ANNUAL WATER QUALITY REPORT

Water Testing
Performed in 2015

Presented By
City of Westminster

PWS ID#: CO0101170

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

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. Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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. More information about contaminants and the potential health effects, along with the U.S. Environmental Protection Agency (EPA) and the U.S. Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Substances That Could Be in Water

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

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, in some cases, radioactive material, and 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Lead in Home Plumbing

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. The sources of lead in drinking water are primarily from materials and components associated with service lines and home 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 EPA's Safe Drinking Water Hotline (800) 426-4791 or at www.epa.gov/lead.

Water Treatment and Distribution

The treatment process begins with the initial chemical assessment of the water coming into the facility from the lake. Water quality changes constantly based on lake conditions; therefore, it is crucial that the process is monitored 24/7 by on-site staff. Certified treatment operators continuously adjust and balance treatment options to provide consistent quality in the finished water that comes out of your faucet.

Chemicals are added during water treatment to remove impurities from the lake water and optimize the treatment process. The chemicals react with the impurities to form larger particles during the flocculation stage of the treatment process. These larger, heavier particles settle out of the water during the sedimentation stage and are filtered out during the filtration stage. Ammonia and chlorine are carefully added during the disinfection stage in just the right concentrations to make sure the water is free of harmful bacteria by the time it gets to your home.

The treated water is stored in tanks until it is pumped into the distribution system, which consists of 511 miles of pipes that bring treated drinking water to individual consumers. The system consists of a complex infrastructure of pumps and hydrants designed to ensure there is enough water pressure for homes as well as for fire-fighting efforts when the need arises. Occasional flushing of sections of the distribution system may be required to bring fresh water into locations where water usage is lower than expected so as to ensure that the highest quality of water is available to all residents.

Community Participation

Citizens are invited to provide comments about drinking water quality at City Council meetings. Westminster City Council meets in regular session on the second and fourth Mondays of each month at 7:30 p.m. in the Council Chambers at Westminster City Hall, 4800 W. 92nd Avenue. Refer to the City's Web site at www.cityofwestminster.us for changes to the meeting schedule.

Source Water Assessment

The Colorado Department of Public Health and Environment (CDPHE) has provided us with a Source Water Assessment Project report (SWAP) for our water supply. The SWAP provides a screening evaluation of potential contamination that could occur. It does not mean that the contamination has occurred or will occur. This information will be used to evaluate the need to improve our current water treatment capabilities and prepare for future contamination threats. A copy of the report is available at www.colorado.gov/cdphedir/wq/swap/adams/101170westminstercityof.pdf or by contacting Westminster's Water Quality staff at (303) 658-2461. Potential sources of contamination to our source water include existing/abandoned mines, above-ground and underground leaking storage tanks, EPA abandoned contaminated sites and Superfund sites, EPA chemical inventory/storage site and toxic release inventory sites, EPA hazardous waste generators, permitted wastewater discharges, solid waste sites, forests, residential areas, urban recreational grasses, commercial/industrial transportation, quarries/strip mines/gravel pits, row crops, fallow and pasture/hay, septic systems, oil/gas wells, and roads.

Questions?

For more information about this report or any questions related to your drinking water, please call our Water Quality staff at (303) 658-2461.

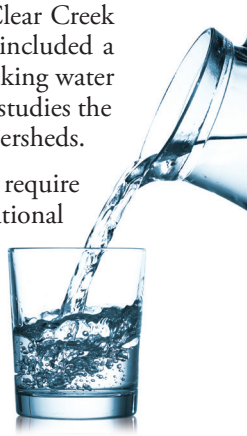
Source Water Protection

The City of Westminster's source water originates on the mountain peaks of the Continental Divide in the Upper Clear Creek Basin near the Eisenhower-Johnson Tunnel. The water quality at the highest elevation is primarily affected by wildlife activity and airborne particles. The water in smaller tributaries and ditches flows downhill, eroding rocks and soils on its way. After converging with the main stem of Clear Creek, the water travels via three canals (Croke, Church, and Farmers' Highline) to Standley Lake, where it is stored until it is treated for drinking water uses. As the water passes through areas influenced by human activity, the potential also exists for an increase in contamination from mining and recreation activities, septic and sewage treatment systems, construction, and highway maintenance operations, among others.

The City takes advantage of numerous opportunities to protect the quality of our drinking water source. The cleaner the source, the more efficiently the water treatment process operates and treatment costs are controlled. Staff are engaged with stakeholders in the Upper Clear Creek Basin to keep informed about issues that could impact water quality. Westminster supports Upper Basin efforts to clean up abandoned mine waste piles and discharges, and also supports take-back programs for hazardous wastes and pharmaceuticals. Educating people of all ages to keep contaminants out of the waterways improves the environment overall and directly affects the City's source water quality.

