Avon Lake Municipal Utilities

2013 WATER QUALITY REPORT

The Board of Municipal Utilities

Avon Lake's Board of Municipal Utilities is the steward of the money you pay for clean water and wastewater services. Every two years, you elect representatives to Avon Lake's Board of Municipal Utilities in the November general election. These private citizens, fellow Avon Lakers, represent you in determining the future of Avon Lake Municipal Utilities (ALMU), including how the money you pay for water and wastewater services can best be used to ensure reliable water provision and collection now and for generations to come. Chief Utilities Executive Todd Danielson reports to this group of community leaders as he goes about the daily business of running ALMU. Here's who you have elected to the current Board of Municipal Utilities:

David Marquard, II
Board Chairman

Anthony Abram

John Dzwonczyk

Ian Hessel

Paul (Randy) Phillips

Safeguarding Lake Erie for you, your children, and the future.

Did you know taking care of Lake Erie is as much a part of our job as providing and cleaning the water that goes to and from every home and business we serve?

In May 2013, the U.S. Geological Survey announced an alarming depletion of our country's groundwater supply. Since all the water we drink in Avon Lake comes from surface water—Lake Erie—the news may not seem applicable to us, but it is. Less groundwater means less water going into Lake Erie. While the Great Lakes possess more than 20 percent of the world's surface fresh water supply, Lake Erie is at its lowest level in a decade. Even so, we sit beside an embarrassment of riches we in Avon Lake can easily take for granted. We see it every day, so how can it be in danger. We need to change our mindset from entitlement to involvement. No one can know the future pressures or opportunities that our proximity to Lake Erie will bring us, but we know one thing for sure: Lake Erie affords Avon Lake an incredible advantage over most other places in the world. It is in all of our best interests to protect it.

Some of the information in this report is required by EPA mandate and provided to give you a closer look at the water you drink every day. But we've also included information to help inspire you to help us protect it for generations to come.

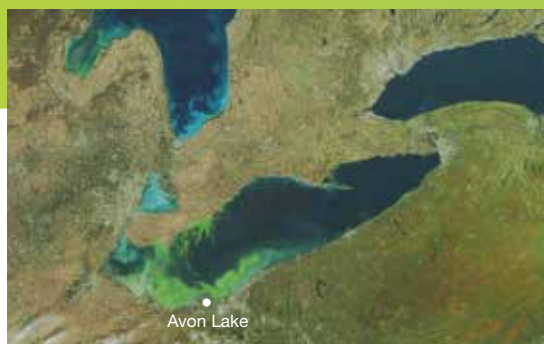
Please take a look at this 2013 Water Quality Report to get the facts about your water, and maybe even get inspired to get involved in helping us care for it. As always, call us with your feedback at 440-933-6226 or email us at contact@avonlakewater.org. You can also Like us on Facebook, Follow us on Twitter, or check out our website at www.avonlakewater.org to stay informed.

Sincerely,

Todd Danielson
Chief Utilities Executive
Avon Lake Municipal Utilities

Issues on the Water Front

Two water-related topics have been getting a lot of attention this year. An educated water consumer is a better friend to our planet. Take a read and take a stand.



Satellite images of Lake Erie courtesy NASA Earth Observatory, October 5, 2011.

Toxic algae is here. And Avon Lake has a front-row seat to the devastation.

Lake Erie is sick. A thick and growing coat of toxic algae appears each summer, so vast that in 2011 it covered a sixth of our lake, reducing fish populations, fouling beaches and crippling a tourism industry that generates more than $10 billion in revenue annually.

Spring rains reliably predict how serious each year's algae bloom will be: the more frequent and heavy the downpours, the worse the outbreak, which makes water treatment more difficult and costly.

Toxic algae also kills fish. Dead algae sink to the lake bed, where their decomposition consumes oxygen. In Lake Erie, this oxygen-free dead zone covers up to a third of the entire lake bottom in bad years. That pushes fish up to shallower water, where it's too warm and more perilous for them. Sport fish are deserting the lake's center and moving shoreward in search of oxygen and food, making them easier to catch, further depleting their numbers. Walleye harvests are down 80 percent.

