Annual

WATER QUALITY REPORT

Reporting Year 2013

Presented By
City of Dunkirk

PWS ID#: 0600360

There When You Need Us

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. 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 you. 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 our water users.

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

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 Tuesdays of each month beginning at 5:30 p.m. at City Hall, 342 Central Avenue, Dunkirk, NY.

Facts and Figures

Our water system serves 14,000 customers through 6,230 service connections. The total amount of water produced in 2013 was 1,035,408,000 gallons. The daily average of water treated and pumped into the distribution system is 2.84 million gallons per day. Approximately 73% of the total was billed directly to consumers.

The balance or unaccounted water was used for fire-fighting purposes, street sweeping, sewer cleaning, hydrant flushing, and distribution system leaks. Effective in 2014, water customers in the City of Dunkirk will pay on average $510 annually for their water (based on usage of 20,000 gallons per quarter). The average customer outside the City pays $566 for the same amount of water.

Questions?

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

Nondetected 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, 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, tert-butylbenzene, chlorobenzene, 2-chlorotoluene, 4-chlorotoluene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, ethylbenzene, hexachlorobutadiene, isopropylbenzene, 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.

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 prechlorination 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 a 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.

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 U.S. EPA's Surf Your Watershed Web site at www.epa.gov/surf.

Water Conservation Tips

You can play a role in conserving water and save 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 a 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.

Important Health Information

Some people may be more vulnerable to disease-causing microorganisms or pathogens 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 can be particularly at risk from infections. These people should seek advice from their health care providers 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 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 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.

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 that use these sources include: storm-generated turbidity, wastewater, toxic sediments, shipping-related spills, and problems associated with exotic species (e.g., zebra mussels clogging intake equipment, 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 an elevated potential for disinfection by-product precursors and pesticide contamination. While there are some facilities present in the assessment area, 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 an 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. Nonsanitary discharges may also contribute to contamination. There is also considerable contamination susceptibility associated with other discrete contaminant sources; these facility types include: chemical bulk storage, inactive hazardous waste sites, landfills, Resource Conservation and Recovery Act facilities, and toxic release Inventory facilities.

Facility Modification and System Improvements

During 2013, the City of Dunkirk finished replacing valves and controllers for all the filter beds, continued construction of the new Willowbrook storage tank, replaced more doors and did more brick re-pointing, finished the complete retro fit of #6 filter bed, and installed new VFD units at the Main St. booster station.

Needed Improvements:

- More door replacement and brick re-pointing
- Replace the backwash water tank
- Replace/repair the trac vac system
- Replace roof high-lift pump station
- Upgrade electrical system
- Coat interior of Benton storage tank
- Finish Phase II of filter renovations
- Construct a new high-lift pump station
- New flocculation chamber mechanical drives & effluent manifold
- Window replacement
- Flow meters on potable water lines entering the filter plant building
- New 30-inch sedimentation basin effluent butterfly valve

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 that 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.

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 tables below show only those contaminants that were detected in the water. The State requires us to monitor for certain substances less often 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.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	DATE SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2/14/13	2	2	0.0214	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine Residual (ppm)	2013 (continuous)	[4]	NA	Average=0.5	ND–1.35	No	Water additive used to control microbes
Fluoride (ppm)	2/14/13	2.2	NA	0.12	NA	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids–Stage 1 (ppb)	2013 (1st, 2nd, 3rd quarters)	60	NA	9.63	NA	No	By-product of drinking water chlorination
Nitrate (ppm)	2/14/13	10	10	0.31	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sulfate (ppm)	2/14/13	250	NA	23.4	NA	No	Naturally occurring
Total Trihalomethanes [TTHMs]–Stage 1 (ppb)	2013 (1st, 2nd, 3rd quarters)	80	NA	43.8	NA	No	By-product of drinking water chlorination. TTHMs are formed when source water contains large amounts of organic matter
Turbidity[1] (NTU)	5/24/13	TT=<1.0 NTU	NA	0.173	NA	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	8/13	TT=95% of samples <0.3 NTU	NA	100% <0.3 NTU	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community[2]

SUBSTANCE (UNIT OF MEASURE)	DATE SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	RANGE LOW-HIGH	SITES ABOVE AL/ TOTAL SITES[2]	VIOLATION	TYPICAL SOURCE
Copper (ppm)	6/13-8/13	1.3	1.3	0.148	0.0007–0.687		No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	6/13-8/13	15	0	6.6	0.8–19.3		No	Corrosion of household plumbing systems; Erosion of natural deposits

STAGE 2 DISINFECTION BY-PRODUCTS (ST COLUMBANS)

SUBSTANCE (UNIT OF MEASURE)	DATE SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Haloacetic Acids (ug/l)	11/13	60	NA	6.3	3.1–6.3	No	By-product of drinking water disinfection
Trihalomethanes (ug/l)	11/13	80	NA	46.6	31.7–46.6	No	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.

STAGE 2 DISINFECTION BY-PRODUCTS (17 LAFAYETTE STREET)

SUBSTANCE (UNIT OF MEASURE)	DATE SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Trihalomethanes (ug/l)	11/13	80	NA	31.7	31.7–46.6	No	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.

STAGE 2 DISINFECTION BY-PRODUCTS (344 HOYT)

SUBSTANCE (UNIT OF MEASURE)	DATE SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Haloacetic Acids–Stage 2 (ug/l)	11/13	60	NA	3.1	3.1–6.3	No	By-product of drinking water disinfection

[1] Turbidity is a measure of the cloudiness of the water. It is tested because it is a good indicator of the effectiveness of the filtration system. Our highest single turbidity measurement for the year occurred on 5/24/13. State regulations require that turbidity must always be below 1 NTU. The regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU. Although the month of August 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.

[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 sampling locations. The action level for lead was exceeded at two of the 30 sampling locations.

Definitions

90th percentile: The levels reported for lead and copper represent the 90th percentile of the total number of 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 and copper values detected at your water system.

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that 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 MCLG as possible.

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).

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