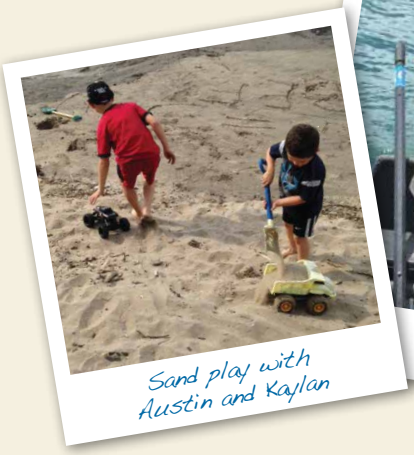
Avon Lake Regional Water

2015 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 removal. Every two years, you elect representatives to Avon Lake's Board of Municipal Utilities in November's general election. These private citizens, fellow Avon Lakers, represent you in determining the future of Avon Lake Regional Water, 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.

Here are the individuals currently serving you as Avon Lake's Board of Municipal Utilities:

John Dzwonczyk
Chair
Rob Berner
Paul "Randy" Phillips
Dave Rickey
Timothy Rush

Avon Lake Regional Water
Serving the region, protecting our resource.

Protecting your water supply comes at a cost.

Lake Erie gives us her water for free, but the cost of the system that brings and takes away your water is not. From new water treatment equipment and storage structures to keep your water supply safe during unusual water conditions (i.e. lake ice and harmful algal blooms), to ever-tightening, EPA-mandated guidelines, the rising cost of raw materials and replacing aging infrastructure, the rates we charge you will climb each year for the foreseeable future.

We have worked to NOT raise our rates. It was not that hard historically since major investments had been made gradually during the mid-to late-1900s. But now, that water infrastructure has considerable age on it, and much of that infrastructure, from water mains to sewer lines to treatment plants, is in need of replacement or updates to continue to cost-effectively protect our water supply.

The coming months will see a significant investment in Avon Lake's water system:

- A new water storage facility and treatment system changes to increase our on-hand water supply in time of crisis.
- Wastewater plant rehabilitation to keep the water we send back into Lake Erie the best it can (and is required to) be.
- Separating our city's combined sewers to reduce the amount of raw sewage Lake Erie receives from Avon Lake during rain events each year.

As the steward of your water supply, we know you entrust us with much. We intend to make good on our promise to always look for ways to keep costs down and pass those savings on to you. We appreciate all you do to protect Lake Erie, whether that means completing your own water-separation project during your combined sewer separation, picking up litter before it heads down a storm drain or patiently waiting to pass one of our construction crews around town. Thanks for loving your lake. We thank you and future generations thank you.

Once again, we're honored to be able to show off some personal photos from Avon Lake families interacting with Lake Erie. Interested in being a part of next year's report? E-mail your photo to contact@avonlakewater.org.

Connecting students and families with Lake Erie

As we continue our efforts to help Avon Lakers recognize and mitigate their impact on Lake Erie—and our planet—we continue to encourage environmentally responsible actions to help protect our lake.

We knew it was going to be fun, but had no idea HOW fun.

We started WaterFest last year to give people a chance to get even more plugged in to our greatest natural resource. This free family event offered attendees the opportunity to try out a kayak or paddleboard, watch a master sand architect work on a giant sculpture, or build their own, in addition to a host of other kid-friendly activities.

At this year's event (August 8, 2015, noon until 5 p.m.), Lorain County Metro Parks offer their Raptors of the Sky animal encounter and a kid-friendly, land-based kayak demo. The Ohio Department of Natural Resources' Office of Wildlife is bringing a live Fish of Lake Erie touch tank—and children can even take home their own fish identification guide. Many more activities, food and art will also be found at this now-annual celebration at Avon Lake's own Miller Road Park.

The big addition this year: The Raingutter Regatta, a chance for kids to put together a boat, blow it down a course (made out of a rain gutter, of course), and race against other "captains" in a bracket-style competition. The first-come, first-served kits will be available at 2 p.m., and races will start soon thereafter.