Here's how it works: Algae feeds on phosphorus, and much of this phosphorus comes from fertilizer-laden river runoff from farms. The Maumee River, which empties into Lake Erie in Toledo after a 137-mile run through western Ohio farmland, supplies only about 5 percent of Lake Erie's water, but half its phosphorus. Recent farming industry changes—like "no-till" farming—help prevent erosion, but allow more fertilizer runoff than traditional methods.

Two other big contributors are zebra mussels and climate change. Zebra mussels eat nontoxic algae, decimating the food chain that supports Lake Erie's fish, while leaving toxic algae to thrive unchallenged. Climate change is also to blame. Heavy rains wash fertilizer off farmland. Since 1940, heavy spring rainstorms have increased by 13 percent.

Phosphorus runoff can be reduced, but only if farmers change their approach. Consumers can help, too, by reducing fertilizer use or using phosphorus-free formulations. Separating combined sewers is also a help, reducing the amount of untreated wastewater that overflows into the Great Lakes. The fact is, all of us can help in the fight against toxic algae.

(Adapted from an article appearing in *The New York Times*, March 15, 2013)

The Great Water Debate: Tap vs. Bottled

Believe it or not, Avon Lake Municipal Utilities (ALMU) is an unbiased source in the bottled-versus-tap debate. We don't make a profit on the water you buy from us. The money from water and wastewater bill payments gets put back into keeping your water flowing. The only stake we have in the game is the health of our lake. To that end, we think tap is better than bottled. Here are the facts:

- Much of today's bottled water, including Dasani® and Aquafina®, is just filtered tap water from the bottling plant.
- In test after test, neither chemists nor tasters can reliably tell the difference between tap water and bottled water.
- Bottled water is an instantly portable healthy choice, but the empty bottles take up a huge amount space in landfills; only about 20 percent get recycled.
- Avon Lakers pay half a cent for a gallon of tap water. Try getting that deal from a bottle of water.

Go green: Tips to kick the bottled habit

- Invest in a permanent water bottle*, or use one you already own. Keep them full and in the fridge like you would bottled water.
- If you love cold water at or between meals and don't have an in-fridge dispenser, keep a pitcher of water in the fridge all the time.
- Hosting a party? Use tap water in pitchers with extra ice and recyclable paper cups. Using pitchers saves the post-party clean up and landfill space. Pitchers also allow you to add sliced fruit or cucumbers to give your tap water festive flair.

*While reusing a bottled-water bottle would be better for the environment than immediately trashing it, there is a higher risk of contaminants since those small-necked water bottles are difficult to clean.

We work to keep rates lower — and you can help.

At least at present, reliable, clean, low-cost water is a given in Avon Lake. ALMU's job to make sure it stays that way. ALMU works to keep costs (and your rates) low by selling water to other municipalities and efficiently running our water plants. Our bulk water sales help make ALMU's water rates among the lowest in the state. In fact, the Ohio EPA's *2011 Sewer and Water Rate Survey*, which was published in April 2013, ranked our rates for water service second lowest of 484 respondents in the state. The graph on the next page shows how Avon Lake's annual water and wastewater bills stack up against other cities'. Avon Lakers pay the lowest rates in the region. What's more, ALMU finds other ways to save money. We recently signed on to an energy-savings program that will save ratepayers $600,000 during the next three years.

You can help, too. Conserve water when you can. If you must use lawn fertilizer, use phosphorus-free formulations to help prevent toxic algae in Lake Erie. You can also help at election time by educating yourself on the candidates up for board election/re-election and supporting those individuals who best reflect your views.

Like our trucks say, we think water's worth it—worth conserving, worth thinking about, worth our efforts to protect it. We hope you think so, too. Here's a little more about the services we provide.

