations, and is used to augment our supply.

The Division of Public Health, in conjunction with the Department of Natural Resources and Environmental Control, has conducted source water assessments for nearly all community water systems in the state of Delaware. The Source Water Assessment report can be found on the Delaware SWAPP website *www.delawaresourcewater.org/assessments* or contact Artesian's Water Quality Department at (302) 453-6900 to obtain a copy.

Focusing On Reliability

Artesian's public water systems are strategically designed to maintain uninterrupted service to our customers. This design includes multiple wells, back-up pumps, water storage tanks, and multiple water treatment plants or interconnections whenever practical. All of this infrastructure is connected through underground water mains to fire hydrants and your home's service line to provide reliable water service. In 2016 and early 2017 Artesian invested $275,000 at two of our largest treatment facilities for rehabilitation and upgrades to ensure their continued reliable operation. We have installed generators at many of our facilities to ensure power in the event of an electric system outage. Our crews conduct monthly inspections and preform maintenance on all 50 Artesian generators throughout the state, certifying their operational ability when needed. This past winter, two separate winter storms hit the southern and northern parts of Delaware; our generators proved to be critical during these two events in maintaining system-wide water service.

Water System Modeling Technology

In 2016, Artesian completed the implementation of a system-wide water model using a hydraulic and water quality modeling software application. Implementation, calibration, and data importation necessary to complete this project was nearly a year's worth of hard work, but the benefit is immense in terms of assuring the most efficient operation of our water system. The model analyzes pressure, supply, fire flow, water age, and other parameters to provide sophisticated information on the status of the water system. In addition to enhanced operation of the water system, the model allows operational changes to be tested prior to implementation to minimize cost and lessen or eliminate possible negative impacts to service. The model also is used to determine the best means to re-establish service as quickly as possible for our customers in the event of a main break. The water model is a critical investment in new technology that allows us to ensure reliability and superior water service to our customers.

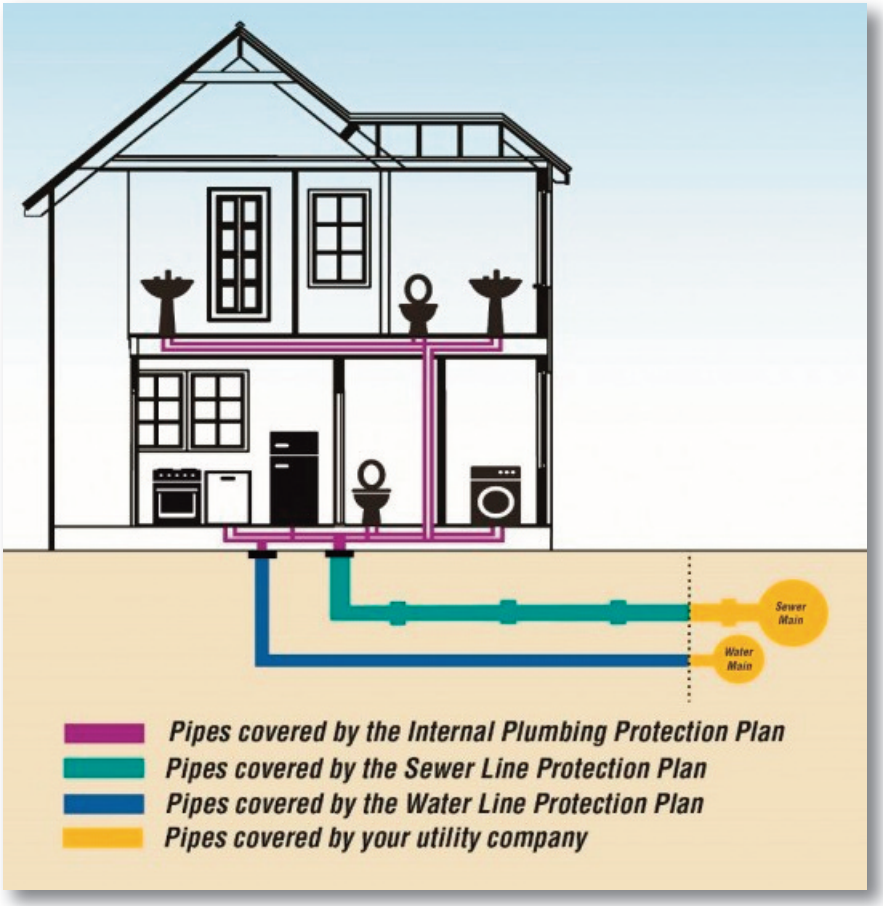
Updating Aging Infrastructure

In 2016, under Artesian's program of renewing aging infrastructure, we invested $6.8 million to replace over 6 miles of main, some of which had been in service for more than 74 years. Water mains are systematically replaced in efforts to improve reliability and water quality.