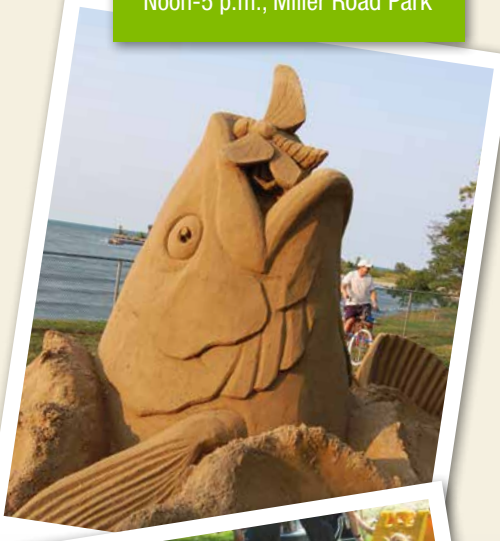
We hope WaterFest attendees will be inspired to protect their lake.

Avon Lake's only triathlon

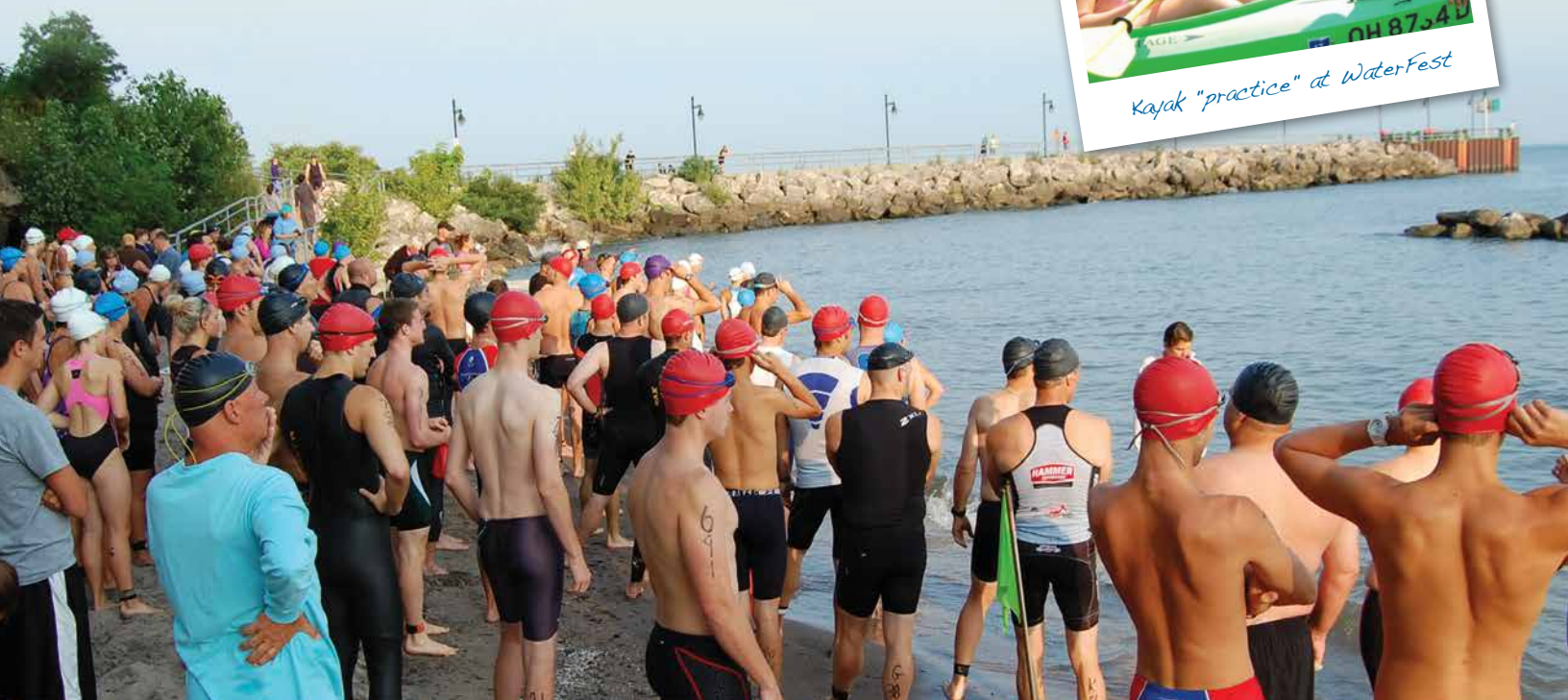
Registration for the WaterFest triathlon (and—for kids—Jr. Splash & Dash) can be accessed on the WaterFest website, avonlakewater.org/waterfest.

