Este Informe contiene information muy importante. Traduscalo o hable con un amigo quien lo entienda bien.

Annual Drinking Water Quality Report

Lakewood Township Municipal Utilities Authority

For the Year 2020, Results from the Year 2019

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources.

The Lakewood Township Municipal Utilities Authority ("Authority") services the eastern portion of Lakewood Township (approx. 11 square miles). The Authority's water sources include twelve (12) wells, which draw from several aquifers, including the Cohansey, Englishtown, and Potomac-Raritan-Magothy (PRM). Water from the wells (except for some of the smaller and/or seasonal wells) is treated at one of the Authority's two treatment plants located on New Hampshire Ave and Shorrock St respectively. The Authority also purchases water from the Brick Township Municipal Utilities Authority (BTMUA) and New Jersey American Water (NJAW). The water from BTMUA is drawn from groundwater wells and the Metedeconk River and treated at the BTMUA facility on Route 88 in Brick Township. New Jersey American Water (NJAW) comes from a blend of sources that may include: groundwater from the Cohansey, Vincentown, Wenonah-Mount Laurel, Englishtown, and PRM aquifers and surface water from the Glendola Reservoir, the Manasquan River / Reservoir, the Shark River and the Swimming River / Reservoir.

The Authority, the BTMUA, and NJAW routinely monitor for contaminants in your drinking water according to Federal and State laws. The tables show the Authority's results, as well as those of the BTMUA and NJAW for the monitoring period of January 1st to December 31st, 2019. The state allows monitoring for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative, are more than one year old. The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals and synthetic organic chemicals. The Authority's system received monitoring waivers for asbestos and synthetic organic contaminants. BTMUA received a monitoring waiver for synthetic organic contaminants as did NJAW.

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 storm water runoff, industrial or domestic wastewater discharges, oil and gas projection, 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 byproducts of industrial processes and petroleum production, and can, also come from gas stations, urban storm water 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, the Environmental Protection Agency ("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.

DEFINITIONS

In the following tables, you may find some terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the constituent was not detected in the analyzed sample.

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.

Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.

Parts per trillion (ppt) or nanogram per liter - one part per trillion corresponds to one minute in 20,000 years, or a single penny in $100,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Action Level - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

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

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is 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 - The "Goal"(MCLG) is 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.

Secondary Contaminant - Secondary Contaminants affect aesthetic qualities such as odor, taste or appearance. Secondary standards are recommendations, not mandates.

Recommended Upper Limit (RUL) - Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste or appearance. RUL's are recommendations, not mandates.

Maximum Residual Disinfectant Level (MRDL) - 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.

Maximum Residual Disinfectant Level Goal (MRDLG) - 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

Total Organic Carbon - Total Organic Carbon (TOC) has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. The *Treatment Technique* for TOC requires that 35% - 45% of the TOC in the raw water is removed through the treatment processes.

Turbidity - Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium microbial growth. Turbidity is measured as an indication of the effectiveness of the filtration process. The *Treatment Technique* for turbidity requires that no individual sample exceeds 1 NTU and 95% of the samples collected during the month must be less than 0.3 NTU.

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 persons, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and Center for Disease Control ("CDC") guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Lakewood Township Municipal Utilities Authority Test Results
PWS ID# NJ1514002

Contaminant	Violation Y/N	Level Detected	Units of Measure-ment	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants:						
Combined Radium 228 & 226 Test results Yrs. 2017, 2018 & 2019	N	Range = ND – 2.4 Highest detect = 2.4	pCi/1	0	5	Erosion of natural deposits
Gross Alpha Test results Yrs. 2017 & 2018	N	Range = ND – 4.0 Highest detect = 4.0	pCi/1	0	15	Erosion of natural deposits
Inorganic Contaminants:						
Arsenic Test results Yr. 2017	N	Range = ND – 1.6 Highest detect = 1.6	ppb	N/A	5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium Test results Yr. 2017	N	Range = 0.03 – 0.06 Highest detect = 0.06	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper Test results Yr. 2019 Result at 90th Percentile	N	0.13 No samples exceeded the action level.	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Test results Yr. 2019 Result at 90th Percentile	N	1.2 No samples exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Mercury (inorganic) Test results Yrs. 2019	N	Range = ND – 0.07 Highest detect = 0.07	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nickel Test results Yr. 2017	N	Range = ND – 0.01 Highest detect = 0.01	ppm	N/A	N/A	Erosion of Natural Deposits
Nitrate (as Nitrogen) Test results Yr. 2019	N	Range = ND – 1.4 Highest detect = 1.4	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Disinfection Byproducts:						
TTHM Total Trihalomethanes Test results Yr. 2019	N	Range = 11 - 46 Highest LRAA = 34	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids Test results Yr. 2019	N	Range = 5 - 32 Highest LRAA = 30	ppb	N/A	60	By-product of drinking water disinfection
Volatile Organic Contaminants:						
Methyl *tertiary* butyl ether (MTBE) Test results Yr. 2019	N	Range = ND – 3.5 Highest detect = 3.5 Highest Avg. = 2.6	ppb	70	70	Leaking underground gasoline and fuel oil tanks. Gasoline and fuel oil spills.

