ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2015

Presented By
City of Dunkirk

PWS ID#: 0600360

Meeting the Challenge

Once again we are proud to present our annual drinking water report, covering all drinking water testing performed between January 1 and December 31, 2015. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to your homes and businesses. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

Please remember that we are always available to assist you, should you ever have any questions or concerns about your water.

Important Health Information

Some people may be more vulnerable to disease causing microorganisms or pathogens 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 from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline at (800) 426-4791.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. We are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800) 426-4791 or at www.epa.gov/safewater/lead.

Community Participation

You are invited to participate in our public forum (Common Council meeting) and voice your concerns about your drinking water. We meet the 1st and 3rd Tuesday of each month beginning at 5:30 p.m. at City Hall, 342 Central Avenue, Dunkirk, NY.

Substances That Could Be in Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants.

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. In order to ensure that tap water is safe to drink, the State and the U.S. EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at (800) 426-4791.

Facts and Figures

Our water system serves 14,000 customers through 5,774 service connections. The total amount of water produced in 2015 was 1,065,499,000 gallons. The daily average of water treated and pumped into the distribution system is 2.92-million gallons per day. Approximately 63 % of the total was billed directly to consumers.

The balance or unaccounted water was used for firefighting purposes, street sweeping, sewer cleaning, hydrant flushing and distribution system leaks. Effective March 2015 water customers in the City of Dunkirk will pay on average $573 annually for their water (based on EPA's average family of four quarterly usage of 36,000 gallons). The average customer outside the City pays $1,002 for the same amount of water.

New York State Department of Health Source Water Assessment

The New York State Department of Health completed a draft Source Water Assessment of the supply's raw water source under the state's Source Water Assessment Program (SWAP). The purpose of this program is to compile, organize, and evaluate information regarding possible and actual threats to the quality of public water supply (PWS) sources. It is important to note that source water assessment reports estimate the potential for untreated drinking water sources to be impacted by contamination. These reports do not address the safety or quality of treated finished potable tap water. The Great Lakes' watershed is exceptionally large and too big for a detailed evaluation in the SWAP. General drinking water concerns for public water supplies, which use these sources include: storm generated turbidity, wastewater, toxic sediments, shipping related spills, and problems associated with exotic species (e.g. zebra mussels-intake clogging and taste and odor problems). The SWAP is based on the analysis of the contaminant inventory compiled for the drainage areas deemed most likely to impact drinking water quality at this public water supply's raw water intake. The amount of agriculture land in the assessment area results in elevated potential of disinfection byproduct precursors and pesticide contamination. While there are some facilities present, permitted discharges do not likely represent an important threat to source water quality based on their density in the assessment area. The amount of agricultural (and to a lesser extent residential) lands in the assessment area results in elevated potential for microbials as well. There is also a high density of sanitary wastewater discharges, which results in elevated susceptibility for all contaminant categories. Non-sanitary discharges may also contribute to contamination. There is also considerable contamination susceptibility associated with other discrete contaminant sources, and these facility types include: chemical bulk storage, inactive hazardous waste sites, landfills, Resource Conservation and recovery Act facilities and Toxic release Inventory facilities.

Is Our Water System Meeting Other Rules That Govern Operations?

During 2015, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

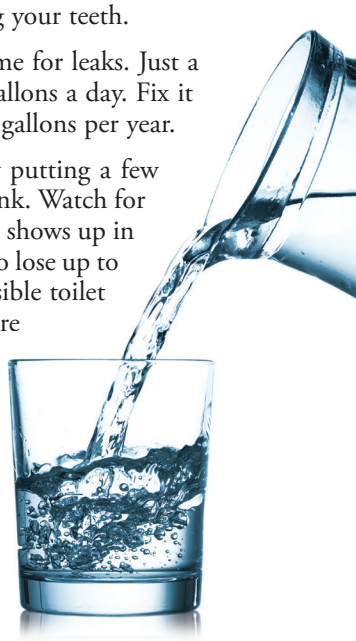
Where Does My Water Come From?

Dunkirk's water customers are fortunate because we enjoy an abundant water supply from Lake Erie. Strict international laws ensure the lake will continue to be a source of high-quality water in Western New York. To learn more about our watershed on the Internet, go to the US EPA's Surf Your Watershed at www.epa.gov/surf.

Water Conservation Tips

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are few tips:

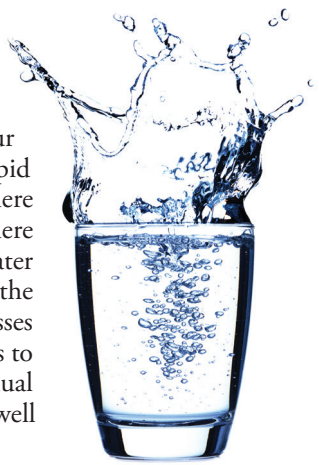
- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.



QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call the Dunkirk Water Treatment Plant at (716) 366-2955. You may also contact the Chautauqua County Department of Health at (716) 753-4481.