Lake Erie WATERFEST
Connecting people with Lake Erie.
Presented by Avon Lake Regional Water

SAVE THE DATE
WaterFest 2015
Saturday, August 8, 2015
Noon-5 p.m., Miller Road Park



Kayak "practice" at WaterFest



School partnerships

In-school fountain education

You might remember we sprung for water-bottle refillers at Avon Lake public schools to keep lines at the water fountain shorter when students refill water bottles. This year, we installed signs to entertain and educate students about water and their planet while they refill. Signs will change regularly, and will soon be joined by in-stall and mirror signs that help students better understand where their water goes when they are done using it—and why it's important not to flush certain items.

Giving students reasons to refill

Elementary school eco-art challenge

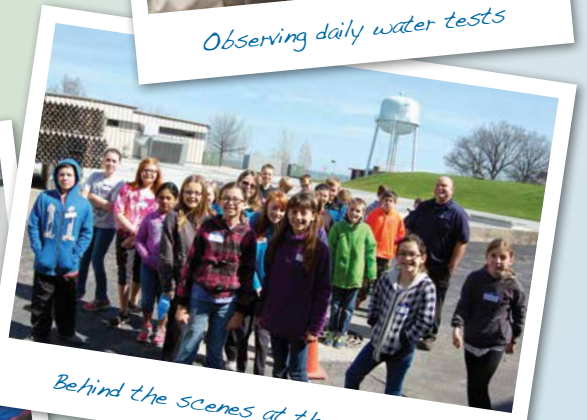
This year, all four public Avon Lake elementary schools participated in the WaterFest Fish Design Challenge. The challenge was issued on Earth Day, and 515 students accepted it. Students were required to use recycled materials in their final designs. Winning fish will be on exhibit at WaterFest at Miller Road Park on August 8, then at Avon Lake Public Library starting in September.

Fish by Ava Gabriel (8), Westview

Water Warriors

Another year saw another great crop of Troy Intermediate 5th graders. From our water- and wastewater-plant tours to in-school experiments, we had a great week, and look forward to many years of introducing Avon Lake fifth graders to the science of water and wastewater treatment.

Observing daily water tests



Behind the scenes at the water plant

Troy Water Warriors excited to explore

Students learn about the urban water cycle

Planning for the future

Preparing for harmful algal blooms and other water-supply crises

One of the newest threats we protect you from is toxic algae. Water utilities, regulators, academics, and others are putting effort into learning more about microcystin and other toxins found in harmful algal blooms (HABs). In May 2015, for the first time ever, a United States agency (USEPA) issued draft health advisory levels for microcystin for U.S. water utilities. (Before that, the only microcystin advisory levels were issued by the World Health Organization.) These health advisory levels are set to be finalized in 2015, and Ohio EPA is determining how to best implement them; the point is, as the environment around us continues to change, so must the way we do things.

Though we are confident in our ability to remove microcystin through the treatment process, we will prepare for the worst. To ensure algal blooms or icing events don't impact you in the future, major changes will soon take place at our water filtration plant near Lake and Moore roads (see "Storage Improvements Project" below). Beginning July 2015, construction begins on new storage tanks—called "clearwells"—that hold 2 million gallons of water. Additional pumping and emergency power generation facilities will follow. We will also rehabilitate several filters to improve treatment ability and convert some existing basins to allow water to be recycled within the plant and reduce the burden on the wastewater treatment facility—thereby further reducing your wastewater's impact on Lake Erie.

