

2012 WATER QUALITY REPORT



Our Goal:

Healthy customers, healthy environment through sustainable water management.

Every day, you entrust Avon Lake Municipal Utilities to provide you safe, healthful water to drink and meet your other needs. We are committed to maintaining your trust by economically supplying safe water that surpasses all state and federal standards.

We hope you take some time to review the 2012 Water Quality Report. We are proud to report that your drinking water meets all requirements and regularly wins awards in state taste tests. Additionally, the cost you pay for your water remains in the bottom one percent in Ohio.

In fact, the average Avon Lake customer pays \$0.35/day for water service using the July 2012 rates. So, for the same cost as 1/10 of a gallon of gas, one pint of milk, or one homemade cup of coffee, you get enough water to drink, cook, bathe, wash, etc. for one day.

We make decisions to best balance quality, quantity, cost, and service. We make these decisions on your behalf. If you think we are doing it right or wrong, tell us.



You can call us at 440-933-6226 or email us at contact@avonlakewater.org. Like us on Facebook, follow us on Twitter, or check out our website at www.avonlakewater.org to stay informed.

Sincerely,

Todd Danielson

Todd Danielson
Chief Utilities Executive

Meet the Board



Charles D. Whitmer
Board Chairman

David J. Marquard II
Board Member

John G. Dzwonczyk
Board Member

Anthony Abram
Board Member

Paul (Randy) Phillips
Board Member



Avon Lake
Municipal Utilities

And the Survey Says!

Recently, ALMU hired a local market research company, to conduct telephone interviews of a random sampling of 800 of our customers to receive their feedback, which helps us determine how to provide the most appropriate level of service.

So what did our customers tell us?

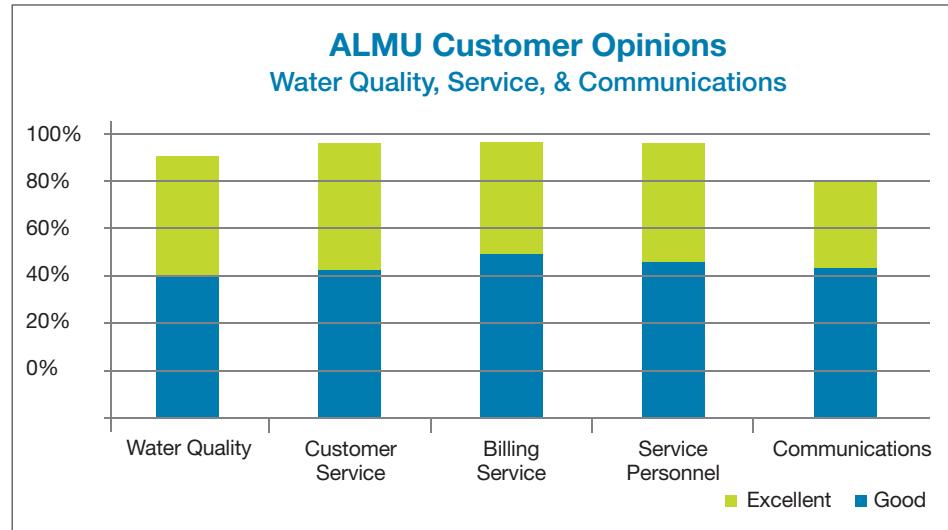
1. ALMU receives high rankings for Quality of Water and Customer Service

Ninety percent (90%) of our customers felt that the quality of water ALMU provides is "Good" or "Excellent" on a five point scale of "Poor", "Fair", "Average", "Good", or "Excellent". On the same scale, 92% of those having an opinion ranked our Customer Service as "Good" or "Excellent" and 94% of those having an opinion ranked our Billing Services as "Good" or "Excellent". Even better, 95% of those having an opinion on Service Personnel ranked them as "Good" or "Excellent".

ALMU strives to provide high quality service to our customers. We appreciate you recognizing that we are doing so and will continue to put our best foot forward.

