

Annual Drinking Water Quality Report



625 Hastings Avenue
Holland, Michigan 49423

2001

Contents

Summary Report	1
Water Facts	1
Contaminants present in untreated water	2
Cryptosporidium	2
Water Sampling Results for 2000	3
Source Water Assessment & Protection	4
Treatment Technique	4

The Holland Water Treatment Plant is operated by the Holland Board of Public Works, a community-owned utility. The HBPW provides electric, water, and wastewater treatment to the greater Holland, Michigan area.

HBPW Corporate Office:
625 Hastings Avenue
Holland, Michigan 49423
TEL: 616-355-1500
FAX: 616-355-1550
www.hollandbpw.com
John Van Uffelen, P.E.,
Director, Water/Wastewater

Holland Water Treatment Plant
46 N. Lakeshore Drive
Holland, Michigan 49424
TEL: 616-399-9410
FAX: 616-399-7114
James Van De Wege,
Water Plant Superintendent

Este informe contiene informacion muy importante sobre su agua de beber. Traduzcalo o hable con alguien que lo entienda bien.

Holland's Drinking Water Consistently Surpasses All Federal & State Requirements

Once again the Holland Board of Public Works has met its goal of providing quality drinking water that surpasses every federal and state requirement. As indicated in this Consumer Confidence Report (CCR), the Holland BPW has consistently safeguarded its water supply and maintains a system which has never violated a maximum contaminant level or any other water quality standard.

The CCR is a result of a Federal regulation passed by the U.S. Environmental Protection Agency as part of the 1996 Safe Drinking Water Act Amendments, requiring all community water systems to provide customers with an annual water quality report.

As a state certified microbiological laboratory, the Holland BPW's Water Treatment Plant in conjunction with three independent laboratories, conducted

over 50,000 tests encompassing more than 200 contaminants during the year 2000. This annual Drinking Water Quality Report provides you with an overview of those results and of the quality of drinking water delivered to you during the period of January 1 through December 31, 2000.

We are pleased to provide you with this information and are eager to answer any questions you may have on the quality of your drinking water.



For more information, you may contact Holland Water Treatment Plant personnel at 399-9410, or attend our public board meetings held at the HBPW Service Center located at 625 Hastings Avenue (just west of US 31) on the second and fourth Monday of every month at 4:00 p.m.

WATER FACTS

- ◆ Water is the most common substance found on earth.
- ◆ The average five-minute shower uses between 25-50 gallons of water.
- ◆ Ninety-seven percent of the earth's water is salt water located in oceans and seas.
- ◆ About 3% of the earth's water is fresh, frozen in glaciers. Only 1% of the earth's water is available for drinking.
- ◆ Sixty-one percent of Americans rely on lakes, rivers, and streams as their source of drinking water. The other 39% rely on ground water (water located under ground in aquifers and wells).
- ◆ The five Great Lakes bordering the U.S. and Canada contain about 20% of the world's available fresh water.
- ◆ A person can refill an 8 oz. glass of water approximately 15,000 times for the same cost as a six-pack of soda pop.
- ◆ The only water we will ever have is what we have now.

Contaminants That May be Present in Untreated Water

The Holland Board of Public Works met all federal and state drinking water regulations without exception during 2000. However, federal law requires that the highest level of any contaminant detected in our treated water be reported to you. Those results are listed on the following page.

Federal law also requires that we explain the contaminants that may be present in source water (untreated water), not just Lake Michigan which is the source for the Holland water system, but other types of source water as well.

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 and 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 activity.

Contaminants that might be expected to be in source water (untreated water) include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or 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.
- Synthetic and volatile organic chemical contaminants, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which set limits on the amount of certain contaminants in water provided by public water systems.

The Federal Drug Administration regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health.

The HBPW Tests for Cryptosporidium

The Holland Board of Public Works voluntarily tests the water coming into the plant each month for the presence of cryptosporidium. This testing is not required by the state or federal authorities, but is done to ensure that our drinking water is the highest quality possible.

Cryptosporidium is a protozoan parasite that is too small to be seen without a microscope. It is sometimes present in surface waters, especially during periods of stormwater runoff. Those who are infected with this parasite may experience gastro-intestinal illness. Cryptosporidium was not detected in 2000.

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 from their health care providers. Environmental Protection Agency/Center for Disease Control guidelines on appropriate means to lessen the risk of infection from cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Water Quality Data

The table below lists the EPA's regulated and unregulated contaminants detected in Holland's drinking water **during 2000**. **All of the contaminants are well below allowed levels.** Not listed are over 200 other contaminants, including pesticides and herbicides, for which we tested and that were **not detected**.