Water Treatment Process



The treatment process consists of a series of steps. First, raw water flows by gravity through a 36-inch pipe located approximately one mile out in the lake. Second, low lift pumps move the water through a pre-chlorination process and to our chemical building, where a coagulant, polyaluminum chloride, is added at the rapid mix. The coagulant causes dirt, clay, bacteria and organic material in the water to adhere together into floc. From the rapid mix, the water moves to flocculation chambers, where large paddles slowly mix the water, allowing the floc particles to grow bigger. The water then flows to the sedimentation basins, where the majority of the floc settles to the bottom to be removed later. From here, water flows into the filter beds, where it passes through layers of media to trap the remaining floc particles. The filtered water travels to the clear well, where the water is given final chlorination to maintain chlorine residual in the distribution system. Finally, high-lift pumps move the water from the clear well out into the distribution system to storage tanks and our customers.

Non-detected Contaminants

Following is a list of contaminants that were tested for but NOT detected in the water: arsenic, cadmium, chromium, mercury, selenium, thallium, antimony, beryllium, cyanide, fluoride, bromochloromethane, bromomethane, carbon tetrachloride, chloroethane, chloromethane, dibromomethane, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,2-dichloropropane, 2,2-dichloropropane, 1,2-dichloropropene, cis-1,3-dichloropropene, trans-1,3-dichloropropene, methyl chloride, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethene, trichlorofluoromethane, 1,2,3-trichloropropane, vinyl chloride, benzene, bromobenzene, n-butylbenzene, sec-butylbenzene, tetr-butylbenzene, chlorobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, ethylbenzene, hexachlorobutadiene, isopropylbenzene, p-isopropyltoluene, p-isopropyltoluene, n-propylbenzene, styrene, toluene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, m-xylene, o-xylene, p-xylene, alachlor, aldrin, atrazine, chlordane, dieldrin, endrin, heptachlor, lindane, methoxychlor, metolachlor, metribuzin, simazine, toxaphene, aldicarb, aldicarb sulfone, aldicarb sulfoxide, carbaryl, 3-hydroxyl carbofuran, methomyl, oxamyl, 1,2-dibromoethane, 1,2-dibromo-3-chloropropane, 2,4-D, dalapon, diacamba, dinoseb, pentachlorophenol, pichloram, 2,4,5-TP (silvex), benzo(a)pyrene, butachlor, di(2-ethylhexyl) adipate, bis(2-ethylhexyl) phthalate, hexachlorobenzene, hexachlorocyclopentadiene, PCB, propachlor, carbofuran, heptachlor epoxide.

Improvements and Modifications

During 2015, the City of Dunkirk made the following improvements and modifications:

- Replaced 30" effluent valve and electric actuator for #3 sedimentation basin.
- Filter beds #1, 3, 5, 7 and 8 were retrofitted with new under drains, air scour system, and dual filter media consisting of sand and reactivated granular carbon. An Echo Smarts sensor system was installed to improve control of filter back washes more efficiently. New catwalks and lighting systems were installed on each filter bed. All windows in the filter bed gallery were replaced.
- The altitude valve for the back wash tower was rebuilt.
- The pilot test of the new filter beds was completed and approved by NYSDOH for 2.5 gpm/sq.ft. or 1.25 MGD per filter.
- Due to the deteriorating condition of the sea wall behind the chemical building and possibility of collapse, support brackets for the 24" raw water transmission line behind the chemical building were installed.
- With emergency funding temporary repairs to stabilize the sea wall and bike path behind the chemical building were completed.
- The main floor of the Water Treatment Plant was painted and the flooring was replaced with new tile.
- Replaced 24" influent valve and actuator on # 2 sedimentation basin.
- Benton Storage tank was retrofitted with new mixing system and overflow piping. A new valve pit was installed with a SCADA capable electronic valve for use with the pump station. New piping and valves were installed to give the pump station alternate feed capabilities.
- Started pilot testing of Tri-Chlor tablet disinfection system as possible alternative to using Chlorine gas.
- Installed Aquavar VFD units for automatic pump control to maintain constant output pressure of 80-85 psi at the Main Street Booster Station.

Scheduled improvements to be completed in 2016:

- Installation of new Clari-Trac sludge collectors for all 3 sedimentation basins.

Improvements required for completion of NYSDOH consent order:

- Benton Storage tank interior needs to be sandblasted, all seams sealed and new coating installed.
- Construction of new High lift pump station and Back wash water storage tank.
- Chemical building repairs and modifications to rapid mixers, flocculation equipment, chlorination equipment, coagulant storage tanks and water lines.
- Repairs to Water Treatment Plant tunnel sections that are leaking and deteriorating.
- Complete repair and restoration of Water Treatment plant fencing and driveway.
- Decommissioning of old High Lift pump station and Back wash water storage tower.
- Installation of upgraded security system at Water Treatment Plant, storage tanks and booster stations.
- Setup and programming of all SCADA equipment and the hiring of technical personnel to maintain equipment.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water.

The state requires us to monitor 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.

