

What is a Cross-Connection?

A cross-connection is a director potential connection between any part of the public water supply and a source of contamination or pollution. All homes have potential cross connections. The most common form of a cross-connection is a garden hose, connected to the public water supply system and then used to apply chemicals and fertilizers. Other common cross-connections are dishwashers, toilets, pools, lawn sprinklers, and boilers.

Where Can a Cross Connection Occur?

A cross-connection can occur at one of many points throughout a water distribution system when there is unintended backflow from a contaminated source into the water distribution lines. Two types of backflow are backpressure and back siphonage. Backpressure may be created when a source of pressure such as a pump creates a pressure greater than that supplied by the water distribution pipe. Back siphonage may occur when there is a drop in the supply pressure of the water distribution system caused by water line break, water main repair, or rapid withdrawal of water from a fire hydrant. In these instances, a vacuum is created which may pull or siphon contaminants or pollutants back into the drinking water supply.

Why is it Important to Prevent Cross-Connections and Backflow?

A cross-connection or backflow can be a serious health hazard as a result of chemical or bacterial contamination of the drinking water system. Backflow prevention devices must be installed and must be maintained to eliminate backflow of contamination into our drinking water supply.

Types of Cross-Connections and Suggested Devices to Eliminate Them

Garden Hoses: Install an atmospheric vacuum breaker which screws onto the faucet and provides a second threaded connection for the hose. One can be purchased at your local hardware store. Use one with ASSE 1011 designation or at least UL approval.

Private Wells: Private Wells are prohibited from connection to the public water supply.

Lawn Irrigation Systems: Ensure an approved backflow assembly is installed on underground or automatic systems; and/or if your system uses a pump or has fertilizer/chemical injection.

Community water supplies are continuously vulnerable to cross-connection contamination unless protected by properly maintained backflow prevention devices. All industrial, commercial, and institutional facilities within the City have been surveyed according to Massachusetts Division of Drinking Water Regulations to prevent cross-connection contamination. If you have a residential irrigation or fire sprinkler system we urge you to do your part in protecting the City's drinking water by also installing and maintaining appropriate backflow prevention devices in your home. [For more information, please call Davis Scribner, Cross Connection Coordinator, Winona Water Treatment Plant, at \(978\) 536-5067](#)

Conservation Tips

As a water consumer there are several measures you can do to conserve water.

- Check household faucets for leaks. A faucet with even a slow drip takes 10 to 25 gallons of water. Just think, 15 drips per minute add up to almost 3 gallons of water wasted per day, 65 gallons wasted per month, and 788 gallons wasted per year!
- Keep showers to 5 minutes or less in length. A five-minute shower takes 10 to 25 gallons of water.
- Install low flow fixtures such as water saving showerheads
- Keep a pitcher of water in the refrigerator. Then you won't have to run tap water to cool it.
- Use water only when you need it. Don't leave water running; be sure to turn it off when you are finished.
- Use a broom to sweep your driveway, garage, or sidewalk instead of using water.
- Use a bucket of water to wash your bike or the family car and rinse quickly with a hose.
- Water your lawn in the evening or in the early morning to avoid evaporation.
- Be careful to water only the lawn and not the sidewalk or street.

Water Quality Q&A

- My water is discolored sometimes. Can I drink it?
- You can safely drink, cook with, and bathe in this water. Old iron pipes can cause a red, brown, or yellow color in water. A red or brown color is caused by very small specks of iron. These specks of iron can enter the water if there is quick change in water speed or direction in your local pipes. Such changes can result from main breaks, valve repair, flushing the system, or the testing or use of fire hydrants. Running the water for 15 to 20 minutes should clear this up. Wait until the water clears before doing laundry to avoid staining. You should also flush your hot water heater every year to remove accumulated sediment.
- My water has a "funny" taste or odor sometimes. Can I drink it?
- You can safely drink, cook with, and bathe in this water. Sometimes algae can cause a "fishy" or "grassy" odor. Algae are normal, harmless plants that appear in our reservoirs at certain times of the year. On occasion, customers may also taste or smell the low levels of chlorine compounds added to disinfect the water. Fill a jug with tap water and put it in the refrigerator to get rid of the taste and odor.

