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Annual Drinking Water Quality Report ***Lakewood Township Municipal Utilities Authority***

For the Year 2018, Results from the Year 2017

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 MUA 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 (P-R-M). 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, on New Hampshire Avenue and on Shorrock Street. We also purchase water from the Brick Township Municipal Utilities Authority (BTMUA). 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.

The Lakewood Township MUA and the Brick Township MUA routinely monitor for contaminants in your drinking water according to Federal and State laws. The tables show our results, as well as those of the BTMUA for the monitoring period of January 1st to December 31st, 2017. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our 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. Our system received monitoring waivers for asbestos and synthetic organic contaminants. Brick Township MUA received monitoring waivers for synthetic organic contaminants.

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 production, 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, 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.

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 is not present.

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.

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 - Substances that do not have an impact on health. 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 for 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, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/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 Measurement	MCLG	MCL	Likely Source of Contamination
Radioactive Contaminants:						
Gross Alpha Test results Yr. 2017	N	Range = ND – 4.0 Highest detect = 4.0	pCi/1	0	15	Erosion of natural deposits
Combined Radium 228 & 226 Test results Yr. 2017	N	Range = ND – 3.8 Highest detect = 3.8	pCi/1	0	5	Erosion of natural deposits
Uranium Test results Yr. 2017	N	Range = ND – 1.1 Highest detect = 1.1	ppb	0	30	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 – 0.6 Highest detect = 0.6	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper Test results Yr. 2016 Result at 90 th Percentile	N	0.08 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. 2016 Result at 90 th Percentile	N	6.8 1 sample out of 31 exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Mercury (inorganic) Test results Yr. 2017	N	Range = ND – 0.2 Highest detect = 0.2	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (as Nitrogen) Test results Yr. 2017	N	Range = ND – 1.5 Highest detect = 1.5	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Disinfection Byproducts:						
TTHM Total Trihalomethanes Test results Yr. 2017	N	Range = 4 - 34 Highest LRAA = 26	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids Test results Yr. 2017	N	Range = 2 - 23 Highest LRAA = 19	ppb	N/A	60	By-product of drinking water disinfection
Volatile Organic Contaminants:						
Methyl tertiary butyl ether (MTBE) Test results Yr. 2017	N	Range = ND – 6.5 Highest detect = 6.5 Highest Avg. = 6.0	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. 2017		Average = 0.8 ppm		4.0 ppm		4.0 ppm

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.

Source Susceptibility:

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Report and Summary for this public water system, and the Brick Township MUA water system, 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. Lakewood Township MUA's source water susceptibility ratings and a list of potential contaminant sources is included.

The table below provides a summary of susceptibility ratings for the Lakewood Township MUA'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.

Sources	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Bi-product Precursors		
	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	

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.

If the drinking sources susceptibility is high, it does not necessarily mean the water is contaminated. High susceptibility is a vulnerability rating, not a factor determining whether or not the water is or is not meeting State Federal Safe Drinking Water Standards. 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, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

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 Lakewood Township Municipal MUA and the Brick Township MUA 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>.

Brick Township Municipal Utilities Authority 2017 Test Results						
PWSID # NJ1506001						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MC LG	MCL	Likely Source of Contamination
Microbiological Contaminants:						
Turbidity	N	Highest detect = 0.20 100% < 0.3 NTU	NTU	N/A	TT 95% of monthly samples < 0.3 NTU	Soil runoff
Total Coliform Bacteria	N	Highest month 2.2 %		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/l	0	5	Erosion of natural deposits
Inorganic Contaminants:						
Antimony	N	Range = ND – 0.37 Highest detect = 0.37	ppb	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Arsenic	N	Range = ND – 2.78 Highest detect = 2.78	ppb	n/a	5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics

						production wastes
Barium	N	Range = 0.04 – 0.09 Highest detect = 0.09	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Cadmium	N	Range = ND – 0.91 Highest detect = 0.91	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chromium	N	Range = ND – 0.94 Highest detect = 0.94	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Copper Result at 90 th 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
Fluoride	N	Range = ND – 0.08 Highest detect = 0.08	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Lead Result at 90 th Percentile	N	2.95 No samples exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	Range = ND – 1.01 Highest detect = 1.01	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium	N	Range = ND – 1.38 Highest detect = 1.38	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Thallium	N	Range = ND – 1.92 Highest detect = 1.92	ppb	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Disinfection Byproducts:						
TTHM Total Trihalomethanes	N	Range = 20.3 – 37.7 Highest LRAA = 38.6	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids	N	Range = 10.8 – 25.4 Highest LRAA = 24.9	ppb	N/A	60	By-product of drinking water disinfection
Regulated Disinfectants		Level Detected		MRDL		MRDLG
Chloramines		Highest Average = 1.29 ppm Range = 0.06 – 1.76		4.0 ppm		4.0 ppm
Chlorine		Highest Average = 0.99 ppm Range = 0.07 – 1.55		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.

Unregulated Contaminants for Which EPA Requires Monitoring

The BTMUA collected data as part of an ongoing study to determine the general occurrence of unregulated contaminants. Currently, there are no drinking water standards for these compounds. BTMUA continues in and supports these types of regulatory and research efforts to maintain a position of leadership in cutting edge water treatment. Unregulated contaminant monitoring helps the USEPA and the NJDEP to determine where certain contaminants occur and whether they should consider regulating those contaminants in the future.

Unregulated Contaminants:						
Chromium-6	N/A	Range = ND – 0.04 Highest detect = 0.04	ppb	N/A	N/A	Naturally occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning and wood preservation.
Strontium	N/A	Range = ND - 167 Highest detect = 167	ppb	N/A	N/A	Naturally occurring element; historically, commercial use of strontium has been in faceplate glass of cathode-ray tube televisions to block x-rays emissions.

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. BTMUA received monitoring waivers for synthetic organic chemicals.

Cryptosporidium

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100% removal. Monitoring by the BTMUA indicates the presence of these organisms

in their source water. Current test methods do not allow the BTMUA 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 a 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.

We want our valued customers to be informed about their water utility. The Lakewood MUA 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 Robyn Gaynor at (732) 363-4422 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 LTMUA Office, 390 New Hampshire Avenue. Meetings are usually held on the first Tuesday of each month at 10:00 AM, however please call (732) 363-4422 for details or visit our website at www.lakewoodmua.com to confirm meeting dates and times.