Regulated at the Treatment Plant

Substance (units)	Highest Level Detected	EPA's MCL	EPA's MCLG's	Range of Detection	Source of Contamination
Alpha (pCi/L)	<3	15	0	<3	Erosion of natural deposits
Beta (pCi/L) - tested 5/5/98*	<4	50***	0	<4	Decay of natural and man-made deposits
Barium (ppm)-tested 11/30/95*	0.04	2	2	0.04	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	1.18	4	4	0.52 - 1.18	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate (ppm)	0.5	10	10	ND - 0.5	Runoff from fertilizer use; leaching from septic tanks, sewage, erosion of natural deposits
Turbidity (NTU)	0.07	TT	n/a	0.02 - 0.07	Soil runoff

Regulated at the Customer's Tap

Copper (ppm) - distribution	0.0675 90th Percentile	1.3 Action Level	1.3	<0.004-0.118	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) - distribution (Lead tested 9/23/98*)	4 90th Percentile	15 Action Level	0	<1 - 17**	Corrosion of household plumbing systems; erosion of natural deposits

Regulated in the Distribution System

Total Trihalomethanes (ppb) (TTHM Running Annual Average 22.72)	39.8	100	0	9.4 - 39.8	By-product of drinking water chlorination
Xylenes Total (ppm)	0.0008	10	10	0.0005-0.0008	Discharge from petroleum factories, discharge from chemical factories
Halo Acetic Acids (ppb)	25.0	60 Proposed	n/a	3.0 - 25.0	By-product of drinking water chlorination

Unregulated Contaminants

Chlorodibromomethane (ppb)	4.4	n/a	n/a	2.2 - 4.4	By-product of drinking water chlorination
Chloroform (ppb)	28.3	n/a	n/a	3.3 - 28.3	By-product of drinking water chlorination
Dichlorobromomethane (ppb)	10.0	n/a	n/a	3.9 - 10.0	By-product of drinking water chlorination
Bromochloromethane (ppb)	0.5	n/a	n/a	0 - 0.5	By-product of drinking water chlorination
Bromoform (ppb)	0.4	n/a	n/a	Trace- 0.4	By-product of drinking water chlorination
Sulfate (ppm)	31	n/a	n/a	23 - 31	Geology

DEFINITIONS

- 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 (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology.
- MCLG** - Maximum Contaminant Level Goal (MCLG) is 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.
- mrem/year** - Millirems per year (a measure of radiation absorbed by the body)
- n/a** - Not applicable.
- ND** - Non-Detect (ND) laboratory analysis indicates the contaminant is not detected with present technology.
- NTU** - Nephelometric Turbidity Units
- pCi/L** - Picocuries per liter (a measure of radioactivity)
- ppb** - Parts per billion
- ppm** - Parts per million
- TT** - Treatment Technique (TT) is a required process intended to reduce the level of a contaminant in drinking water.
- Turbidity** - Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Unregulated Contaminants - Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of the unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

* The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

** One sample site exceeded the action level at 17 ppb.

*** EPA considers 50 pCi/L to be the level of concern for beta particles.

Source Water Assessment and Protection

Water is one of the key elements of the life cycle. It is crucial that all of us understand the importance of conserving and protecting our water supply. Protecting the quality of your drinking water begins with you! Below are some tips that you can follow at your home or business to help protect water quality.

- Ö Limit use of household and garden chemicals.
- Ö Never pour hazardous waste such as chemicals, solvents, or paint down the sink, storm drain, or on the ground.
- Ö Bring all hazardous waste, including motor oil and batteries, to a hazardous waste collection center.
- Ö The Hazardous Waste Center for Ottawa County is located at Autumn Hills Recycling and Disposal Facility, 700 - 56th Avenue, Zeeland, MI. 49484.

What is Source Water Assessment?

A Source Water Assessment indicates the vulnerability of a water supply to potential sources of contamination. The Michigan Department of Environmental Quality (MDEQ) has received approval from the United States Environmental Protection Agency (USEPA) for the source water assessment program for the State of Michigan. The MDEQ has initiated the implementation of the program and ultimately, all Michigan water supplies will be provided a Source Water Assessment.

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 (800-426-4791)

How Your Drinking Water is Treated

The Holland Water Treatment Plant draws fresh water from Lake Michigan through an intake structure located 4,700 feet from the shoreline, and 45 feet below

the water surface. A 42-inch intake pipe delivers the water to the plant. The water is then mixed with sodium hypochlorite for disinfection, with fluoride to

help prevent tooth decay, and with alum to aid in removing particles. The water then moves to one of four tanks where it sits for a period of time during which particles are settled out of the water.

Next, the water is filtered through one of ten filters which are kept clean and free of any harmful bacteria through a backwash process.

Following the completion of testing and treatment, the water is then pumped into large mains which carry the water to the HBPW distribution system and to our customers tap.

Throughout the entire treatment process, from raw water stage until it reaches your tap, the water is being monitored.