SPANISH

El informe contiene informacion importante sobre la calidad del agua en su comunidad. Traduzcalo o hable con alguien que lo entienda bien.

PORTUGUESE

O relatorio contem informacoes importantes sobre a qualidade da auga da comunidade. Traduza-o ou peca ajuda de uma pessoa amiga para ajuda-lo a entender melhor.

Contamination in Bottle Water and Tap 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 can acquire naturally occurring minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include: •**Microbial contaminants**, such as viruses and bacteria, which may come from septic systems, agricultural livestock operations and wildlife; •**Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production and transportation, mining, or farming; •**Pesticides and herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, 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 Storm water 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, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water which may provide protection to public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants found in the environment. The presence of contaminants does not necessarily indicate that water poses a health risk.

Important Health Information

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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

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THE CITY OF PEABODY 2014 WATER QUALITY REPORT

To Our Customers:

We are pleased to present you with the 2014 Water Quality Report. All the 2014 water quality parameter monitoring results meet MA DEP regulations.

The City of Peabody (City) is committed to providing safe and high quality drinking water to our customers. The City had made several investments in treatment facilities, water quality monitoring, and our distribution system in 2013. These improvement projects had reduced the formation of TTHM in our drinking water and met the requirement of the EPA Stage 2 DBPR.

The City will continue to improve the water treatment facility and distribution system, as well as implement the monitoring and maintenance programs throughout the system to ensure that we provide safe and high quality water to your tap.

Please call Michael Sheu, Water Superintendent, at 978-536-5069 with any questions, comments, or concerns.

Sincerely,

Michael Sheu

Public Service: (978) 536-0600
Water Distribution: (978) 536-7121
Website: www.peabody-ma.gov/public_services.html

Winona Water Treatment Plant: (978) 536-5069
Coolidge Water Treatment Plant: (978) 538-7573

Peabody's Water System and Water Quality

Peabody's drinking water is mainly supplied by the Coolidge and Winona Water Treatment Plants (WTP). MWRA provides supplemental drinking water during high water demand months. There are four water storage tanks in the distribution system that provide water storage, water pressure, and fire protection for the City.

Source of Water: At Winona WTP, water is pumped from Winona Pond for treatment. At Coolidge WTP, water is pumped from Suntaug Lake and Spring Pond for treatment. The source of water for Suntaug Lake and Winona Pond is the Ipswich River. Under MADEP's Water Management Act Regulations, withdrawing water from the Ipswich River is only allowed during winter and spring months. The DEP has characterized our surface water source susceptibility as moderate to high. Please visit <http://www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3229000.pdf> for more information.

Water Treatment: Coolidge and Winona Water Treatment Plants implement the following treatment steps: coagulation and sedimentation which remove particles from the water through flocculation and then settling, filtration which removes the remaining of the particles out of the water, primary disinfection which uses free chlorine to kill the harmful microbes, and secondary disinfection which uses monochloramine to control the biological activity in the distribution system. Fluoride is added to our drinking water for dental health.

Additionally at Coolidge WTP, free chlorine is used for pretreatment to oxidize the iron and manganese in the source water during the fall and winter months.

What does this table tell me?

