



DEPARTMENT OF PUBLIC WORKS
WATER SYSTEM
WATER QUALITY REPORT 2013

This report concerns the quality of drinking water that was produced by the City of Petoskey during the 2013 calendar year. This information is a "snapshot" of the quality of the water the City provided its customers in 2013. Included are details about the origin of the City's water, what it contains, and how it compares with United States Environmental Protection Agency (U.S. EPA) and Michigan Department of Environmental Quality (MDEQ) standards.

The City of Petoskey's drinking water originates from groundwater wells. The City has four well fields, containing a total of 7 wells. The MDEQ performed an assessment of the City of Petoskey source water in 2007. A determination of sensitivity and susceptibility to contamination was made by reviewing our source water geology, well construction, water chemistry, and potential contaminant sources nearby the wells. The Department of Environmental Quality has determined in that report the City's wells have a low to moderate geologic sensitivity with an overall very low to moderate susceptibility to contamination. The City of Petoskey well relocation project was completed in 2012. The MDEQ is in the process of repeating the assessment study to include the new wells.

- **Contaminants and their presence in water:** Drinking Water, including bottled water, might 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 **U.S. EPA's Safe Drinking Water Hotline at:** (800-426-4791)
 - **Vulnerability of sub-populations:** Some persons might be more vulnerable to contaminants in drinking water than the general population. Those who are Immune-compromised such as cancer patients who are undergoing chemotherapy, persons who have undergone organ transplants, those with HIV/AIDS or other immune systems 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. U.S. EPA and Centers for Disease Control (CDC) guidelines provide appropriate means to lessen risks of infection by Cryptosporidium and other microbial contaminants and are available from the Safe Drinking Water Hotline (800-426-4791).
 - **Sources of Drinking Water:** The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. The City of Petoskey's water supply originates from 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 activity.

Contaminants 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 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 and residential uses.
- **Radioactive contaminants**, which may come from a variety of sources such as agriculture and residential uses..
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban stormwater runoff, and septic systems.

In order to ensure that tap water is safe to drink, U.S. EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water, which provide the same protection for public health.

Water System Information

The City of Petoskey's water source is seven groundwater wells; all located within the Petoskey area. At any given time, all seven wells are ready to serve. Water is stored in two above-ground and one below-ground storage tank. Operation of the water system is computerized. The water system is monitored with an alarm system that notifies the City's Department of Public Work staff of any potential problems; generally before City consumers are inconvenienced. The City's goal is to provide a safe and dependable supply of drinking water. The City performs all water quality testing that is required by both the United States Environmental Protection Agency (EPA) and Michigan Department of Environmental Quality (MDEQ).

Improvements to the in the water system allow for a more efficient operation and saves energy. Additional benefits of the new wells, is that water quality parameters for hardness, calcium and iron are at lower concentrations. The City samples its drinking water per the requirements of the Safe Drinking Act 399. The frequency of sampling is determined by both the EPA and MDEQ. The City voluntarily increases the sampling of some parameters to insure a safe drinking water is being delivered to its customers.

Water Quality Data

The table that follows lists all the drinking-water contaminants detected within the City of Petoskey's water supply during the 2013 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table originate from testing that was completed January 1 – December 31, 2013. The Michigan Department of Environmental Quality allows the City to monitor for certain contaminants less frequently than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one-year old. The City does sample for Arsenic, Chromium, Mercury, Selenium and Lead. The results for these parameters were non-detect.

Terms and abbreviations used on the data tables

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 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 using the best available treatment technology.

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 contaminants.

N/A: Not applicable ND: not detectable at testing limit ppb: parts per billion or micrograms per liter ppm: parts per million or milligrams per liter pCi/l: picocuries per liter (a measure of radiation).

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

Monitoring and Reporting Requirements: The MDEQ and U.S. EPA require the City to test our water on a regular basis to ensure its safety. The City of Petoskey met all the monitoring and reporting requirements for 2013.

Regulated Contaminants	MCL	MCLG	Highest Level Detected	Our Water Range mg/L	Sample Date	Violation Yes / No	Typical Source of Contaminant
Barium (ppm)	2	2	0.12	ND TO 0.12	2012	N	Erosion of natural deposits.
Fluoride (ppm)	4	4	1.70	0.97 to 1.70	Jan-Dec 2013	N	Erosion of natural deposits.
Nitrate (ppm)	10	10	0.1	ND-0.1	Jan-Dec 2013	N	Erosion of natural deposits

Samples Collected at local residences.

Contaminant Subject to AL	Action Level	MCLG	90% of Samples ≤ This Level	Sample Date	Number of Samples Above AL	Typical Source of Contaminant
**Lead (ppb)	15	0	4	Sampling completed by Sept 2012	NONE	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.74	Sampling completed by Sept 2012	NONE	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

**Information about lead: If present, elevated levels of lead can cause serious health problem, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing.