Regulated Disinfectants	**Level Detected**	**MRDL**	**MRDLG**
Chlorine Test results Yr. 2019	Highest RAA = 0.84 ppm Range = 0.20 – 1.63 ppm	4.0 ppm	4.0 ppm

Secondary Contaminant	**Level Detected**	**Units of Measurement**	**RUL**
Sodium	Range = 5.9 – 52.0 Highest detect = 52.0	ppm	50

Sodium
For healthy individuals, the sodium intake from water is not important, because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the recommended upper limit may be of concern to individuals on a sodium restricted diet.

HAA5 and TTHM compliance is based on a Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results. Range indicates the range of individual sample results.

Regulated disinfectants – chlorine compliance is based on a Running Annual Average (RAA). The RAA calculation is based on four completed quarters of monitoring results. Range indicates the range of individual sample results.

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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Lead - 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 Authority, the BTMUA, and NJAW are 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 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 is available from the Safe Drinking Water Hotline or at http:/www.epa.gov/safewater/lead. . However, for those served by a lead service line, flushing times may vary based on the length of the service line and plumbing configuration in your home. If your home is set back further from the street a longer flushing time may be needed. *To conserve water, other household water usage activities such as showering, washing clothes, and running the dishwasher are effective methods of flushing out water from a service line.* To determine if you have a lead service line, please contact Fred Diaz at (732) 363-4422 extension 104 or Harry Robbins at (732) 363-4422 extension 137.

Unregulated Contaminant Monitoring: The Authority monitored for the following unregulated contaminants. Unregulated contaminants are those for which the US Environmental Protection Agency (EPA) or the New Jersey Department of Environmental Protection (NJDEP) has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA and NJDEP in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted. Per – and polyfluoroalkyl substances (PFAS) are widely found in the environment. EPA has identified a health advisory level for two PFAS analytes, PFOA and PFOS 0.070 ppb either singly or combined, and NJDEP has proposed new drinking water standards (Maximum Contaminant Levels (MCLs)) for PFOA and PFOS of 14 ng/L (0.014 ppb) and 13 ng/L (0.013 ppb), respectively. It is likely that NJDEP will adopt a final rule regarding the new MCLs before the end of 2020. The detected levels of PFOA and PFOS found are below DEP's proposed MCL.

Contaminant	Unit	MRL	Highest Level Detected	Range Detected	Use or Environmental Source
Metals - List AM1					
Manganese	ppb	0.4	72.90	ND to 72.90	Naturally present in the environment; used in steel production, fertilizer, batteries and fireworks; drinking water and wastewater treatment chemical
Brominated Haloacetic Acid (HAA) Group – List AM 2					
HAA6Br Group					**By-product of drinking water disinfection**
Bromochloroacetic Acid	ppb	N/A	3.5	1.3 to 3.5	
Bromodichloroacetic Acid	ppb	N/A	2.5	0.6 to 2.5	
Dibromoacetic Acid	ppb	N/A	2.5	0.4 to 2.5	
Monobromoacetic Acid	ppb	N/A	ND	ND	
Tribromoacetic Acid	ppb	N/A	ND	ND	
Chlorodibromoacetic Acid	ppb	N/A	1.0	0.4 to 1.0	
HAA9 Group					**By-product of drinking water disinfection**
Bromochloroacetic Acid	ppb	N/A	3.5	1.3 to 3.5	
Bromodichloroacetic Acid	ppb	N/A	2.5	0.6 to 2.5	
Dibromoacetic Acid	ppb	N/A	2.5	0.4 to 2.5	
Monobromoacetic Acid	ppb	N/A	ND	ND	
Tribromoacetic Acid	ppb	N/A	ND	ND	
Chlorodibromoacetic Acid	ppb	N/A	1.0	0.4 to 1.0	
Dichloroacetic Acid	ppb	N/A	17.7	1.8 to 17.7	
Monochloroacetic Acid	ppb	N/A	ND	ND	
Trichloroacetic Acid	ppb	N/A	12.2	0.8 to 12.2	

Contaminant	Level Detected	Units of Measurement	Likely source
Perfluorooctane Sulfonate (PFOS)	Range = ND – 0.004	ppb	Used in the manufacture of fluoropolymers.
Perfluorooctanoic Acid (PFOA)	Range = ND – 0.009	ppb	Used in the manufacture of fluoropolymers.