When I pay my water bill, where does my money go?

Globally, more people have access to cell phones than they do a toilet. More than 1 billion people lack access to safe drinking water. But in the United States, running water and flushing toilets are an expectation. A given. Something we at Avon Lake Municipal Utilities are more than happy to provide. What you pay covers our costs, including servicing the debt ALMU incurs to keep the water plants and pipes working. ALMU offers Avon Lakers one of the lowest water rates in the state—and we plan to keep it that way. Here's a little more about what you are paying for when you pay each quarterly bill.

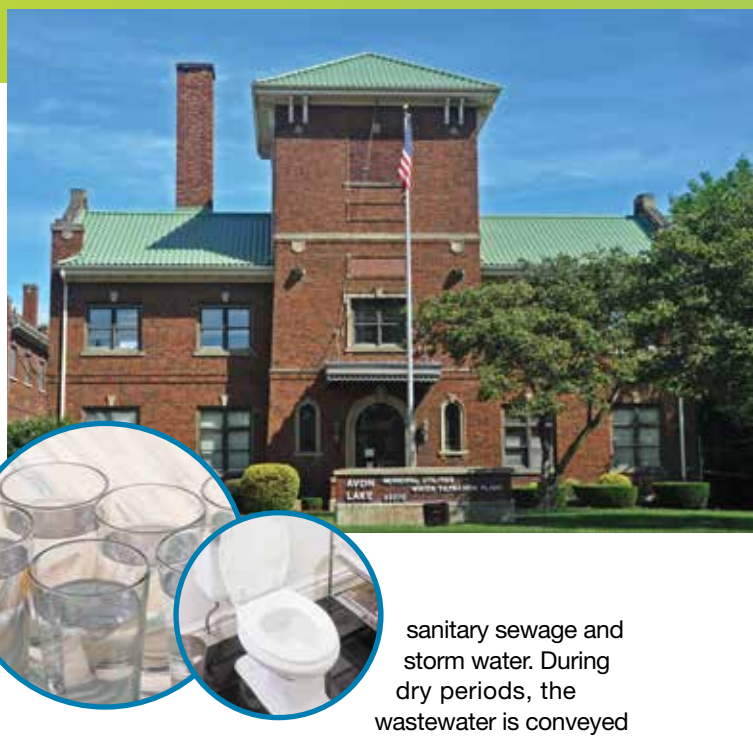
Investing in Avon Lake's water future.

Once you pay your water and wastewater bill, ALMU uses your money to reimburse our cost of removing water from the lake, treating it, delivering it to you, taking it away from your home, cleaning it and putting it back into Lake Erie, where the cycle begins again. Out of these same water and wastewater rates must also come the funds to pay for all infrastructure and plant equipment that must be replaced as it reaches the end of its useful life. Waiting longer to replace aging parts saves money in the short term, but that can mean inconveniences like water main breaks which ultimately increase costs as ALMU must repair and replace water-main-damaged roads and driveways.

Will rates ever stop going up?

With rates going up again in July 2013 and July 2014, some might ask: "When will it ever be enough?" Even though these increases will only translate to pennies a day for the average household, it's still a good question to ask. As long as there is inflation around us, crumbling infrastructure below us, and treatment and pumping equipment in use every day (which there is), you can count on rates going up to keep up with the hard costs of providing and cleaning your water. (Don't worry, even with the coming increases, you'll still pay less for a day's worth of drinking, flushing, cooking, bathing and washing for you and your family than you'd pay for a 20-ounce bottle of water at a local convenience store.)

Water & wastewater services



Water

From our 40 million gallon per day (mgd) filtration plant located on Lake Erie, ALMU treats water for approximately 200,000 people in parts of 7 counties. Direct retail services are provided to nearly 8,200 accounts in Avon Lake and bulk water sales (accounting for over 85 percent of water production) are provided to seven neighboring jurisdictions/organizations.