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 or at <http://www.epa.gov/safewater/lead>

Samples collected at the Well house

Radioactive Contaminants	MCL	MCLG	Our Water Range	Sample Date	Violation Yes / No	Typical Source of Contaminant
Alpha emitters (pCi/L)	15	0	3.6	2012	No	Erosion of natural deposits
Combined Radium 226 / 228 (pCi/L)	5	0	1.71	2012	No	Erosion of natural deposits

Unregulated Chemical Contaminants 2	Our Water range	Sample Date	Violation Yes / No	Typical Source of Contaminants
Sodium (ppm)	4.3 to 36.5	2013	N/A	Erosion of natural deposits
Sulfate (ppm)	9 to 123	2013	N/A	Erosion of natural deposits
Hardness	249 to 328	2013	NA	Erosion of natural deposits

2-Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

The City of Petoskey pumps the water from underground aquifers which have contact with different type of rock formations. Our drinking water hardness ranges from 120 to 328 ppm. This is equalivent to 7 to 20 grains of hardness. Hardness is caused by impurities dissolved in the water; calcium and magnesium. When a pan of water is heated and allowed to air dry often a white residue is left behind. This residue is the calcium. Water softeners use either sodium (salt) or with potassium (salt substitute) to replace the calcium and or magnesium.. Some of these rocks are limestone (calcium based) or rocks that have iron deposits. The iron dissolves into the water. When the water is exposed to oxygen, the iron "oxidizes" (binds iron and oxygen together) turning the water reddish in color. The iron concentration ranges from non-detect to .23 ppm.

Samples Collected in the Distribution System:

Disinfection Byproducts	Action Level	Our Water Range	Sample Date	Number of Samples Above AL	Typical Source of Contaminants
Free Chlorine Residual (ppm)	MRDL = 4.0 ppm MRDLG = 4ppm	0.1 to 1.80	Daily 2013	0	Water additive used to control microbes
Trihalomomethane ppb	80 ppb	ND to 3.3 ppb	August 2011	0	Disinfection byproducts
HAA5 ppb	60 ppb	ND to 2 ppb	August 2011	0	Disinfection byproducts

The MRDL and MRDLG are effective January 1, 2004. Compliance is based on an annual average.

Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer. The City of Petoskey drinking water is not over the action level for this parameter.

Microbial Contaminants	MCL	MCLG	Positive Samples	Sample Date	Violation Yes / No	Typical Source of Contaminants
Total Coliform Bacteria	1 positive monthly sample (5% of monthly samples positive)	0	0	JAN-DEC 2013	No	Naturally present in the environment
Fecal Coliform and E. coli	Routine and repeat samples are total coliform positive, and one is also fecal or E. coli positive	0	None	JAN-DEC 2013	No	Human and animal fecal waste

The City of Petoskey is committed to providing its residents and customers safe, reliable, and healthy water. The City is water-supply system. This report will be updated annually, and City water customers will be informed about any problems that might occur throughout the year, when such problems are

experienced. Copies of this report can be obtained by calling City Hall. Copies of the annual water reports (CCR) will not be sent.

The City of Petoskey invites public participation in decisions that affect drinking-water quality. For more information about the City of Petoskey drinking water, or the contents of this report, contact City Hall water division 231-347-2500 or by email at waterquality@petoskey.us

For more information about safe drinking water, visit the U.S. Environmental Protection Agency at www.epa.gov/safewater or the Michigan Department of Environmental Quality website at www.michigan.gov/deq.

The most common questions addressed by the City Public Works staff are:

Q. Why does my water something smell like "rotten eggs"?

A. This smell is actually being generated by your hot water tank. The water heats up in the tank and a bacterium develops. This bacterium will not hurt you. Flushing your hot water tank at regular intervals per the manufacturer maintenance recommendations will reduce or eliminated the smell.

Q. Why does the City flush hydrants twice a year?

A. Public water supply systems usually provide water for fire protection. Hydrant flushing allows the staff to evaluate the operation and performance of the fire hydrant. Fire Hydrants are used for emergency fire fighting by the City of Petoskey Public Safety staff, our Public Works staff are responsible to keep the hydrants working properly.

Q. Why is the City of Petoskey relocating wells to different locations around the City?

A. The City of Petoskey has been evaluating the best locations to withdrawn water from underground aquafiers. The new wells south of town and the soon to be new wells to the east of town allow for the City to better meet the needs of providing water to the City's customers. As part of this evaluation; water quality is a major decision making point. The newer wells have lower levels of hardness and iron concentrations. By placing the wells around the Petoskey area we are reducing our energy costs in pumping and updating equipment for a more efficient operation.