New infrastructure means a more resilient water supply

Water isn't free. Though Lake Erie doesn't charge us, we're pretty sure you don't want to drink water straight from it. Cleaning it, getting it to you and making sure your wastewater doesn't ruin Lake Erie takes a lot of fiscal capital.

Even with 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. What's more, according to the most recent Ohio EPA rate survey of water utilities, your water still costs less than 99% of Ohioans currently pay, and you pay less than 94% of the rest of the state for your wastewater services. So, even as our rates go up, know you are in good company as ratepayers across the U.S. foot the bills for replacing aging water infrastructure.

Here are some of the projects that will be keeping your rates on the rise in coming years.

Storage Improvements Project (SIP). You asked us to make sure January 2014 never happened again. SIP is one of the longer-term answers to that request. Its name is a bit of a misnomer—we aren't just improving our existing storage, we're adding a significant amount of clean-water storage, so we'll hopefully never have to ask you to conserve during a crisis. What's more, we've secured a zero-interest loan from the Ohio EPA, a $4 million savings, but with a $23-million price tag, your rates WILL go up as part of the project. (Fortunately, with only 15% of our water staying in town, most of the cost will be paid by your fellow ratepayers outside Avon Lake city limits.)

Wastewater plant rehabilitation. As the first, last and only stop between your toilets and Lake Erie, our wastewater treatment plan is an important part of protecting Lake Erie. During the past decade, rehab plans have been made, then put on hold in favor of efforts to increase our customer base as we keep your rates low. Now, the time has come to keep doing our best for Lake Erie. Post rehabilitation, we'll save more of your money through new efficiencies while giving Avon Lake the ability to keep up with ever-rising EPA regulations protecting our water supply. (Since 85% of our wastewater customers are inside Avon Lake city limits, Avon Laker rates will have to rise faster to foot more of the $40-million bill.)

Continued sewer separations in preparation for 2020 EPA agreement. For decades, we've been separating Avon Lake's sewers to make sure Lake Erie stays relatively wastewater free. (Newer homes have separate water drains for their storm water and wastewater, older ones don't.) Even if you don't care to swim in the lake, we drink from it, and the EPA could fine Avon Lake when strong storms cause untreated wastewater from our combined sewers to spill into Lake Erie. We've spent tens of millions already and will spend tens of millions more by the time the project is completed in 2020.


Separating sewers

Working hard for your money

Without your bill payments, the water would literally stop here in Avon Lake. Water and wastewater treatment is a highly specialized field, requiring much in the way of hardware and infrastructure, as well as highly trained staff, to make things work and keep us in compliance with state and federal regulations.


Fixing a water main break

Here's some of what your money bought in 2014.

- Forty-five repaired water line breaks.
- Maintenance of 130 miles of water mains and 100 miles of sanitary and combined sewer lines, troubleshooting problems before they affected you.
- 7,100 feet of new water lines.
- 29,000 feet of new sanitary sewer lines.
- Completion of Belmar basin sewer separation.
- New Moorewood water line and start of sewer separation.
- Improved ability to detect harmful algal blooms and microcystin.
- Continued improvement of crisis resiliency with design completion of new water storage facility and water intake grate modifications.
- Planning and design of possible emergency interconnections with neighboring utilities.

Here's the money we've saved you (and how):

- $10,000 grant for HAB-detecting sonde to better detect lake algae. (Applied for and won via grant from Ohio EPA.)
- More than $80,000 cash. (Beginning 2014, Avon Lake Regional Water enrolled in an energy curtailment program to go off-grid upon request, resulting in payments that goes right into protecting your water supply.)
- $5.3 million savings over the next 20 years. (Applied for and won a zero-free interest OEPA loan.)

We expect you'll see subsequent savings each year from the agreements above (and more just like them), as well as a new green-energy deal we've inked that begins additional savings this year.

What are drinking water standards?