What are PFOA and PFOS?
Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are per- and polyfluoroalkyl substances (PFAS), previously referred to as perfluorinated compounds, or PFCs, that are man-made and used in industrial and commercial applications. PFOA was used as a processing aid in the manufacture of fluoropolymers used in non-stick cookware and other products, as well as other commercial and industrial uses based on its resistance to harsh chemicals and high temperatures. PFOS is used in metal plating and finishing as well as in various commercial products. PFOS was previously used as a major ingredient in aqueous film forming foams for firefighting and training, and PFOA and PFOS are found in

consumer products such as stain resistant coatings for upholstery and carpets, water resistant outdoor clothing, and grease proof food packaging. Although the use of PFOA and PFOS has decreased substantially, contamination is expected to continue indefinitely because these substances are extremely persistent in the environment and are soluble and mobile in water. More information can be found at: https://www.state.nj.us/dep/wms/bears/docs/2019-4-15-FAQs_PFOS-PFOA-websites-OLA%204-24-19SDM-(003).pdf

Purchased Water: Brick Township Municipal Utilities Authority 2019 Test Results PWSID # NJ1506001						
Contaminant	**Violation Y/N**	**Level Detected**	**Units of Measurement**	**MCLG**	**MCL**	**Likely Source of Contamination**
Microbiological Contaminants:						
Turbidity	N	Highest detect = 0.18 Average = 0.06 100% Samples< 0.3 NTU	NTU	N/A	95% of monthly samples < 0.3 NTU TT	Soil runoff
Total Coliform Bacteria	N	Highest month 2.0 %	% Samples	0	5% of monthly samples positive	Naturally present in the environment
Radioactive Contaminants:						
Combined Radium 228 & 226 Test results Yr. 2014	N	1.03	pCi/1	0	5	Erosion of natural deposits
Inorganic Contaminants:						
Arsenic	N	Range = ND – 1.14 Highest detect = 1.14	ppb	0	10	Erosion of natural deposits; Runoff from orchards, Runoff from glass and electronics production wastes.
Barium	N	Range = 0.04 – 0.06 Highest detect = 0.06	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper Result at 90th Percentile	N	0.03 No samples exceeded the action level.	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Result at 90th Percentile	N	1.32 No samples exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	Range = 0.13 – 0.65 Highest detect = 0.65	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	N	Range = ND – 1.21 Highest detect = 1.21	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Disinfection Byproducts:						
TTHM Total Trihalomethanes	N	Range = 18.9 – 68.4 Highest LRAA = 44.3	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids	N	Range = 13.0 – 36.6 Highest LRAA = 26.8	ppb	N/A	60	By-product of drinking water disinfection
Regulated Disinfectants		**Level Detected**		**MRDL**		**MRDLG**
Chloramines		Highest Average = 1.33 ppm Range = 0.27 – 1.88		4.0 ppm		4.0 ppm
Chlorine		Highest Average = 0.97 ppm Range = 0.12 – 1.69		4.0 ppm		4.0 ppm

HAA5 and TTHM compliance is based on the Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results.

BTMUA Unregulated Contaminant Monitoring

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

Contaminant	Level Detected	Units of Measurement	Likely source
Haloacetic Acids (HAA5)	Range = 19 – 46.40 Highest detect = 46.40	ppb	By-product of drinking water disinfection
Haloacetic Acids (HAA6Br)	Range = 4.10 – 8.35 Highest detect = 8.35	ppb	By-product of drinking water disinfection
Haloacetic Acids (HAA9)	Range = 23.52 – 52.86 Highest detect = 52.86	ppb	By-product of drinking water disinfection

Purchased Water: New Jersey American Water – Coastal North System 2019 Test Results
PWSID # NJ1345001

Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants:						
Turbidity	N	Range = 0.06 – 0.10 Highest detect = 0.1 100% of Samples<0.3 NTU	NTU	N/A	TT = 1 NTU TT = percent of samples < 0.3 NTU	Soil runoff
Total Organ Carbon (TOC)	N	Range = 0.87 – 1.40 Highest removal = 1.40 RAA % Removal Ration = 1.27 % Removal Range = 37.7% -51.3% Removal Ratio Range = 0.87 – 1.40	RAA (%) Removal Ratio	N/A	Percent Removal Required = 35% - 45%	Soil runoff
Inorganic Contaminants:						
Copper Result at 90th Percentile	N	0.14 No samples exceeded the action level.	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Fluoride	N	Range = ND – 0.25 Highest detect = 0.25	ppm	2	2	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead Result at 90th Percentile	N	6 3 samples out of 52 exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	Range = ND – 1.52 Highest detect = 1.52	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Radioactive Contaminants						
Alpha Emitters	N	Range = ND – 14.9 Highest detect = 14.9	pCi/l	0	15	Erosion of natural deposits
Combined Radium 228 & 226	N	Range = ND – 4.18 Highest detect = 4.18	pCi/1	0	5	Erosion of natural deposits
Volatile Organic Contaminants						
Styrene Test results Yr. 2018	N	Range = ND – 0.5 Highest detect = 0.5	ppb	100	100	Discharge from rubber and plastic factories; leaching from landfills
Xylenes (Total) Test results Yr. 2018	N	Range = ND – 0.0007 Highest detect = 0.0007	ppm	1	1	Discharge from petroleum factories; discharge from chemical factories
Disinfection Byproducts:						
TTHM Total Trihalomethanes	N	Range = 22.0 – 68.4 Highest LRAA = 45.50	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids	N	Range = 9.6 - 48 Highest LRAA = 22.38	ppb	N/A	60	By-product of drinking water disinfection
Chlorite	N	Range = ND – 0.69 Average = 0.69	ppb	N/A	1	By-product of drinking water disinfection

Regulated Disinfectants	Level Detected	MRDL	MRDLG
Chloramines	Range = 0.15 – 2.89 Highest Average = 1.48	4.0 ppm	4.0 ppm
Chlorine Dioxide	Range = 20 - 430 Highest Average = 430	800 ppb	800 ppb

HAA5 and TTHM compliance is based on a Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results.

Secondary Contaminant	Level Detected	Units of Measurement	RUL
Sodium	Range = 3.8 – 33.3	ppm	50
Iron	Range = ND – 0.33	ppm	0.3
Manganese	Range = ND – 0.045	ppm	0.05
Hardness	Range = 52 – 112	ppm	250
Aluminum	ND	ppm	0.05

New Jersey American Water slightly exceeded the secondary Recommended Upper Limit (RUL) for Iron which is based on unpleasant taste of the water and staining of laundry. Iron is an essential nutrient, but some people who drink water with iron levels well above the RUL could develop deposits of iron in a number of organs in the body. Iron is a naturally occurring element in soil, groundwater, and some surface waters. Iron bacteria are considered harmless to health however, they may give water an off taste or color, cause splotchy yellow stains on laundry, and clog water systems.

For healthy individuals, the sodium intake from water is not important, because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the Recommended Upper Limit (RUL) may be of concern to individuals on a sodium restricted diet.

NJAW Unregulated Contaminant Monitoring

NJAW participated in the Unregulated Contaminant Monitoring Rule. Unregulated contaminants are those 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 in drinking water and whether regulation is warranted. For testing conducted in the Coastal North System, the following substances were found.

NJAW Unregulated Contaminant Monitoring 2013-2014					
Contaminant	**Units**	**NJDEP Guidance Level**	**Range Detected**	**Highest Level Detected**	**Use or Environmental Source**
Chlorate (2013-2014 Results)	ppb	NA	ND to 760	760	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide.
Hexavalant Chromium (2013-2014 Results)	ppb	NA	ND to 0.53	0.53	Major sources of Hexavalent Chromium (Chromium-6) in drinking water are discharges from steel and pulp mills, and erosion of natural deposits of chromium-3. Hexavalent Chromium is not currently regulated as an individual substance. NJ American Water voluntarily performed this monitoring based on recommendations from USEPA. For more information on Hexavalent Chromium (Chromium-6), please visit our web site.
Strontium (2013-2014 Results)	ppb	NA	37.6 to 508.5	508.5	Naturally occurring element; commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
1,4-Dioxane (2013-2014 Results)	ppb	NA	ND to 0.50	0.50	Used as a solvent in manufacturing and processing of paper, cotton, textile products, automotive coolant, cosmetics and shampoos.