2. ALMU receives good rankings for Communications

Seventy-nine percent (79%) of our customers rated our communications efforts as "Good" or "Excellent". Eleven percent (11%) was not sure about our communications efforts and just over 2% rated our communications as "Fair" or "Poor". To us, that shows we need to provide communications through multiple channels so that our customers not only have an opinion about our communications but also that it is a good opinion.



During the last year, ALMU has started providing a bi-monthly piece in *The Press*, frequent blogs on *Avon-Avon Lake Patch*, and posting on Facebook and Twitter. Between these and local media outlets' news coverage, ALMU was referenced more than 100 times in 2011.

3. Additional services or improvements

Overwhelmingly, 88% of our customers did not request ALMU provide any additional services or improvements. The one request that received a percentage above the margin of error was a request for ALMU to stop basements from flooding (4%).

ALMU is making significant progress toward preventing basement flooding. Through our Foundation Drain Sump Disconnection Program, our customers are helping to prevent at least 170,000 gallons

of water from entering the sanitary sewer during a 2" rain event. This program will continue through 2012. ALMU is working with the City to pass an ordinance to further prevent stormwater and groundwater from entering the sanitary sewer. Recently, ALMU installed four flow relief structures that divert water in severely surcharged sanitary sewers to Lake Erie, rather than backing into basements. These diversions structures are only temporary and will help prevent basement backups while ALMU, the City, and customers work together to prevent basement flooding.

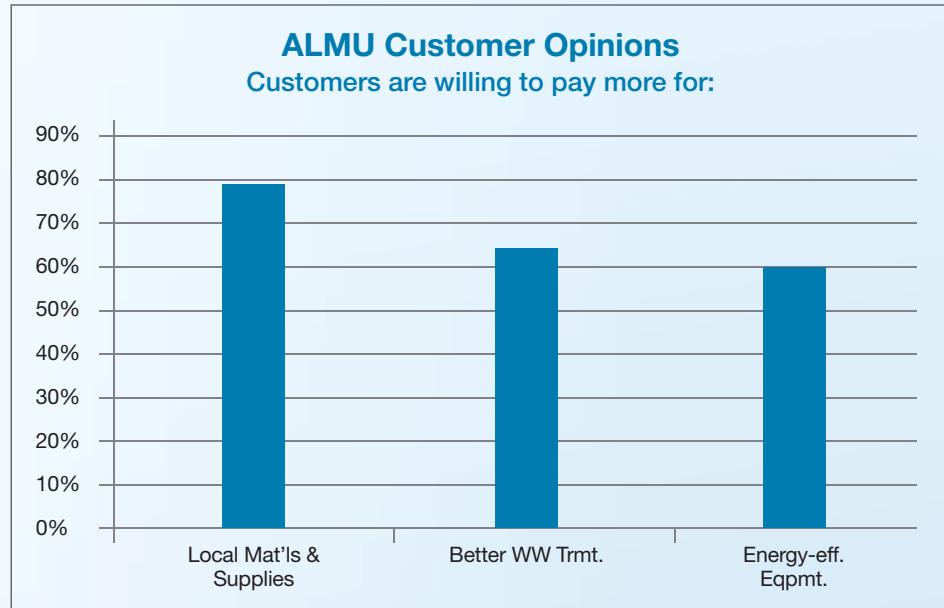


Photo Courtesy
Danielle O'Donnell.

4. Upcoming projects

ALMU is the steward of our customers' money. You elect our Board to serve as your proxy in determining how your money should be spent. During the interview, our customers were asked which procedures they would prefer ALMU employ on future projects, even if it costs a little more. A vast majority (79%) wants ALMU to purchase local materials and supplies for jobs, 65% wants ALMU to implement better wastewater treatment methods for the environment, and 60% wants ALMU to use energy efficient equipment. We will keep this in mind as we prepare new projects.

Overall, this survey was very helpful for ALMU to determine how to most appropriately serve our customers. We thank those that provided their input, and we pledge that we will always strive to meet your needs.



Business Philosophy

Base our decisions to best balance quality, quantity, cost, and service.

Our job is to provide you safe, healthful water and to treat your wastewater in order to protect the environment. But it is not just a job to us. It is not just a career. It's our effort, our dedication, our passion. Water's worth it™ and you're worth it.