Service Line Protection Plans

We encourage all of our customers to enroll in our Water, Sewer and Internal Plumbing Protection Plans.

As a homeowner, you are responsible for the maintenance of the water and sewer lines that run from your house to the street, as well as all of the internal water and wastewater pipes. Clogs, breaks, blockages from tree roots, and even pipe collapses can and do happen without warning.



Enjoy PEACE OF MIND!

The Plans are Easy, Affordable and Convenient

- Emergency expert service repairs around-the-clock, managed by an experienced Artesian team
- No deductible or hidden service fees
- No negotiating with contractors or plumbers
- Easy billing
- Easy monthly billing added to your existing water bill

- Water Line Protection Plan - $5.50/month
- Sewer Line Protection Plan - $11.00/month
- Internal Plumbing Protection Plan - $8.50/month

Enroll online at *www.artesianwater.com* **Or call** 302.453.6930

Artesian Water Company
Water Quality Report for 2016

PUBLIC WATER SYSTEM I.D. DE0000552

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (EPA) prescribes regulations which limit the amount of contaminants in water provided by public water systems. The table below lists all of the drinking water contaminants that we detected during 2016. Although many more contaminants were tested, only those substances listed below were found in your water. All sources of drinking water contain some naturally occurring contaminants. At low levels, these substances are generally not harmful in our drinking water. Removing all contaminants would be extremely expensive, and, in most cases, would not provide increased protection of public health. A few naturally occurring minerals may actually improve the taste of drinking water and have nutritional value at low levels. Unless otherwise noted, the data presented in this table is from testing done in the calendar year of the report. The EPA or the State requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not vary significantly from year to year, or the system is not considered vulnerable to this type of contamination. As such, some of our data, though representative, may be more than one year old. In this table you will find terms and abbreviations that might not be familiar to you. To help you better understand these terms, we have provided the definitions below the table.

	Unit of Measure	Highest Level Allowed (MCL)	Ideal Goal (MCLG)	Highest Level Detected	Range of Level Detected	Violation	Likely Source of Contamination
Inorganic Contaminants							
Barium	ppm	2	2[7]	0.209	nd – 0.209	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium	ppb	100	100[7]	4.6	nd – 4.6	No	Discharge from steel and pulp mills; Erosion of natural deposits.
Fluoride	ppm	2	2[7]	1.60	nd – 1.60	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nickel	ppb	100	100[7]	7.1	nd – 7.1	No	Erosion of natural deposits.
Nitrate[1]	ppm	10	10[7]	7.73	nd – 7.73	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Selenium	ppb	50	50[7]	6.1	nd – 6.1	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.

	Unit of Measure	(MCL)	(MCLG)	Highest Level Detected	Range of Level Detected	Violation	Likely Source of Contamination
Synthetic Organic Contaminants including pesticides and herbicides							
Atrazine	ppb	3	3[7]	0.118	nd – 0.118	No	Runoff from herbicide used on row crops.
Chlorodane	ppb	2	0	0.5	nd – 0.5	No	Residue of banned termiticide.
Heptachlor Epoxide	ppb	0.2	0	0.03	nd – 0.03	No	Breakdown of heptachlor
Methyl-t-butyl Ether (MTBE)	ppb	10	0	2.10	nd –2.10	No	Gasoline additive.
Volatile Organic Contaminants							
cis-1,2-Dichloroethylene	ppb	70	70	1	nd – 1	No	Discharge from industrial chemical factories.
Tetrachloroethylene	ppb	1	0	1.10	nd – 1.10	No	Leaching from PVC pipes. Discharge from factories and dry cleaners. Compliance based on an annual rolling average. Station was shut down as levels increased.
Radiological Contaminants							
Gross Alpha	pCi/l	15	15	7.4	nd – 7.4	No	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation.
Radium, combined[4]	pCi/l	5	0	4.43	nd –15.2[5]	No	Erosion of natural deposits.
Disinfection/Disinfection By-Products							
Chlorine (free and total)	ppm	4(MRDL)	4(MRDLG)[6]	3.31	nd – 3.31	No	Disinfectant used in drinking water industry.
Haloacetic Acids, total[4]	ppb	60		35.63	nd – 58.0[5]	No	By-product of drinking water chlorination.
Dibromoacetic Acid	ppb	n/r		1.1	nd – 1.1	n/a	
Dichloroacetic Acid	ppb	n/r		32.0	nd – 32.0	n/a	
Trichloroacetic Acid	ppb	n/r		26.0	nd – 26.0	n/a	
Trihalomethanes, total[4]	ppb	80		45.16	21.50 – 61.13[5]	No	By-product of drinking water chlorination.
Bromoform	ppb	n/r		0.9	nd – 0.9	n/a	
Bromodichloromethane	ppb	n/r		21.0	3.91 – 15.40	n/a	
Chloroform	ppb	n/r		63.0	15.2 – 63.0	n/a	
Dibromochloromethane	ppb	n/r		3.6	nd – 3.6	n/a	