NJAW Unregulated Contaminant Monitoring 2018-2019					
Contaminant	**Unit**	**MRL**	**Highest Level Detected**	**Range Detected**	**Use or Environmental Source**
Metals - List AM1					
Manganese	ppb	N/A	40	ND to 40	Naturally present in the environment; used in steel production, fertilizer, batteries and fireworks; drinking water and wastewater treatment chemical
Germanium	Ppb	N/A	0.32	ND to 0.32	
Total Chromium	ppb	NA	ND to 1.4	1.4	Discharges from steel and pulp mills; erosion of natural deposits
Brominated Haloacetic Acid (HAA) Group – List AM 2					
HAA6Br Group					**By-product of drinking water disinfection**
Bromochloroacetic Acid	ppb	N/A	3.9	1.7 to 3.9	
Bromodichloroacetic Acid	ppb	N/A	2.8	1.7 to 2.8	
Dibromoacetic Acid	ppb	N/A	0.95	0.42 to 0.95	
Monobromoacetic Acid	ppb	N/A	0.46	ND to 0.46	
Tribromoacetic Acid	ppb	N/A	ND	ND	
Chlorodibromoacetic Acid	ppb	N/A	0.90	0.59 to 0.90	
HAA9 Group					**By-product of drinking water disinfection**
Bromochloroacetic Acid	ppb	N/A	3.9	1.7 to 3.9	
Bromodichloroacetic Acid	ppb	N/A	2.8	1.7 to 2.8	

Dibromoacetic Acid	ppb	N/A	0.95	0.42 to 0.95	
Monobromoacetic Acid	ppb	N/A	0.46	ND to 0.46	
Tribromoacetic Acid	ppb	N/A	ND	ND	
Chlorodibromoacetic Acid	ppb	N/A	0.90	0.59 to 0.90	
Dichloroacetic Acid	ppb	N/A	10	4.0 to 10	
Monochloroacetic Acid	ppb	N/A	ND	ND	
Trichloroacetic Acid	ppb	N/A	14	ND to 14	

NJAW Unregulated Per- and Polyfluoroalkyl Substances

Per- or polyfluoroalkyl substances (PFAS) are man-made substances used in a variety of products, such as: stain resistant fabric, non-stick coatings, firefighting foam, paints, waxes, and cleaning products. They are also components in some industrial processes like electronics manufacturing and oil recovery. The New Jersey Department of Environmental Protection (NJDEP) has begun regulating some of these compounds, establishing a Maximum Contaminant Level for perfluorononanoic acid (PFNA) in 2019. While all other PFAS are not regulated, New Jersey American Water recognizes the importance of testing for these contaminants. Compounds detected are tabulated below, along with typical sources.

NJAW Perfluorinated Compounds

Parameter	Unit	Highest Level Detected	Range Detected	Typical Source
Perfluorooctanoic acid (PFOA)*	ppt	6.8	ND to 6.8	Used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon) firefighting foams, cleaners, cosmetics, lubricants, paints, polishes, adhesives and photographic films
*PFOA has a proposed MCL of 14 ppt				
Perfluorohexanoic Acid (PFHxA)	ppt	3.3	ND to 3.3	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluoropentanoic Acid (PFOS)**	ppt	3.7	ND to 3.7	Manmade chemical; used in products for stain, grease, heat and water resistance
**PFOS has a proposed MCL of 13 ppt				
Perfluorodecanoic Acid (PFDA)	ppt	ND	ND	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluorononanoic Acid (PFNA)	ppt	1.9	ND to 1.9	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluorododecanoic Acid (PFDoA)	ppt	ND	ND	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluorotetradecanoic Acid (PFTA)	ppt	ND	ND	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluorotridecanoic Acid (PFTrDA)	ppt	ND	ND	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluoroundecanoic Acid (PFUnA)	ppt	ND	ND	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluorohexanesulfonic Acid (PFHxS)	ppt	1.5	ND to 1.5	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluoroheptanoic Acid (PFHpA)	ppt	3.0	ND to 3.0	Manmade chemical; used in products for stain, grease, heat and water resistance
Perfluorobutanesulfonic Acid (PFBS)	ppt	10.1	ND to 10.1	Manmade chemical; used in products for stain, grease, heat and water resistance

NJAW Water Research Efforts

Cryptosporidium is a protozoan found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. 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, people with severely weakened immune systems have a risk of developing a life-threatening illness. We encourage such people to consult their doctors regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease. It can also be spread through means other than drinking water. For additional information regarding cryptosporidiosis and how it may impact those with weakened immune systems, please contact your personal health care provider.