We strive to provide you the best balance of quality, quantity, cost, and service. We provide bulk water sales outside Avon Lake in order to keep costs low. In fact, over 85% of the water we produce is sold outside of City limits, which allows our rates to be in the bottom 1% in Ohio. Nearly 20% of the wastewater we treat comes from outside of the City. This helps put our wastewater rates in the bottom 4% in Ohio.

These low rates make it so that the average Avon Lake residential customer pays \$0.94/day for water and wastewater service. For less than the price of a cup of coffee, Avon Lake residents receive water that meets all public health standards and have their wastewater treated to help protect the quality of Lake Erie.

And if you wake up at 3 AM, have no water or wastewater is backing up and you think it may be an issue from out in the street, you know you can call our emergency number (440-933-3229); and we will quickly have someone there to investigate.



We strive to provide you the best balance of quality, quantity, cost, and service.

Water & Wastewater Services

Water

From our 40 million gallon per day (mgd) filtration plant located on Lake Erie, ALMU treats water for approximately 170,000 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% of water production) are provided to 7 neighboring jurisdictions/organizations. These bulk water sales help make ALMU's water rates among the lowest in the state. In fact, Ohio EPA's 2010 *Sewer and Water Rate Survey*, which was published in May 2012, ranked the calculated bill for water service 2nd of 529 respondents. The graph (below) compares Avon Lake's annual water and sewer bills to other local jurisdictions.

ALMU maintains approximately 120 miles of water mains within Avon Lake and responded to 76 breaks in 2011. In order to help reduce water breaks and the inconvenience to our customers, ALMU is actively replacing water lines prone to breakage. In 2011, ALMU replaced about 3,600' of water line on Belmar Blvd; and soon, ALMU will replace about 2,600' of water line on Redwood Blvd and 1,800' of water line on Walker Rd and Lear Rd.

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 Ohio EPA survey (referenced above) ranked the annual bill for Avon Lake in the bottom 4% in the state.

A comparison of annual 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



Photo Courtesy Rick Eberle.

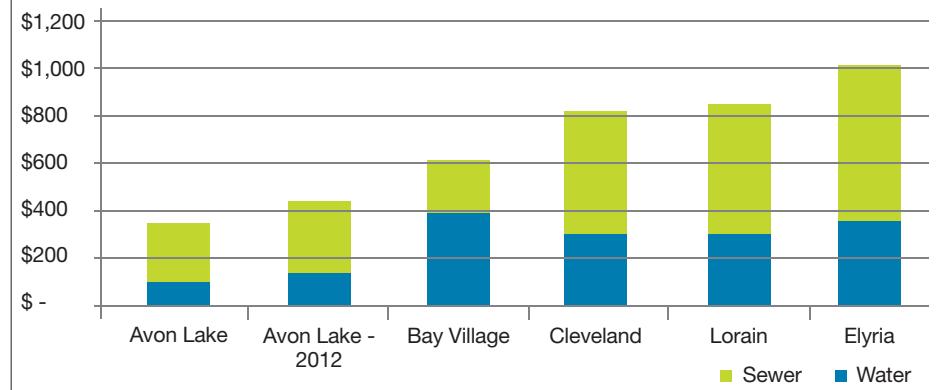


dry periods, the wastewater is conveyed to the WPCC.

During wet weather, the combined sanitary and storm flow is discharged directly to Lake Erie.

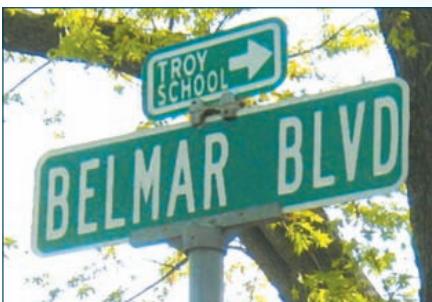
Discharging directly into the lake is undesirable for many reasons, and ALMU has been working with the City to separate the combined sewers into separate sanitary and storm sewers. To date, 12 of the 17 combined sewer areas have been separated; and the 13th (Belmar) will begin separation this year. The remaining 4 combined sewer areas must be separated by 2020.

