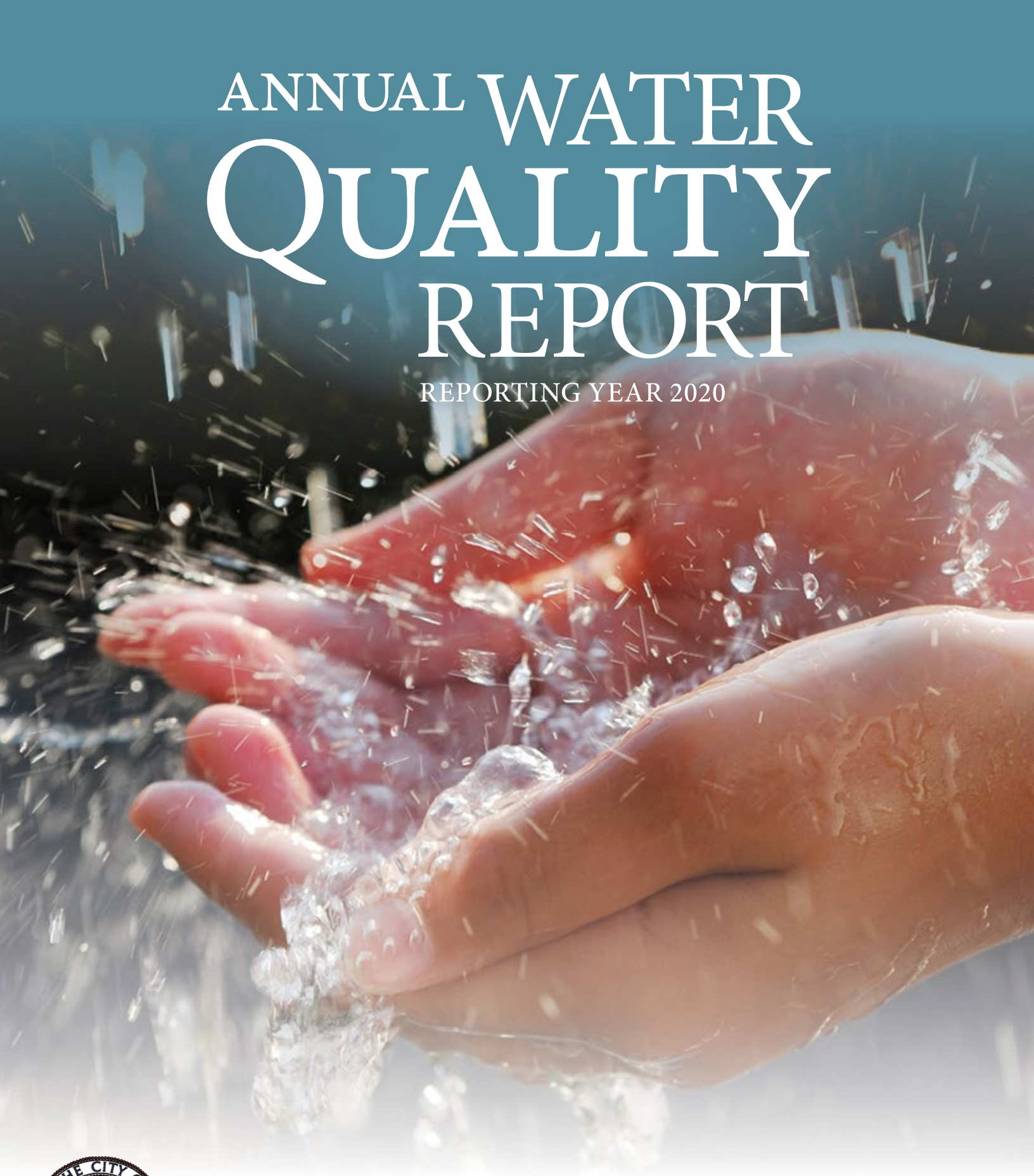
ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020



Presented By
Lorain Utilities

PWS ID#: OH4700711

Quality First

Once again, we are pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2020. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all our water users. Thank you for allowing us the opportunity to serve you and your family.

We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies.

Source Water Assessment

The Lorain Water System uses surface water drawn from Lake Erie. For purposes of source water assessments, in Ohio all surface waters are considered to be susceptible to contamination. By their nature, surface waters are accessible and can be easily contaminated by chemicals and pathogens. Compared to groundwater, contaminants in surface water tend to move swiftly, so an upstream spill may rapidly arrive at the public drinking water intake with little warning or time to prepare.

The City of Lorain's intake is close to the Black River, which increases the susceptibility of the source water to contamination. The City of Lorain's drinking water source protection area contains a moderate number of potential contaminant sources. These include accidental spills, releases associated with commercial shipping and recreational boating, air contaminant deposition, contaminants from industries and agricultural runoff, contaminants associated with oil and gas production and transportation, sediments from river dredging and disposal operations, natural erosional processes, contaminated stormwater runoff from urban areas, municipal and home sewerage treatment system discharges, and combined sewer overflows.

The City of Lorain's Public Water System treats the water to meet drinking water quality standards, but no single treatment technique can address all potential contaminants. Implementing measures to protect Lake Erie and the Black River can further decrease the potential for negative impacts on water quality.

If you would like a copy of the Source Water Assessment Plan, please feel free to contact Superintendent Chad Johnson at (440) 204-2280.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. City Council meets the first and third Monday of each month beginning at 6:00 p.m. at City Hall, 200 West Erie Avenue, Lorain.