	Unit of Measure	Action Level (AL)	(MCLG)	90th Percentile	No. of Sites Over AL	Violation	Likely Source of Contamination
Lead & Copper[3]							
90th Percentile Lead	ppb	15	0	<1[8]	0	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.
90th Percentile Copper	ppm	1.3	1.3[7]	0.245[8]	0	No	Erosion of natural deposits; Leaching from wood preservatives; Corrosion of household plumbing systems.

Artesian Water Company
Water Quality Report for 2016

PUBLIC WATER SYSTEM I.D. DE0000552

	Unit of Measure	(MCL)	(MCLG)	Average Level Detected	Range of Level Detected	Violation	Likely Source of Contamination
Unregulated Contaminants							
Acetone	ppb	n/r		7.85	nd – 8.20	n/a	
Bis (2-chloroethyl) ether (BCEE)	ppb	n/r	96	0.01	nd – 0.02	n/a	
Bis (2-ethylhexyl) phthalate	ppb	n/r	6	0.28	nd – 0.55	n/a	
Carbon dioxide, free	ppm	n/r		9.84	1.40 – 36.2	n/a	
Conductivity	umhos	n/r		399	74 – 820	n/a	
Dieldrin	ppb	n/r		0.26	nd – 2.3	n/a	
Di (2-ethylhexyl) phthalate	ppb	n/r		3.5	nd – 3.5[9]	n/a	
Di-N-Butylphthalate	ppb	n/r		1.06	nd – 0.55	n/a	
1, 4 Dioxane	ppb	n/r	3.5	3.99	nd – 7.90	n/a	Compliance based on an annual rolling average. Follow up sample results returned compliance.
Phosphate, total	ppm	n/r		1.28	0.06 – 7.96	n/a	

	Unit of Measure	(SMCL)		Average Level Detected	Range of Level Detected	Violation	Likely Source of Contamination
Delaware Secondary Contaminants							
Alkalinity, total	ppm	n/r		46	0 – 226	n/a	
Aluminum	ppm	0.05 – 0.2		0.034	nd – 0.054	n/a	
Chloride	ppm	250		60	3 – 165	n/a	
Hardness, Calcium	ppm	n/r		65	15 – 216	n/a	
Hardness, Total	ppm	n/r		110	27 – 380	n/a	
Iron	ppm	0.3		0.03	nd – 1.24	n/a	Short-term fluctuations related to iron removal treatment.
Manganese	ppm	0.05		0.017	nd – 0.039	n/a	
pH, Field	0 - 14 scale	6.5 – 8.5		7.43	5.58 – 9.40	n/a	Short-term fluctuations related to pH adjustments in the system.
Sodium	ppm	n/r		32.69	4.04 – 81.40	n/a	
Solids, total dissolved	ppm	500		218	39 – 454	n/a	
Surfactants, MBAS	ppm	n/r		0.007	nd – 0.012	n/a	
Sulfate	ppm	250		18.1	1.9 – 37.9	n/a	
Turbidity[2]	NTU	5[2]	1	0.68	0.08 – 4.06	n/a	
Zinc	ppm	5		0.081	nd – 0.238	n/a	