**Average Residential Water and Sewer Rates
2010 Ohio EPA Rate Survey**



Special Projects

ALMU and the City will soon begin construction to separate the 13th of the 17 historically combined sewers in Avon Lake.



The \$7.5M project will provide many benefits:

- Stops sewage from discharging to Lake Erie during rains,
- Allows residents to direct storm-water from yards to storm sewers,
- Provides improved drainage on several streets,
- Reduces water main breaks on Redwood Blvd (through associated water line replacement), and
- Provides 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 waterline and construction of a new entrance to Troy Intermediate School.

The project will take over a year to complete and directly affects ~239 residences on Belmar Blvd, Ashwood Dr, Mooreland Dr, Artsdale Dr, Curtis Dr, Redwood Blvd between Duff and Richland, and Electric Blvd between Ashwood and Curtis.

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 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 1-800-426-4791.

Where does your Water come from?

The ALMU water filtration plant draws its water from Lake Erie. There are two separate pump stations and three intake cribs 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 to remove organics (taste and odor). After which, it goes through flocculation, sedimentation and filtration.

Once the turbidity is removed, the water is treated with chlorine for disinfection and fluoride for dental health prior to being pumped to your tap. 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.

Photo Courtesy
Danielle O'Donnell.



Avon Lake Table of Detected Contaminants in 2011

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation?	Year Sampled	Typical Source of Contaminants
Microbiological							
Turbidity (NTU) ¹	NA	TT	0.22	0.04 - 0.22	No	2011	Soil Runoff
Turbidity (% samples meeting standard)	NA	TT	100%	100%	No	2011	
Total Organic Carbon ²	NA	TT	1.0	1.0 - 2.68	No	2011	Naturally present in the environment
Inorganic Contaminants							
Barium (ppm) ³	2	2	0.022	<0.02 - 0.026	No	2010-11	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
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
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	0.70 - 1.09	No	2011	Water additive which promotes strong teeth
Nickel (ppb) ³	100	100	7.7	5.6 - 8.1	No	2010-11	Erosion of natural deposits; Discharge from electroplating, stainless steel and alloy products
Nitrate (ppm)	10	10	1.2	.20 - 1.2	No	2011	Natural deposits, fertilizers, sewage
Volatile Organic Contaminants³							
Haloacetic Acids (ppb) ⁴	NA	60	19	7.8 - 29.5	No	2010-11	By-product of drinking water disinfection
Total Trihalomethanes(ppb) ⁴	NA	80	37.6	18.3 - 50.7	No	2010-11	By-product of drinking water disinfection
Residual Disinfectants							
Chlorine (ppm) ³	4	4	1.25	1.10 - 1.36	No	2010-11	Water additive to control microbes
Unregulated Contaminants (Monitoring Required)							
Chloroform (ppb)			22.4	8.7 - 34.6	NA	2011	By-product of drinking water disinfection
Bromoform (ppb)			0.28	ND - 0.6	NA	2011	By-product of drinking water disinfection
Bromodichloromethane (ppb)			10.8	6.1 - 12.9	NA	2011	By-product of drinking water disinfection
Dibromochloromethane (ppb)			4.1	3.3 - 5.3	NA	2011	By-product of drinking water disinfection



Photo Courtesy Danielle O'Donnell.

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
- NA = Not Applicable
- NTU = Nephelometric Turbidity Units
- ppb = Parts per billion or Micrograms per Liter (ug/L) - Units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.
- ppm = Parts per million or Milligrams per Liter (mg/L) - 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 process 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.

¹Turbidity 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 WFP highest recorded turbidity result for 2011 was 0.22 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.

²The 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.

³These contaminants' Level Found is the highest compliance value based on a running annual average. This average includes results from 2010 & 2011.

⁴Disinfection 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.

⁵90 percent of sample results had a reading lower than this concentration.

⁶If 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. ALMU 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 Ohio EPA.



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 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 You 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 Mondays of each month at 7:00 PM in the Board Room of the Utilities Administration Building at 201 Miller Road.

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**Avon Lake
Municipal Utilities**

201 Miller Road
Avon Lake, Ohio 44012



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