Despite all precautionary efforts, there are natural and man-made situations that can result in increased contamination in the source water. Every spring, the previous winter's snow melts, which significantly increases the amount of water flowing down the creeks. During this runoff period, the creeks and ditches are scoured by fast-flowing, high water that may deposit large amounts of sediment in the lake in a short period of time. In that sediment lie nutrients -– phosphorus, nitrogen, and carbon -- that are excellent food sources for the microscopic organisms that balance the lake's ecosystem. Too many nutrients at one time can result in an overgrowth of algae, forming an algae bloom. An overabundance of some kinds of algae can lead to taste and odor problems in the drinking water. Occasionally, there are traffic accidents, construction incidents, or treatment plant upsets that introduce additional chemicals into the Upper Basin creeks. An early warning system was developed to advise downstream water users of these incidents in time for water treatment operators to either divert the contaminated water away from Standley Lake or make treatment process adjustments. Careful management of lake operations reduces these potential problems.

The City supports programs to proactively plan for handling water-quality impacts from a wildfire in the Upper Clear Creek Basin. Wildfires are natural and someday will be a reality in the Standley Lake watershed. Planning efforts have included a study of the watershed areas that are most susceptible to wildfire, plans for controlling additional sediment, and drinking water treatment options for reducing the effects of increased organic material in the source water following a fire. The City studies the effects of recent wildfires and lessons learned from other utilities that have already experienced wildfires in their watersheds.



Efforts to avoid the introduction of aquatic nuisance species of plants and microorganisms into the source water require diligence by the City's Parks and Recreation staff. Some infestations could result in serious financial and/or operational issues for the City. Standley Lake is a Regional Park that offers numerous recreational opportunities for the public. The City's recreational programs stress the importance of protecting the Lake as a drinking water source and educates park visitors to avoid practices that could jeopardize the health of the Lake.

In doing your part to keep all waterways clean, you are protecting someone's watershed. Keep it Clean. We're all downstream.

ADDITIONAL DRINKING WATER DATA FOR 2015 - NOT COMPLIANCE SAMPLES

ANALYTE	CONCENTRATION RANGE
Total Dissolved Solids	195–248 ppm
pH	8.1–8.7
Conductivity	325–414 µS/cm
Alkalinity (as CaCO3)	49–70 ppm
Total Hardness (as CaCO3) – *estimated based on historical magnesium data*	110 ppm = approximately 6 grains per gallon
Sodium	22–25 ppm
Ammonia (as N)	0.3–0.5 ppm

Sampling Results

During the past year, hundreds of water samples were tested 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 amount detected is reported as the maximum range value unless otherwise specified.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2011	15	0	2.0	1.2–2.0	No	Erosion of natural deposits
Barium (ppm)	2015	2	2	0.04	0.04–0.04	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beta/Photon Emitters[1] (pCi/L)	2011	50	0	2	0.8–2.0	No	Decay of natural and man-made deposits
Chloramines[2] (ppm)	2015	[4]	[4]	2.3	1.4–2.3	No	Water additive used to control microbes
Combined Radium (pCi/L)	2011	5	0	0.1	0.1–0.1	No	Erosion of natural deposits
Di(2-ethylhexyl) Phthalate (ppb)	2015	6	0	0.7	0.7–0.7	No	Discharge from rubber and chemical factories
Fluoride (ppm)	2015	4	4	0.51	0.49–0.51	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs][3] (ppb)	2015	LRAA < 60	NA	13	8.9–14.4	No	By-product of drinking water disinfection
Nitrate (ppm)	2015	10	10	0.15	0.15–0.15	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes][3] (ppb)	2015	LRAA < 80	NA	27.9	17.5–31.8	No	By-product of drinking water disinfection
Total Coliform Bacteria[4] (% positive samples)	2015	5% of monthly samples are positive	0	0.81	NA	No	Naturally present in the environment
Total Organic Carbon[3] (ppm)	2015	TT = RAA < 2	NA	1.4	1.3–1.4	No	Naturally present in the environment
Turbidity[5] (NTU)	2015	TT = no sample above 0.5	NA	0.09	0.01–0.09	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2015	TT = no sample above 0.5	NA	100	NA	No	Soil runoff
Uranium (ppb)	2011	30	0	1.2	1.2–1.2	No	Erosion of natural deposits

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper[6] (ppm)	2014	1.3	NA	0.26	0/51	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead[6] (ppb)	2014	15	NA	2	0/51	No	Corrosion of household plumbing systems; Erosion of natural deposits

[1] The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.
[2] The Amount Detected for Chloramines represents the average of all individual sample results.
[3] HAAs and TTHMs are regulated as locational running annual average (LRAA). Total Organic Carbon is regulated as quarterly running annual average (RAA). The Amount Detected represents the highest RAA or LRAA, and the Range Low - High represents individual sample results.
[4] The highest level of % positive samples was in September 2015.
[5] Turbidity is a measure of the cloudiness of the water as a good indicator of the effectiveness of the filtration system. The highest turbidity result was recorded on April 16, 2015.
[6] Copper and lead were measured at residential taps throughout the City in 2014. The Action Level (AL) for copper applies to the 90th percentile of all samples collected (i.e., 90% of all sample results must be below 1.3 ppm). Amount Detected represents the 90th percentile. None of the locations exceeded the AL. Copper and lead are tested at residential taps every three years.

Definitions

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

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

MCL (Maximum Contaminant Level): 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.

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

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.

pCi/L (picocuries per liter): A measure of radioactivity.

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.