ALMU maintains approximately 120 miles of water mains within Avon Lake and responded to 58 breaks in 2012. In order to help reduce water breaks and the inconvenience to our customers, ALMU is actively replacing water lines prone to breakage. In 2013, ALMU will replace about 3,700 feet of water line on Redwood Boulevard and 1,800 feet of water line on Walker Road.

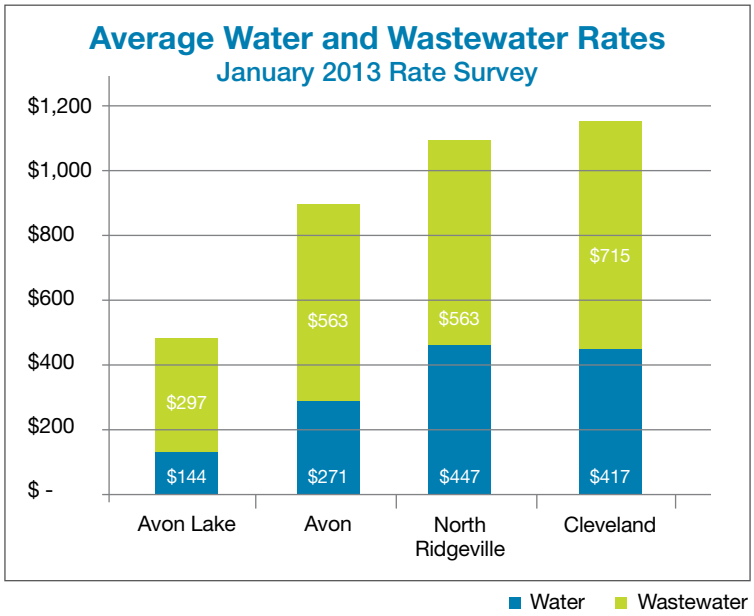
Even as the quality of our Lake Erie water supply deteriorates due to algal blooms and/or the lake not freezing over, the quality of the water produced at the filtration plant remains excellent. Please refer to the table on page 6 to learn more about the quality of your water.

Wastewater

At our 6.5 mgd water pollution control center (WPCC), ALMU treats the wastewater generated in Avon Lake, and also parts of Avon and Eaton and Carlisle townships. Treating wastewater generated outside City limits helps keep rates low. The 2011 Ohio EPA survey (referenced earlier) ranked the annual wastewater bill for Avon Lake in the bottom 5% in the state. A comparison of annual water and wastewater bills among local jurisdictions is presented in the graph below.

ALMU maintains approximately 120 miles of sanitary and combined sewer lines within the City and 50 miles outside the City under contract with LORCO. Sanitary sewers collect the wastewater generated within homes, businesses, and industries and convey it to the WPCC. Combined sewers collect both sanitary sewage and storm water. During dry periods, the wastewater is conveyed to the WPCC. During wet weather, the combined sanitary and storm flow is discharged directly to Lake Erie.

Discharging directly into the lake is undesirable for many reasons, and ALMU has been working with the City to separate the combined sewers into separate sanitary and storm sewers. To date, 12 of the 17 combined sewer areas have been separated; the 13th (Belmar) will begin separation this year. The remaining four combined sewer areas must be separated by 2020.



Separating Avon Lake's sewers

This year, ALMU and the City begin construction to separate the 13th of the 17 historically combined sewers in Avon Lake. The $5 million project will provide many benefits:

- Stop sewage from discharging to Lake Erie during rains,
- Allow residents to direct stormwater from yards to storm sewers,
- Provide improved drainage on several streets,
- Reduce water main breaks on Redwood Blvd (through associated water line replacement), and
- Provide new pavement on roads in the area once the project is complete.

Benefits already realized in preparation for this project include the replacement of the Belmar water line and construction of a new entrance to Troy Intermediate School.

The project will take over a year to complete and directly affects approximately 200 residences on Belmar Boulevard, Ashwood Drive, Mooreland Drive, Artsdale Drive, Curtis Drive, Redwood Boulevard between Duff and Richland, and Electric Boulevard between Ashwood and Curtis.