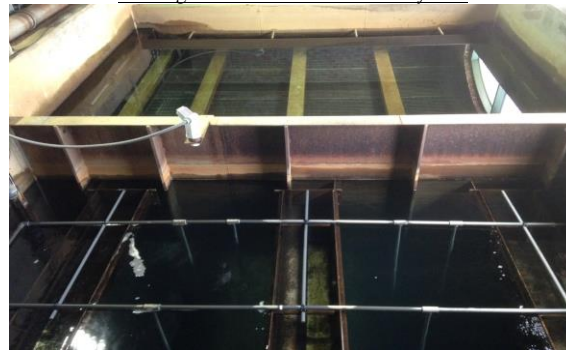
The following contaminants were detected in the Peabody's drinking water system. All are below allowed levels. The table also shows the amount (Highest or Average Level Detected) of each substance found in the water compared to the level allowed by law. We have also included information on substances found in MWRA drinking water, which made up about 20% of the water delivered to your homes in 2014.

Samples collected from the Coolidge WTP							
Contaminant	Date Collected	Average Level Detected	Range of Detects	MCL	MCLG	Violation	Possible Sources
Barium (ppm)	01/30/14	0.016	-	2	2	No*	Common Mineral in Nature
Fluoride (ppm)	Daily	0.50	0.00-1.20	4	4	No	Water additive, promotes strong teeth
Nitrate (ppm)	01/30/14	0.35	-	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage
Perchlorate (ppb)	07/09/14	0.22	-	2	n/a	No	Rocket propellants, fireworks, munitions, flares, blasting agents
Sodium (ppm)	01/30/14	43.00	-	n/a	n/a	No	Naturally presents in the environment
Sulfate (ppm)	10/06/14	12.80	-	n/a	n/a	No	Naturally presents in the environment
Radium 226 (pCi/L)	07/09/14	0.24	-	5	0	No	Erosion of natural deposits
Turbidity	Every 4 hours	0.07	0.05-0.28	TT=5 NTU	n/a	No	Soil runoff
			100% of samples < 0.30 NTU				

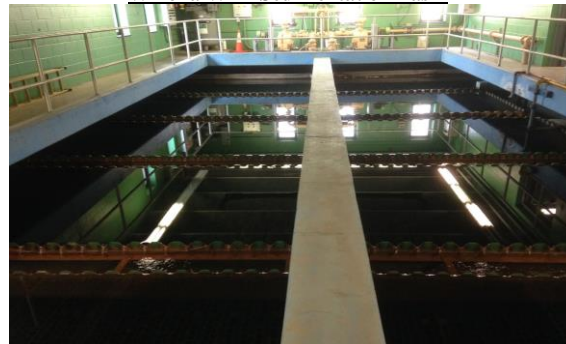
Samples collected from the Winona WTP							
Contaminant	Date Collected	Average Level Detected	Range of Detects	MCL	MCLG	Violation	Possible Sources
Barium (ppm)	01/30/14	0.013	-	2	2	No*	Common Mineral in Nature
Fluoride (ppm)	Daily	0.86	0.60-1.10	4	4	No	Water additive, promotes strong teeth
Nitrate (ppm)	01/30/14	0.10	0.1	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage
Sodium (ppm)	01/30/14	63.00	-	n/a	n/a	No	Naturally presents in the environment
Sulfate (ppm)	10/06/14	30.90	-	n/a	n/a	No	Naturally presents in the environment
Radium 226 (pCi/L)	07/09/14	0.36	-	5	0	No	Erosion of natural deposits
Turbidity (NTU)	Every 4 hours	0.06	0.03-0.24	TT=5 NTU	n/a	No	Soil runoff
			100% of samples < 0.30 NTU				

*The City received a non-compliance notice from MA DEP for a reporting violation. We did not submit the IOC and VOC monitoring reports according to DEP's monitoring schedule. The testing laboratory is currently submitting all the test results through eDEP to minimize late submittals.