The U.S. EPA issued a rule in January 2006 that requires systems with higher *Cryptosporidium* levels in their source water to provide additional treatment. To comply with this rule, NJAW once again began conducting 24 consecutive months of monitoring for *Cryptosporidium* in our raw water sources starting in in 2015. The monitoring to date indicates the presence of these organisms in the source water. The samples were collected from the source before the water was processed through our treatment plants. NJAW continued monitoring until April 2017. The data collected is presented in the Source Water Monitoring table below.

NJAW Source Water Monitoring

Contaminant	Swimming River source water	Jumping Brook source water	Oak Glen source Water	
Cryptosporidium, Oocysts/L	ND – 0.100	ND	ND	Microbial pathogens found in surface waters throughout the United States.
Giardia, Cysts/L	0 – 0.558	0 – 0.089	0 – 0.558	

Source Susceptibility

The NJDEP has completed and issued the Source Water Assessment Report and Summary for the Authority's public water system, BTMUA's, and NJAW's systems, which are available at WWW.state.nj.us/dep/swap or by contacting NJDEP's Bureau of Safe Drinking Water at (609) 292-5550. You may also contact your public water system to obtain information regarding your water system's Source Water Assessment. The Authority's, the BTMUA's, and NJAW's source water susceptibility ratings and a list of potential contaminant sources are included.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, NJDEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

The seven contaminant categories are defined on the next page. NJDEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

The table below provides a summary of susceptibility ratings for the Authority's water sources. The source column of the table provides the number of ground water and surface water sources and the number of ground water under the direct influence of surface water (GUDI) wells in the system. The other columns provide the total number of sources that rated high (H), medium (M), and low (L) for each of the contaminant categories.

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Bi-product Precursors		
Sources	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**
Wells = 12		**6**	**6**	**6**		**6**			**12**	**6**		**6**	**6**	**3**	**3**	**2**	**5**	**5**		**6**	**6**		**12**	

The table below provides a summary of the susceptibility ratings for the BTMUA's water sources. The source column of the table provides the number of ground water and surface water sources and the number of ground water under the direct influence of surface water (GUDI) wells in the system. The other columns provide the total number of sources that rated high (H), medium (M), and low (L) for each of the contaminant categories.

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproduct Precursors		
Sources	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**
Wells - 12		**6**	**6**	**7**		**5**		**7**	**5**	**7**		**5**	**7**	**1**	**4**	**7**	**4**	**1**		**7**	**5**	**7**	**5**	
GUDI - 2	**2**			**2**						**2**			**2**			**2**				**2**		**2**		
Surface water intakes - 1	**1**				**1**				**1**		**1**		**1**					**1**			**1**	**1**		

The table below provides a summary of the susceptibility ratings for NJAW's sources. The source column of the table provides the number of ground water and surface water sources and the number of ground water under the direct influence of surface water (GUDI) wells in the system. The other columns provide the total number of sources that rated high (H), medium (M), and low (L) for each of the contaminant categories.

	Pathogens			**Nutrients**			**Pesticides**			**Volatile Organic Compounds**			**Inorganics**			**Radionuclides**			**Radon**			**Disinfection Byproduct Precursors**		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells - 30			**30**			**30**			**30**			**30**		**18**	**12**		**19**	**11**			**30**		**18**	**12**
Surface water intakes - 5	**5**			**1**	**4**			**2**	**3**		**5**		**3**	**2**				**5**			**5**	**5**		

Pathogens: Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.
Nutrients: Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.
Volatile Organic Compounds: Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.
Pesticides: Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.
Inorganics: Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.
Radionuclides: Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.
Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to http://www.nj.gov/dep/rpp/radon/index.htm or call (800) 648-0394.
Disinfection Byproduct Precursors: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

We want our valued customers to be informed about their water utility. The Authority also continues to be vigilant in protecting the security of our water system, and looks for the assistance of the public in protecting our most valuable assets. Please contact Fred Diaz at (732) 363-4422 extension 104 or Harry Robbins at (732) 363-4422 extension 137 if you have any questions about this report or concerning your water utility. For additional information, you are welcome to attend our monthly Board of Commissioner's Meeting (open to the public) at the Authority's Office, 390 New Hampshire Avenue, Lakewood, NJ 08701. Please visit our website, www.lakewoodmua.com, or call our office at (732) 363-4422 for public meeting schedules.