NOTES FOR ALL CONTAMINANTS

1. Nitrate [measured as Nitrogen] - Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six 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.
2. This MCL applies only to surface water systems.
3. Under the Lead and Copper Rule, we sample for these contaminants once every 3 years.
4. Highest 4-quarter average of samples collected and used by the State Division of Public Health for compliance.
5. Range includes all samples tested for, whereas highest level detected is based upon the highest 4-quarter average.
6. The U.S. Environmental Protection Agency sets the MRDLG for chlorine residual at 4 parts per million (ppm). Artesian Water strives to meet a range between 0.5 ppm and 3 ppm.
7. Although EPA sets the "goal" at the same level as the maximum contaminant level for these contaminants, Artesian Water strives to maintain levels lower thanthe MCL.
8. Samples last collected in 2014 for compliance.
9. Contaminant was not reported in the 2015 water quality report however in 2016 the results was non-detect.

Definitions of Terms

90TH PERCENTILE — the 90th highest reading (out of a total of 100 samples), which is used to determine compliance with the Lead and Copper Rule.

ACTION LEVEL — the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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.

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 RESIDUAL DISINFECTANT LEVEL (MRDL) — the highest level of a disinfectant in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the 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 contaminants.

NEPHELOMETRIC TURBIDITY UNIT (NTU) — a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

SECONDARY MAXIMUM CONTAMINANT LEVEL (SMCL) – non-enforceable guideline which is not directly related to public health, commonly associated with cosmetic or aesthetics within the water.

NON-DETECTS (ND) — laboratory analysis indicates that the constituent is not present.

NOT REGULATED (N/R) — no MCL identified because these substances are unregulated.

PARTS PER MILLION (PPM) — 1 part per million corresponds to 1 minute in 2 years or a single penny in $10,000.

PARTS PER BILLION (PPB) — 1 part per billion corresponds to 1 minute in 2,000 years, or a single penny in $10,000,000.

PARTS PER TRILLION (PPT) — 1 part per trillion corresponds to 1 minute in 2,000,000 years, or a single penny in $10,000,000,000.

PICOCURIES PER LITER (PCI/L) — a measure of the radioactivity in water.

Expected Substances In Drinking Water

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 potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

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, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater 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 stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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

If You Have A Special Health Concern

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 from their health care providers. EPA/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 (1-800-426-4791).

Lead In Drinking Water

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. Artesian 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 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 or at ***www.epa.gov/safewater/lead***.

Radon, Cryptosporidium & Giardia

Radon is a radioactive gas that is found in nearly all soils. It typically moves up through the ground to the air and into homes through the foundation. Drinking water from a ground water source can also add radon to the home air. The EPA indicates that, compared to radon entering the home through soil, radon entering the home through water will in most cases be a small source of risk. The EPA and the State of Delaware have not yet set standards for monitoring radon in drinking water, although we do expect sampling to become mandatory in the near future. Artesian Water Company is keeping a close eye on the situation and will be sure to comply with any new regulations as required.

Cryptosporidium and Giardia parasites have been known to contaminate drinking water reservoirs of surface water treatment plants. Water purchased by Artesian from the Chester Water Authority and the City of Wilmington are surface water supplies. Both have tested for these parasites and have found no problems in their treated water product.

Monitoring Waivers

The Artesian Water Company public water system currently has a waiver for asbestos monitoring due to non-detectable results from 1995 sampling. The State of Delaware's Office of Drinking Water will be conducting new sampling to determine whether this waiver will be continued.

Artesian Water Service Facts

Population Served	**approximately 301,000**
Metered Customers	**85,000**
Annual Production	**7.6 billion gallons**
Miles of Main	**1,260**
Treatment Facilities	**68**
Active Wells	**191**
Storage Capacity	**174 million gallons**
Water Service Territory	**283 square miles**
Wastewater Service Territory	**25 square miles**
Average cost per day for residential water service	**$1.67**

If you have any questions about the contents of this report, please call Artesian at ***(302) 453-6930****, toll free at* ***1 (800) 332-5114*** *or email at* ***custserv@artesianwater.com.*** *Our Customer Service Representatives and Water Quality Department are ready to assist you. More information about Artesian is available at our website:* ***www.artesianwater.com****.*

Landlords, apartment managers, businesses, schools, etc. should share this information with others who might not receive this information directly. Consider posting the information in a public place or advise others that the report is available by contacting Artesian by phone or online at ***www.artesianwater.com****.*

Artesian Water Company
664 Churchmans Road
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OVER 100 YEARS OF SUPERIOR SERVICE
ARTESIAN™ WATER COMPANY