



REGIONAL DISTRICT NORTH OKANAGAN – GREATER VERNON WATER

Cross Connection Control Program Information Fact Sheet

How does the Cross Connection Control Program (CCCP) Work?

- A Cross Connection Control Program is a legislated requirement within the *BC Drinking Water Protection Act*. The Regional District of North Okanagan (RDNO) – Greater Vernon Water (GVW) implemented a bylaw “*RDNO Cross Connection Control Regulation Bylaw No. 2651, 2014*” to protect Greater Vernon’s drinking water from contamination through cross connections due to backflow of water into the public water distribution system.
- The CCCP involves on-site water system inspections of both new and existing industrial, commercial, institutional and agricultural water customers, with the greatest priority placed on those considered high risk.
- The CCCP regulates the selection, installation, maintenance and testing of backflow preventers for controlling cross connections – all approved methods under national and provincial regulations.
- The CCCP includes an Emergency Response Plan, a process for annual testing of backflow preventers and a public awareness campaign.
- Inspections of **new homes** are done through the building inspection process.

What is a cross connection?

Cross connection is **any actual or potential** connection between a potable water system and any source of pollution or contamination.

Cross connections are found in most plumbing systems; some are more obvious than others:

- Agricultural water (watering troughs, fertilizer tanks and systems, irrigation, etc.)
- Boilers and swamp coolers
- Janitor sinks and soap dispensers
- Drain hoses in floor drains
- Fire sprinklers systems

Cross connections can be eliminated by installing a mechanical backflow preventer that stops contaminants from flowing backward within a piping system and into the potable water system.



How does the backflow happen?

Backflow happens when water in a plumbing system flows backwards or in reverse, due to hydraulic conditions that can occur in a piping system. There are two types of backflow:

Backsiphonage: This condition may be caused by water main breaks, during high water withdrawal from fire hydrants or shutting off supply for maintenance or repairs to the water lines or plumbing system. This may cause a vacuum in the piping if the pressure is reduced below atmospheric.

Backpressure: This occurs when pressure in the users’ plumbing system becomes greater than the pressure in the potable water distribution system. The primary sources of backpressure are booster pumps, thermal expansion from a boiler or water heater, elevated plumbing or interconnection with other piping systems with higher pressure.

Local Cross Connection Events

Cross contamination can pose a serious health risk to the public water system and the following are a few examples of cross connection issues that have occurred on the GVW system in the past number of years.

These events show how important backflow prevention and premise isolation are to help mitigate the risk of cross contamination to our drinking water supply.

- Glycol was found in a private water system but fortunately this site had premise isolation and this serious poison didn't get into the public supply.
- An entire neighborhood in the Mission Hill area had to be isolated with a "Do Not Use" notice while the entire area was flushed and tested due to a contamination issue, this neighborhood was without water for three (3) days.
- A resident in a separated area connected a non-potable (untreated) water source to the house water supply as it had a higher pressure. This site had premise isolation so non-potable water did not feed back into the GVW system; however, if it did not have premise isolation, non-potable water would have been fed continuously into the potable water supply posing a health risk to the public (all properties with non-potable services are required to have premise isolation).
- A main break caused the contents of a boiler within an apartment building to enter the public water system and the distribution system required significant flushing to ensure public safety.
- Antwerp Springs contamination event was caused by a cross connection where approximately 2,000 homes were without water for over a week and GVW was criminally charged through the *Water Act* and the *Drinking Water Protection Act*.
- GVW received a complaint from the Vernon Court House of white particles visible in the drinking water from multiple areas of the building. A "Do Not Drink Notice" was ordered for the building and further testing indicated the water quality concern was isolated to the building. It was determined that the large, elevated fire sprinkler system off the main water inlet had no BFP and had not been flushed in at least five years. A loss in pressure had caused the stagnant water in the fire line to enter the plumbing system, bringing white particulate (calcium carbonate) into the drinking water.
- Numerous site-specific samples with bacteria, turbidity, elevated metals and other substances have been detected in strata and multi-family developments that were not found in the public supply.

For questions or concerns about the Cross Connection Control Program contact:

Cara Murphy

Cross Connection Control Program Coordinator

ccc@rdno.ca or PH: 250-550-3654