TABLE OF DETECTED CONTAMINANTS

CONTAMINANT AND UNIT OF MEASUREMENT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCES OF CONTAMINATION
Microbiological Contaminants							
Turbidity[1]	No	9/10/15	0.17	NTU	TT=<1.0 NTU	N/A	Soil Run-off
Turbidity[1]	No	September 2015	100% <0.3	NTU	TT=95% of samples <0.3 NTU	N/A	Soil Run-off
Distribution Turbidity[1]	No	August 2015	0.20	NTU	MCL>5 NTU	N/A	Soil Run-off
Inorganic Contaminants							
Lead[2]	No	6/26/13-8/13/2013	6.60; Range 0.8-19.3	ug/L	15 (AL)	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper[2]	No	6/26/13-8/13/2013	0.148; Range 0.007-0.687	mg/L	1.3 (AL)	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Arsenic	No	2/5/15	1.2	ug/L	10 (MCL)	N/A	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium	No	2/5/15	0.025	mg/L	2.0 (MCL)	2	Discharge of drilling wastes; discharge from metal refineries; erosion or natural deposits
Nitrate	No	2/5/15	0.143	mg/L	10 (MCL)	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sulfate	No	2/5/15	20.9	mg/L	250 (MCL)	NA	Naturally occurring
Stage 2 Disinfection By-Products (St. Columbans)							
Haloacetic Acids	No	Quarterly 2015	Avg=7.21 Range=3.60-9.88	ug/L	60 (MCL)	NA	By-product of drinking water chlorination
Trihalomethanes	No	Quarterly 2015	Avg=25.06 Range=16.0-35.5	ug/L	80 (MCL)	NA	By-product of drinking water chlorination; THM's are formed when source water contains large amounts of organic matter
Stage 2 Disinfection By-Products (17 Lafayette Street)							
Haloacetic Acids	No	Quarterly 2015	Avg=2.19 Range=0.68-4.51	ug/L	60 (MCL)	NA	By-product of drinking water chlorination
Trihalomethanes	No	Quarterly 2015	Avg=22.83 Range=15.1-35.1	ug/L	80 (MCL)	NA	By-product of drinking water chlorination; THM's are formed when source water contains large amounts of organic matter
Stage 2 Disinfection By-Products (344 Hoyt Street)							
Haloacetic Acids	No	Quarterly 2015	Avg=5.78 Range=0.74-9.56	ug/L	60 (MCL)	NA	By-product of drinking water chlorination
Trihalomethanes	No	Quarterly 2015	Avg=20.50 Range=10.7-38.4	ug/L	80 (MCL)	NA	By-product of drinking water chlorination; THM's are formed when source water contains large amounts of organic matter

TABLE OF DETECTED CONTAMINANTS

CONTAMINANT AND UNIT OF MEASUREMENT	VIOLATION	DATE OF SAMPLE	LEVEL DETECTED	UNIT MEASUREMENT	REGULATORY LIMIT (MCL/AL)	MCLG	LIKELY SOURCES OF CONTAMINATION
Stage 2 Disinfection By-Products (4737 Willow Rd)							
Haloacetic Acids	No	Quarterly 2015	Avg=1.95 Range=ND-4.16	ug/L	60 (MCL)	NA	By-product of drinking water chlorination
Trihalomethanes	No	Quarterly 2015	Avg=19.77 Range=10.2-33.6	ug/L	80 (MCL)	NA	By-product of drinking water chlorination; THM's are formed when source water contains large amounts of organic matter
Disinfectant							
Chlorine residual	No	Daily 2015	Ave=0.88 Range=0.75-1.00	mg/L	4.0 (MCL)	NA	Water additive used to control microbes

[1]Turbidity is a measure of cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement for the year occurred on 9/10/15 (0.17NTU). State regulations require that turbidity must always be less than or equal to 1.0 NTU. The regulations require that 95% of the turbidity samples collected have measurements below 0.30 NTU. Although September 2015 was the month when we had the fewest measurements meeting the treatment technique for turbidity, the levels recorded were within the acceptable range allowed and did not constitute a treatment technique violation. Distribution Turbidity is a measurement of the cloudiness of water found in the distribution system. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. Our highest average monthly distribution turbidity measurement detected during the year (0.20 NTU) occurred in August 2015. This value is below the State's maximum contaminant level (5 NTU).

[2]The level presented represents the 90th percentile of the 30 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the lead values detected in your water system. In this case, 30 samples were collected at your water system and the 90th percentile value is calculated to be the 27th value. The action level for copper was not exceeded in any of the 30 samples. The action level for lead was exceeded at two of the 30 sampling locations.

Definitions

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.

Maximum Contaminant Level Goal (MCLG): 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.

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): 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 contamination.

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

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

Non-Detects (ND): Laboratory analysis indicates that the constituent is not present.

Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Milligrams per liter (mg/l): Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).

Micrograms per liter (ug/l): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Nanograms per liter (ng/l): Corresponds to one part of liquid to one trillion parts of liquid (parts per trillion - ppt).

Picograms per liter (pg/l): Corresponds to one part per of liquid to one quadrillion parts of liquid (parts per quadrillion – ppq).

Picocuries per liter (pCi/L): A measure of the radioactivity in water.

Millirems per year (mrem/yr): A measure of radiation absorbed by the body.

Million Fibers per Liter (MFL): A measure of the presence of asbestos fibers that are longer than 10 micrometers.