The next sewer to be separated centers around Moorewood Avenue. Construction is anticipated to begin in mid- to late-2014.

What are drinking water standards?

A source water assessment was conducted by Ohio EPA for the ALMU water system in 2002. ALMU uses surface water drawn from Lake Erie. For the purposes of source water assessments, all surface waters in Ohio are considered to be susceptible to contamination. Due to the vast size and dilution capabilities of Lake Erie, Ohio EPA evaluated ALMU's contamination potential based on a Critical Assessment Zone (CAZ) and determined there was no direct source of pollution. Ohio EPA further determined that ALMU's source water analysis and emergency operation plan would minimize undetected contamination.

ALMU's public water system treats water to meet drinking water quality standards. Implementing measures to protect Lake Erie can further decrease the potential for water quality impacts. More detailed information is provided in the Drinking Water Source Assessment report, which can be obtained by calling Steve Heimlich at 440-933-3229.

Sources of drinking water—for 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 human activity.

Contaminants in source water come from various places: microbial contaminants such as viruses and bacteria may originate in wastewater plants, septic systems, livestock operations and wildlife; salts, metals and other inorganic substances can occur naturally or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming; pesticides and herbicides enter the stream from agriculture, urban storm water runoff, and general residential use; while organic chemical contaminants are often by-products of industrial and petroleum production, they are also linked to gas stations, urban storm water runoff and septic systems; and finally, radioactive contaminants can occur naturally or via oil and gas production or 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. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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 Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Where does your water come from?

The ALMU water filtration plant (WFP) draws its water from Lake Erie. There are two separate pumping stations and three intake cribs to insure the ability to pump from this virtually endless source of raw water. The raw water is then treated with alum to aid in the removal of turbidity (dirt) and activated carbon is added to remove organics to improve taste and odor. Next, this treated water goes through flocculation, sedimentation, and filtration to remove turbidity. Once the turbidity is removed, the water is treated with chlorine for disinfection and fluoride for dental health prior to being pumped to your home. The Avon Lake water filtration plant is staffed around the clock with approximately 150 tests run on the drinking water every day and over 50,000 each year.

Avon Lake Table of Detected Contaminants in 2012

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation?	Year Sampled	Typical Source of Contaminants
Microbiological							
Turbidity (NTU)[1]	NA	TT	0.19	0.04 - 0.19	No	2012	Soil runoff
Turbidity (% samples meeting standard)	NA	TT	100%	100%	No	2012	
Total Organic Carbon[2]	NA	TT	1.0	1.0 - 2.06	No	2012	Naturally present in the environment
Inorganic Contaminants							
Barium (ppm)[3]	2	2	0.024	0.02 - 0.025	No	2011-12	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Copper (ppm)	1.3	AL=1.3	0.05[5]	NA	No	2010	Corrosion of household plumbing
90th percent sample result	**Zero out of thirty samples was found to have copper levels in excess of the copper action level of 1.3 ppm.**						
Lead (ppb)	0	AL=15	<3.0[5]	NA	No	2010	Corrosion of household plumbing[6]
90th percent sample result	**One out of thirty samples was found to have lead levels in excess of the lead action level of 15 ppb.**						
Fluoride (ppm)	4	4	1.0	0.80 - 1.10	No	2012	Water additive which promotes strong teeth
Nickel (ppb)[3]	100	100	7.7	5.0 - 10.0	No	2011-12	Erosion of natural deposits; Discharge from electroplating, stainless steel and alloy products
Nitrate (ppm)	10	10	0.93	<.10 -.93	No	2012	Natural deposits, fertilizers, sewage
Volatile Organic Contaminants[3]							
Haloacetic Acids (ppb)[4]	NA	60	16.3	8.5 - 23.9	No	2012	By-product of drinking water disinfection
Total Trihalomethanes(ppb)[4]	NA	80	35.8	25.6 - 49.1	No	2012	By-product of drinking water disinfection
Residual Disinfectants	MRDLG	MRDL					
Chlorine (ppm)[3]	4	4	1.20	1.08 - 1.27	NO	2011-12	Water additive to control microbes