Coolidge WTP Trident Filtration System



Winona WTP Sedimentation Basin



Samples collected from the Distribution Sites							
Contaminant	Date Collected	Average Level Detected	Range of Detects	MCL	MCLG	Violation	Possible Sources
Total Coliform (% of samples)	Weekly	0.0%	ND	5% of monthly samples	0	No	Naturally present in environment
Monochloramines (ppm)	Weekly	1.89	0.59-2.20	4	4	No	Water additive to control microbes
Nitrite (ppm)	very two weeks	0.04	ND-0.38	1	0	No	By-product of Chlorination
Nitrate (ppm)	very two weeks	0.17	ND-0.81	10	0	No	By-product of Chlorination
Haloacetic Acids (HAA5, ppb)	Quarterly	20.0	6.5-37.3	60	n/a	No	By-product of Chlorination
Total Trihalomethanes (TTHM, ppb)	Quarterly	31.8	4.8-60.8	80	n/a	No	By-product of Chlorination

Contaminant	Date collected	Average Level Detected	Range of Detects	Action Level (AL)	# of Site samples	Violation	Possible Sources
Lead (ppb)	2/24/14 to 7/1/14	0.008	ND-0.100**	0.015	5	No	Corrosion of household plumbing system
Copper (ppm)	2/24/14 to 7/1/14	0.090	0.001-0.20	1.3	5	No	Corrosion of household plumbing system

**Samples were collected at 5 selected locations for Pb&Cu tests every two months from 2/1/2014 to 7/1/2014. This was for the corrosion control evaluation of the treatment chemical changed. All the results showed low levels of Pb&Cu except one result (0.100 ppb of Pb). This sample was collected shortly after an irrigation system was installed at this location.

Important Lead Information from EPA

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 Peabody Water Treatment Plants are 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>.

Please visit http://www.mwra.com/water/html/awqr.htm for MWRA Water Quality Reports							
Contaminant	Date Collected	Average Level Detected	Range of Detects	MCL	MCLG	Violation	Possible Sources
Barium (ppm)	Quarterly	0.008	0.007-0.009	2	2	No	Common Mineral in Nature
Fluoride (ppm)	Daily	1.02	0.87-1.1	4	4	No	Additive for dental health
Nitrate (ppm)	Monthly	0.06	0.01-0.06	10	10	No	Byproduct of water disinfection
Nitrite (ppm)	Monthly	0.006	ND-0.006	1	1	No	Byproduct of water disinfection
Monochloramine (ppm)	Daily	1.90	0-3.9	4	4	No	Water additive to control microbes
Sodium (ppm)	Annually	34.80	-	n/a	n/a	No	Naturally presents in the environment
Haloacetic Acids (HAA5, ppb)	Quarterly	10.2	ND-15.9	60	n/a	No	Byproduct of water disinfection
Total Trihalomethanes (TTHM, ppb)	Quarterly	13.3	3.0-13.9	80	n/a	No	Byproduct of water disinfection
Total Coliform (% of samples)	Weekly	1.0 % (Aug)	ND-1.9%	5% of monthly samples	0	No	Naturally present in the environment and animal waste

UCMR - Unregulated Contaminant Monitoring Rule: Under the Safe Drinking Water Act Amendments, EPA is required once every five years to develop a list of up to 30 new contaminants that must be monitored by public water systems (PWS). The data from PWSs, along with information on potential health effects and water treatment effectiveness will be used by EPA to determine if any new regulations are needed.

The City collected samples at both WTPs' finished water taps and 2 distribution locations during 2014. There are five substance were detected. All other contaminants listed in the UCMR3 were not detected.

UCMR - Unregulated Contaminant Monitoring Rule		
Substance	Average	Potential Sources
Total Chromium (ppb)	0.18	Discharge from pulp mills; erosion of natural. Deposits. EPA regulates total chromium with a MCL of 100 ppb
Hexavalent Chromium (ppb)	0.04	Hexavalent chromium is one form of chromium.
Chlorate (ppb)	268	Chlorate is a byproduct of disinfection with chlorine, and is commonly found in most waters in the US that use chlorine.
Strontium (ppb)	91	Strontium is a metal that is common in nature, and small amounts are found in air, dust, soil, and drinking water
Vanadium (ppb)	0.21	Vanadium is a metal that is common in nature, and small amounts are found in air, dust, soil, and drinking water.