A source water assessment was conducted by Ohio EPA for the Avon Lake Regional Water system in 2002. We use 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 our water's contamination potential based on a Critical Assessment Zone (CAZ) and determined there was no direct source of pollution. Ohio EPA further determined that our source water analysis and emergency operation plan would minimize undetected contamination.

Avon Lake Regional Water treats water to meet EPA drinking water quality standards. Implementing measures to protect Lake Erie and 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 sewage 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.

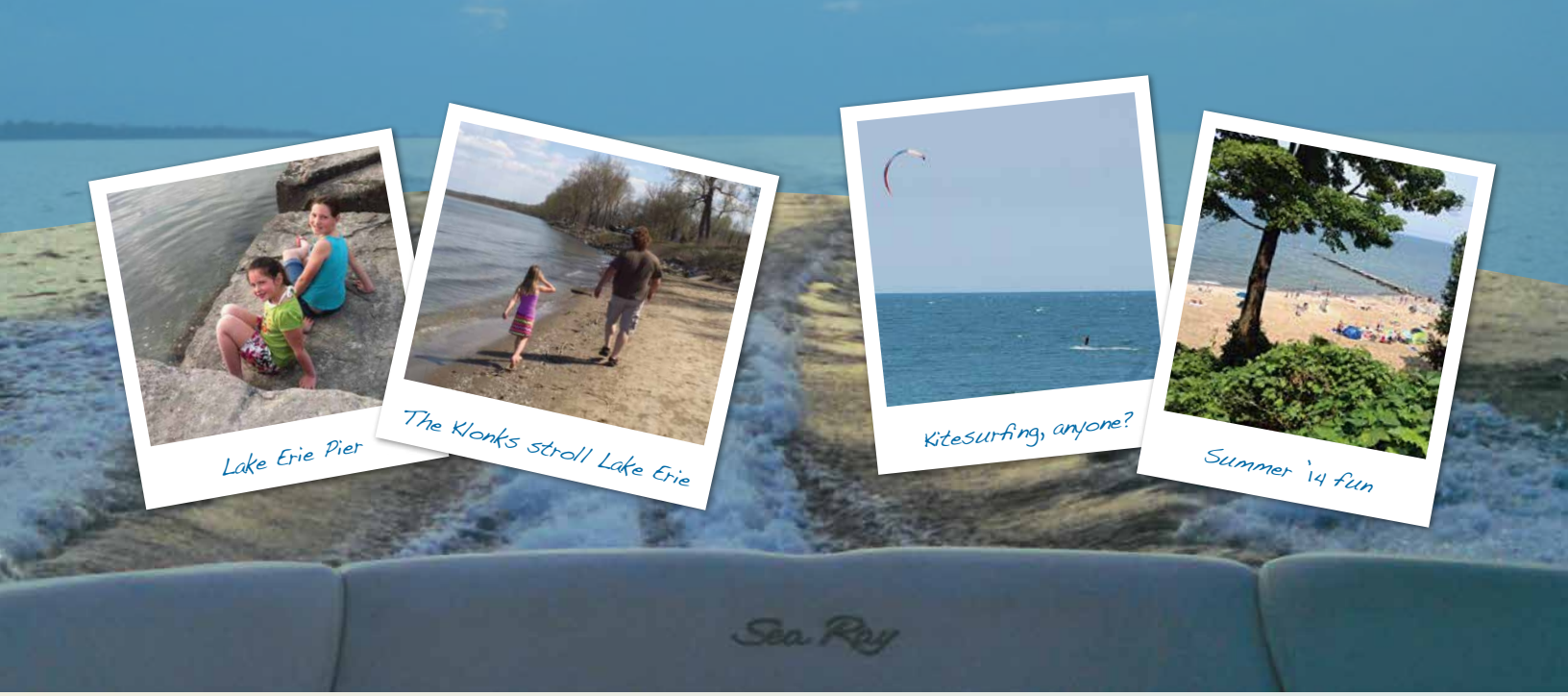
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 800-426-4791.

Where does your water come from?