Definitions

- AL = Action level – The concentration of a contaminant that, if exceeded, triggers a treatment or other requirement that a water system must follow.
- Contaminant – Any physical, chemical, biological, or radiological substance or matter in water.
- MCL = Maximum Contaminant Level – The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
- MCLG = Maximum Contaminant Level Goal – The level of contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
- MRDL = Maximum Residual Disinfectant Level
- MRDLG = Maximum Residual Disinfectant Level Goal
- ND = Not Detected
- NTU = Nephelometric Turbidity Units
- Parts per billion (ppb) or Micrograms per Liter (ug/L) are units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.
- Parts per million (ppm) or Milligrams per Liter (mg/L) are units of measure for concentration of a contaminant. A part per million corresponds to one second in a little over 11.5 days.
- TOC = Total Organic Carbon has no health effects. However, TOC provides a medium when the water is disinfected for the formation of disinfection byproducts. TOC removal early in the treatment plant is required.
- TT = Treatment technique – A required process intended to reduce the level of a contaminant in drinking water. For example we add lime to increase the pH of our finished water in order to maintain compliance with the lead and copper rule.
- VOC = Volatile Organic Chemicals
- WFP = Water Filtration Plant

[1]Turbidity is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95 percent of the daily samples and shall not exceed 1 NTU at any time. As reported above, the Avon Lake WFP highest recorded turbidity result for 2012 was 0.19 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100 percent.

[2]The value reported under Level Found for Total Organic Carbon (TOC) is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. This removal ratio is calculated as the ratio between the actual TOC removal and the TOC rule removal requirements and other parameters. A value of at least one (1) indicates that the water system is in compliance with TOC removal requirements.

[3]These contaminants' Level Found is the highest compliance value based on a running annual average. This average includes results from 2011 & 2012.

[4]Disinfection byproducts are the result of providing continuous disinfection of your drinking water and form when disinfectants combine with organic matter naturally occurring in the source water. Disinfection byproducts are grouped into two categories, Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5). USEPA sets standards for controlling the levels of disinfectants and disinfectant byproducts in drinking water, including both TTHMs and HAA5s.

[5]90 percent of sample results had a reading lower than this concentration.

[6]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. Avon Lake 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 thirty seconds to two 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. A list of laboratories certified in the State of Ohio to test for lead may be found at http://www.epa.state.oh.us/ddagw, or by calling 614-644-2752. Information on lead in drinking water, testing methods, and steps you take to minimize exposure is available from the Safe Drinking Water Hotline at 800-426-4719 or at http://www.epa.gov/safewater/lead.

ALMU has a current, unconditional license to operate our water system from the Ohio EPA.

Avon Lake
Municipal Utilities
201 Miller Road
Avon Lake, Ohio 44012

Scan this QR code with your smartphone to get connected with ALMU

Source Water Monitoring

The USEPA has required public water systems that use surface water to monitor for Cryptosporidium, E. coli and turbidity based on system size and filtration type. The Avon Lake water plant has always monitored Lake Erie water for E. coli and turbidity as part of the treatment process. Monthly source water samples were analyzed for Cryptosporidium beginning in April 2007 through March 2010 and none was detected.

Is there a risk?

Although Avon Lake Municipal Utilities' drinking water surpasses all state and federal water quality standards, 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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

How can I learn more?

Please contact Steve Heimlich, Water Plant Manager, or Ted Popiel, Plant Chemist, at 440-933-3229 for additional information. In addition, the public is welcome to attend any regularly scheduled meeting of the Avon Lake Board of Municipal Utilities, generally on the first and third Tuesdays of each month at 6:30 p.m. in the board room of the Avon Lake Municipal Utilities administration building at 201 Miller Road.