

Important Health Information from the EPA

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 about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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. The City of Astoria is 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 or at <http://www.epa.gov/safewater/lead>. The City routinely monitors tap water samples for lead and copper every three years. Sampling was done this year from a sample group of 30 homes that were likely to have plumbing that may contribute to elevated lead and copper contamination. All samples were compliant with EPA standards.

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 the result of 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 byproducts 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.

The City does not routinely test source water for these contaminants. The City takes pride in the way we manage our watershed. With proper management, the risk of contamination is greatly reduced. And to ensure that the drinking water that is delivered to consumers is safe, routine sampling is done on the finished drinking water.

Contact Information

At the City of Astoria, we value our customers and work hard to ensure your satisfaction. If you would like to learn more about issues affecting your water and community, please attend a City Council meeting. Meetings are regularly scheduled on the 1st and 3rd Mondays on the month. More information can be found at www.astoria.or.us. If you have any questions or comments about this report or other issues, please contact the Water Quality Supervisor Eric Bufkin at (503)298-2503 or ebufkin@astoria.or.us.

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POSTAL PATRON

Este documento contiene información muy importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.



Middle Lake Reservoir

City of Astoria Water Quality Report 2016

Spur 14 Water Source



The City of Astoria Public Works Department is pleased to present the Water Quality Report for 2016. The purpose of this report is to inform consumers about our water's cleanliness, safety, and purity. All information in this report has been collected and reported in accordance with all applicable rules and regulations of the US Environmental Protection Agency and the Oregon Health Authority Drinking Water Services. Staff is committed to providing our consumers a safe, reliable, and clean water supply. This is accomplished by continually monitoring our water for various contaminants and pollutants to ensure that we meet or exceed regulatory standards. Specifically, ten samples per month are collected to check for bacteriological organisms; water is monitored daily to ensure we are maintaining a proper disinfectant level, proper fluoride level, and that the turbidity level is acceptable; samples are collected based on a schedule provided by the Oregon Health Authority to test for disinfection byproducts, lead and copper, inorganic and organic compounds, pesticides and herbicides, and radiological contaminants.

Astoria's Water Source

Astoria receives its entire water supply from the Bear Creek watershed located approximately twelve miles east of Astoria. The entire 3700 acre watershed is owned and managed by the City. Our source water can be pulled from multiple sources within the watershed including Main Lake, Middle Lake, and Bear and Cedar Creeks. This year we added Spur 14 Creek as a source. The State has performed a source assessment on the City's water supply. This assessment is used to identify potential sources of contamination for the drinking water. The State has determined that the primary source of contamination for our source water is from erosion. For more information about this assessment, please contact us at (503)325-3524.

In general, sources for 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 can pick up substances resulting from the presence of animals or human activity.

According to the EPA, 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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

Drinking Water

In order to ensure that tap water is safe to drink, 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 must provide the same protection for public health. The City of Astoria employs several treatment techniques to its source water in order to provide safe drinking water. Our source water is filtered through a slow sand filter which removes many of the contaminants listed. It is then treated with chlorine for disinfection, and fluoride for the promotion of strong teeth. The water is then delivered to the city via a 12 mile pipeline. Upon arrival to the city, the water is stored in two reservoirs and three tanks, from which it is delivered to the consumers.

Water Quality Results

The City of Astoria routinely monitors the drinking water for contaminants as directed by State and Federal laws and rules. The data in the results table is for the monitoring period of January 1, 2016 to December 31, 2016, unless otherwise noted. Although Astoria's water supplies are tested for all regulated and many unregulated contaminants, only the contaminants that were detected are included in this report. **Definitions used in the report:**

1. **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goals as feasible using the best available technology.
2. **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.