Our water filtration plant draws its water from Lake Erie. There are two separate intakes to insure the ability to pump from this virtually endless source of quality 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. The water is then 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 2014

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation?	Year Sampled	Typical Source of Contaminants
Microbiological Contaminants							
Turbidity (NTU)[1]	n/a	TT	0.24	0.03 - 0.24	No	2014	Soil runoff
Turbidity (% samples meeting standard)	n/a	TT	100%	100%	No	2014	
Total Organic Carbon (ppm)[2]	n/a	TT	1.0	1.0 - 1.60	No	2014	Naturally present in the environment
Inorganic Contaminants							
Barium (ppm)[3]	2	2	0.031	0.02 - 0.031	No	2013-14	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Copper (ppm)	1.3	AL=1.3	0.06	n/a	No	2013	Corrosion of household plumbing
90th percent sample result	**Zero out of thirty samples were found to have copper levels in excess of the copper action level of 1.3 ppm.**						
Lead (ppb)	0	AL=15	<3.0	n/a	No	2013	Corrosion of household plumbing
90th percent sample result	**One out of thirty samples were found to have lead levels in excess of the lead action level of 15 ppb.**						
Fluoride (ppm)	4	4	0.92	0.72 - 1.14	No	2014	Water additive which promotes strong teeth
Nitrate (ppm)	10	10	0.98	<0.10 - 0.98	No	2014	Natural deposits, fertilizers, sewage
Volatile Organic Contaminants[3]							
Haloacetic Acids (ppb)[4]	n/a	60	14.35	11.1 - 18.0	No	2014	By-product of drinking water disinfection
Total Trihalomethanes(ppb)[4]	n/a	80	30.2	16.9 - 44.5	No	2014	By-product of drinking water disinfection
Residual Disinfectants	MRDLG	MRDL					
Chlorine (ppm)[3]	4	4	1.23	1.11 - 1.30	No	2013-14	Water additive to control microbes
Unregulated Contaminants[5]							
Name	**Average**			**Range**			
Chromium, hexavalent (ppb)	0.08			.053 - .11			Industrial activities or from naturally occurring sources
Molybdenum (ppb)	1.53			1.4 - 1.8			Naturally present in the environment
Strontium (ppb)	201.5			170 - 260			Naturally present in the environment
Vanadium (ppb)	0.20			0.2 -.21			Naturally present in the environment



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
- µg/L (Micrograms per Liter) – Unit of measure for concentration of a contaminant.
- N/A – Not applicable
- ND – Not detected
- NTU – Nephelometric Turbidity Units
- PPB (parts per billion) – Unit of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.
- PPM (Parts per million) – Unit 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
- WTP – Water Treatment Plant

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://alwtr.us/OEPA-labs, 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.

Avon Lake maintains a current, unconditional license to operate our water system from the Ohio EPA.

[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% of the daily samples and shall not exceed 1 NTU at any time. As reported above the Avon Lake WTP highest recorded turbidity result for 2014 was 0.24 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.

Avon Lake Regional Water has a current, unconditional license to operate our water system from the Ohio EPA.

[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]The contaminant levels found are the highest compliance value based on a running annual average. This average includes results from 2013 & 2014.

[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]Monitoring unregulated contaminants helps the EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

Avon Lake Regional Water
201 Miller Road
Avon Lake, Ohio 44012

PRSRT STD
ECRWSS
U.S. POSTAGE
PAID
EDDM RETAIL

**********ECRWSSEDDM*****
Local
Postal Customer

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 were detected.

Is there a risk?

Although Avon Lake Regional Water's drinking water is better than 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).

Have questions? Call us at (440) 933-6226.

You can use that same number if you are experiencing a basement water emergency, anytime, day or night, seven days a week. For non-emergencies, email us at contact@avonlakewater.org, like us on Facebook (where you'll see daily Avon Lake beach bacteria counts Tuesday through Friday, Memorial Day until Labor Day), follow us on Twitter or Instagram (avonlakewater) or visit our website at avonlakewater.org.