Annual Drinking Water Quality Report



625 Hastings Avenue
Holland, Michigan 49423

2001

Contents

Summary Report	1
Water Facts	1
Contaminants present in untreated water	2
Cryptosporidium	2
Water Sampling Results for 2000	3
Source Water Assessment & Protection	4
Treatment Technique	4

The Holland Water Treatment Plant is operated by the Holland Board of Public Works, a community-owned utility. The HBPW provides electric, water, and wastewater treatment to the greater Holland, Michigan area.

HBPW Corporate Office:
625 Hastings Avenue
Holland, Michigan 49423
TEL: 616-355-1500
FAX: 616-355-1550
www.hollandbpw.com
John Van Uffelen, P.E.,
Director, Water/Wastewater

Holland Water Treatment Plant:
46 N. Lakeshore Drive
Holland, Michigan 49424
TEL: 616-399-9410
FAX: 616-399-7114
James Van De Wege,
Water Plant Superintendent

Este informe contiene informacion muy importante sobre su agua de beber. Traduzcalo o hable con alguien que lo entienda bien.

Holland's Drinking Water Consistently Surpasses All Federal & State Requirements

Once again the Holland Board of Public Works has met its goal of providing quality drinking water that surpasses every federal and state requirement. As indicated in this Consumer Confidence Report (CCR), the Holland BPW has consistently safeguarded its water supply and maintains a system which has never violated a maximum contaminant level or any other water quality standard.

The CCR is a result of a Federal regulation passed by the U.S. Environmental Protection Agency as part of the 1996 Safe Drinking Water Act Amendments, requiring all community water systems to provide customers with an annual water quality report.

As a state certified microbiological laboratory, the Holland BPW's Water Treatment Plant in conjunction with three independent laboratories, conducted

over 50,000 tests encompassing more than 200 contaminants during the year 2000. This annual Drinking Water Quality Report provides you with an overview of those results and of the quality of drinking water delivered to you during the period of January 1 through December 31, 2000.

We are pleased to provide you with this information and are eager to answer any questions you may have on the quality of your drinking water.



For more information, you may contact Holland Water Treatment Plant personnel at 399-9410, or attend our public board meetings held at the HBPW Service Center located at 625 Hastings Avenue (just west of US 31) on the second and fourth Monday of every month at 4:00 p.m.

WATER FACTS

- ◆ Water is the most common substance found on earth.
- ◆ The average five-minute shower uses between 25-50 gallons of water.
- ◆ Ninety-seven percent of the earth's water is salt water located in oceans and seas.
- ◆ About 3% of the earth's water is fresh, frozen in glaciers. Only 1% of the earth's water is available for drinking.
- ◆ Sixty-one percent of Americans rely on lakes, rivers, and streams as their source of drinking water. The other 39% rely on ground water (water located under ground in aquifers and wells).
- ◆ The five Great Lakes bordering the U.S. and Canada contain about 20% of the world's available fresh water.
- ◆ A person can refill an 8 oz. glass of water approximately 15,000 times for the same cost as a six-pack of soda pop.
- ◆ The only water we will ever have is what we have now.

Contaminants That May be Present in Untreated Water

The Holland Board of Public Works met all federal and state drinking water regulations without exception during 2000. However, federal law requires that the highest level of any contaminant detected in our treated water be reported to you. Those results are listed on the following page.

Federal law also requires that we explain the contaminants that may be present in source water (untreated water), not just Lake Michigan which is the source for the Holland water system, but other types of source water as well.

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 and 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 activity.

Contaminants that might be expected to be in source water (untreated water) include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or 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.
- Synthetic and volatile organic chemical contaminants, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations, which set limits on the amount of certain contaminants in water provided by public water systems.

The Federal Drug Administration regulations also establish limits for contaminants in bottled water, which must provide the same protection for public health.

The HBPW Tests for Cryptosporidium

The Holland Board of Public Works voluntarily tests the water coming into the plant each month for the presence of cryptosporidium. This testing is not required by the state or federal authorities, but is done to ensure that our drinking water is the highest quality possible.

Cryptosporidium is a protozoan parasite that is too small to be seen without a microscope. It is sometimes present in surface waters, especially during periods of stormwater runoff. Those who are infected with this parasite may experience gastro-intestinal illness. Cryptosporidium was not detected in 2000.

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 from their health care providers. Environmental Protection Agency/Center for Disease Control guidelines on appropriate means to lessen the risk of infection from cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Water Quality Data

The table below lists the EPA's regulated and unregulated contaminants detected in Holland's drinking water **during 2000**. **All of the contaminants are well below allowed levels.** Not listed are over 200 other contaminants, including pesticides and herbicides, for which we tested and that were **not detected**.