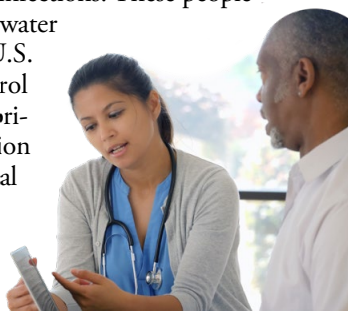
Where Does My Water Come From?

The City of Lorain uses surface water drawn from an intake in Lake Erie as the source of our drinking water. The intake is located in the central basin of Lake Erie, west of the Black River Harbor, at a depth of approximately 20 feet.

Ninety-five percent of Lake Erie's total inflow of water comes via the Detroit River from all the upper lakes - Superior, Michigan, and Huron - the St. Clair River, Lake St. Clair, and numerous tributaries. The rest comes from precipitation. Lake Erie is the shallowest of the Great Lakes and especially vulnerable to fluctuating water levels. Its average depth is only about 62 feet (210 feet, maximum). It warms rapidly in the spring and summer and frequently freezes over in winter. Lake Erie is the eleventh-largest lake in the world (by surface area) and the fourth largest of the Great Lakes in surface area and the smallest by volume. This lake measures 241 miles across and 57 miles from north to south; the surface is just under 10,000 square miles, with 871 miles of shoreline. The central basin averages 60 feet in depth and provides some protection from algal blooms and runoff. In contrast, the western basin averages only 24 feet, leading to higher concentrations of organics.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or http://water.epa.gov/drink/hotline.



Questions? For more information about this report, or for any questions relating to your drinking water, please call Chad Johnson, Water Treatment Superintendent, or Lacy Hepp, Chemist, at (440) 204-2280.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from the Lake Erie intake, where potassium permanganate is added for zebra mussel control and preliminary disinfection. A rotating screen removes fish and debris. The water is treated with alum and polymer, which cause small particles to adhere to one another and become bigger (flocculation). At this point caustic soda (to adjust the final pH and alkalinity) and powdered activated carbon (to remove toxins and taste and odor compounds) is added to the water. During flocculation the large particles become heavy enough to settle into a basin, from which sediment is removed. At this point, the water is filtered through layers of granular activated carbon and refined filter sand. As smaller suspended particles are removed, clear water emerges.

Chlorine is added as a precaution against any bacteria and viruses that may still be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, fluoride (to prevent tooth decay) and a corrosion inhibitor (to protect distribution system pipes) are added before the water is pumped to an underground reservoir and three water towers and into your home or business.

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 30 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.ohio.gov/ddagw or by calling (614) 644-2752. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater/lead.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

In 2019, we participated in the fourth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water in order to determine if U.S. EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

Note that we have a current, unconditioned license to operate our water system.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2020	2	2	0.016	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2020	[4]	[4]	1.46	1.4–1.54	No	Water additive used to control microbes
Fluoride (ppm)	2020	4	4	1.01	0.9–1.08	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2020	60	NA	28.1	7.9–37.3	No	By-product of drinking water disinfection
Nitrate (ppm)	2020	10	10	0.99	ND–0.99	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon [TOC][1] (removal ratio)	2020	TT	NA	1.34	1.0–2.14	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	2020	80	NA	52.0	22.4–58.8	No	By-product of drinking water disinfection
Turbidity[2] (NTU)	2020	TT	NA	0.14	0.01–0.14	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2020	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): The 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.

MRDLG (Maximum Residual Disinfectant Level Goal): The 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 contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

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

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2019	1.3	1.3	0.038	ND–0.170	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2019	15	0	ND	ND–8.7	0/30	No	Lead service lines, corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits

UNREGULATED AND OTHER SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromochloroacetic Acid (ppb)	2019	2.59	2.0–3.54	By-product of drinking water disinfection
Bromodichloroacetic Acid (ppb)	2019	2.61	1.43–4.07	By-product of drinking water disinfection
Bromodichloromethane (ppb)	2020	9.6	6.5–13.1	By-product of drinking water disinfection
Chlorodibromoacetic Acid (ppb)	2019	0.63	0.39–1.01	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2020	2.6	1.4–3.9	By-product of drinking water disinfection
Chloroform (ppb)	2020	23.4	12–43	By-product of drinking water disinfection
Chlorpyrifos (ppb)	2019	0.031	NA	Runoff from pesticide use
Dibromoacetic Acid (ppb)	2019	0.19	ND–0.63	By-product of drinking water disinfection
Dichloroacetic Acid (ppb)	2019	8.02	3.95–12.5	By-product of drinking water disinfection
HAA6Br (ppb)	2019	6.02	4.96–7.48	By-product of drinking water disinfection
HAA9 (ppb)	2019	23.43	12.47–32.26	By-product of drinking water disinfection
Orthophosphate (ppb)	2020	0.82	0.61–1.12	Corrosion inhibitor
Total Microcystin[3] (ppb)	2020	NA	NA	Naturally present in source water
Trichloroacetic Acid (ppb)	2020	10	3.5–19.3	By-product of drinking water disinfection

[1] The value reported under Amount Detected for TOC is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one indicates that the water system is in compliance with TOC removal requirements. A value of less than one indicates a violation of the TOC removal requirements.

[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

[3] There were no detections greater than 0.3 ppb in raw water.

Tip Top Tap

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

Kitchen Sink and Drain

Handwashing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed-up water in which bacteria (i.e., pink-and-black slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

Faucets, Screens, and Aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets and can collect particles like sediment and minerals, resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet screen, as they could be pieces of plastic from the hot water heater dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet gasket with a higher-quality product. White scaling or hard deposits on faucets and showerheads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar, or use water softening to reduce the calcium carbonate levels for the hot water system.

Water Filtration/Treatment Devices

A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time, so regular filter replacement is important. (Remember to replace your refrigerator filter!)