Contaminant Monitoring Tests Results

Contaminant	Last Test Date	Your Water	Violation	MCLG	MCL	Typical Source
Turbidity	2016	0.260 NTU	NO	N/A	TT = 1.0 NTU	Soil Runoff; Yearly Average 0.10 NTU
Copper	2015	0.374 ppm	NO	1.3 ppm	AL = 1.3 ppm	Corrosion of household plumbing; erosion of natural deposits; wood preservative leaching
Lead	2015	6 ppb	NO	0 ppb	AL = 15 ppb	Corrosion of household plumbing; erosion of natural deposits;
Fluoride	2016	0.93 ppm	NO	4 ppm	4 ppm	Erosion of natural deposits; water additive which promotes strong teeth; Yearly Average 0.48 ppm
Combined Radium (-226 and -228)	2014	1.80 pCi/L	NO	0.0 pCi/l	5.0 pCi/L	Naturally occurs in some drinking water sources.
Total Trihalomethanes	2016	56.0 ppb Running Annual Average	NO	N/A	80 ppb	Byproduct of drinking water disinfection
Haloacetic Acids	2016	62 ppb Running Annual Average	YES	N/A	60 ppb	Byproduct of drinking water disinfection
Nitrate	2016	0.381 ppm	NO	N/A	10 ppm	Runoff from fertilizer use, leaking from septic tanks, sewer age, and erosion of natural deposits
Chlorine	2016	2.85 ppm	NO	MRDLG = 4 ppm	MRDL = 4 ppm	Water additive used to control microbes
Sodium	2011	5.30 ppm	NO	N/A	N/A	Naturally occurs in all drinking water sources.
Uranium	2009	2.0 ppb	NO	N/A	30 ppb	Naturally occurs in some drinking water sources

3. **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
4. **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water
5. **Maximum Residual Disinfectant Level Goal (MRDGL):** The level of a drinking water disinfectant below which there are no known or expected risk to health. MRDGLs do not reflect the benefits of the use of disinfectants to control microbes.
6. **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary to control microbial contaminants.
7. **Parts Per Million (ppm) or Parts Per Billion (ppb):** These units describe the level of detected contaminants. One part per million would be the equivalent of one drop of water in approximately 130 gallons. Parts per billion would be one drop of water in approximately 130,000 gallons of water.

8. **Haloacetic Acids and Total Trihalomethanes:** Disinfection byproducts that result from a chemical reaction between chlorine and naturally occurring organic or inorganic matter in the water. The disinfection process is carefully controlled to remain effective while keeping disinfection byproducts low.
9. **Nephelometric Turbidity Units (NTU):** Turbidity is a measure of the cloudiness of water and is measured in nephelometric turbidity units (NTU). Precipitation and snow melt are the greatest contributors to turbidity and make disinfection more difficult.
10. **Fluoride:** Fluoride is a naturally occurring trace element in groundwater and at low levels helps prevent dental cavities.
11. **Nitrates:** Nitrates are found at extremely low levels in both surface and ground water sources. High levels of nitrates exceeding the Maximum Contaminant Level can contribute to health problems.
12. **Pico-Curies per Liter or pCi/L:** a measure of the radioactivity in water

As can be seen in the table, our water system had a violation for high amounts of the disinfection byproduct haloacetic acids. Haloacetic acids occur when naturally-occurring organic and inorganic materials in the water react with disinfectants. The running annual average exceeded the MCL. Over the year, 8 samples were taken at two different sites that have been identified as being at the end of the distribution system. The highest level of detection for haloacetic acids was 110.8 ppb. The lowest was 36.6 ppb. To combat the high levels of haloacetic acid, the City has begun to use a water source, Spur 14 Creek, which provides high quality surface water that will reduce the level of disinfection needed. We have already seen dramatic reductions in the formation of haloacetic acids since implementing Spur 14 Creek. The City's water treatment priority continues to be the removal and inactivation of disease causing microorganisms from the drinking water. Staff works to continuously balance the need for disinfection while reducing disinfection byproducts to produce the safest water possible. The EPA has regulated disinfection byproducts since 1979 to address health risks posed by a potential association between chlorinated drinking water and cancer, particularly bladder cancer.

Valve Operators — Reservoir 2 (James St. and Williamsport)