Regulated at the Treatment Plant

Substance (units)	Highest Level Detected	EPA's MCL	EPA's MCLG's	Range of Detection	Source of Contamination
Alpha (pCi/L)	<3	15	0	<3	Erosion of natural deposits
Beta (pCi/L) - tested 5/5/98*	<4	50***	0	<4	Decay of natural and man-made deposits
Barium (ppm)-tested 11/30/95*	0.04	2	2	0.04	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride (ppm)	1.18	4	4	0.52 - 1.18	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Nitrate (ppm)	0.5	10	10	ND - 0.5	Runoff from fertilizer use; leaching from septic tanks, sewage, erosion of natural deposits
Turbidity (NTU)	0.07	TT	n/a	0.02 - 0.07	Soil runoff

Regulated at the Customer's Tap

Copper (ppm) - distribution	0.0675 90th Percentile	1.3 Action Level	1.3	<0.004-0.118	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) - distribution (Lead tested 9/23/98*)	4 90th Percentile	15 Action Level	0	<1 - 17**	Corrosion of household plumbing systems; erosion of natural deposits

Regulated in the Distribution System

Total Trihalomethanes (ppb) (TTHM Running Annual Average 22.72)	39.8	100	0	9.4 - 39.8	By-product of drinking water chlorination
Xylenes Total (ppm)	0.0008	10	10	0.0005-0.0008	Discharge from petroleum factories, discharge from chemical factories
Halo Acetic Acids (ppb)	25.0	60 Proposed	n/a	3.0 - 25.0	By-product of drinking water chlorination

Unregulated Contaminants

Chlorodibromomethane (ppb)	4.4	n/a	n/a	2.2 - 4.4	By-product of drinking water chlorination
Chloroform (ppb)	28.3	n/a	n/a	3.3 - 28.3	By-product of drinking water chlorination
Dichlorobromomethane (ppb)	10.0	n/a	n/a	3.9 - 10.0	By-product of drinking water chlorination
Bromochloromethane (ppb)	0.5	n/a	n/a	0 - 0.5	By-product of drinking water chlorination
Bromoform (ppb)	0.4	n/a	n/a	Trace- 0.4	By-product of drinking water chlorination
Sulfate (ppm)	31	n/a	n/a	23 - 31	Geology

DEFINITIONS

- 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 (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology.
- MCLG -** Maximum Contaminant Level Goal (MCLG) is 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.
- mrem/year -** Millirems per year (a measure of radiation absorbed by the body)
- n/a -** Not applicable.
- ND -** Non-Detect (ND) laboratory analysis indicates the contaminant is not detected with present technology.
- NTU -** Nephelometric Turbidity Units
- pCi/L -** Picocuries per liter (a measure of radioactivity)
- ppb -** Parts per billion
- ppm -** Parts per million
- TT -** Treatment Technique (TT) is a required process intended to reduce the level of a contaminant in drinking water.
- Turbidity -** Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Unregulated Contaminants - Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of the unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

* The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old.

** One sample site exceeded the action level at 17 ppb.

*** EPA considers 50 pCi/L to be the level of concern for beta particles.

Source Water Assessment and Protection

Water is one of the key elements of the life cycle. It is crucial that all of us understand the importance of conserving and protecting our water supply. Protecting the quality of your drinking water begins with you! Below are some tips that you can follow at your home or business to help protect water quality.

- Ö Limit use of household and garden chemicals.
- Ö Never pour hazardous waste such as chemicals, solvents, or paint down the sink, storm drain, or on the ground.
- Ö Bring all hazardous waste, including motor oil and batteries, to a hazardous waste collection center.
- Ö The Hazardous Waste Center for Ottawa County is located at Autumn Hills Recycling and Disposal Facility, 700 - 56th Avenue, Zeeland, MI. 49484.

What is Source Water Assessment?

A Source Water Assessment indicates the vulnerability of a water supply to potential sources of contamination. The Michigan Department of Environmental Quality (MDEQ) has received approval from the United States Environmental Protection Agency (USEPA) for the source water assessment program for the State of Michigan. The MDEQ has initiated the implementation of the program and ultimately, all Michigan water supplies will be provided a Source Water Assessment.

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 (800-426-4791)

How Your Drinking Water is Treated

The Holland Water Treatment Plant draws fresh water from Lake Michigan through an intake structure located 4,700 feet from the shoreline, and 45 feet below

the water surface. A 42-inch intake pipe delivers the water to the plant. The water is then mixed with sodium hypochlorite for disinfection, with fluoride to

help prevent tooth decay, and with alum to aid in removing particles. The water then moves to one of four tanks where it sits for a period of time during which particles are settled out of the water.

Next, the water is filtered through one of ten filters which are kept clean and free of any harmful bacteria through a backwash process.

Following the completion of testing and treatment, the water is then pumped into large mains which carry the water to the HBPW distribution system and to our customers tap.

Throughout the entire treatment process, from raw water stage until it reaches your tap, the water is being monitored.

