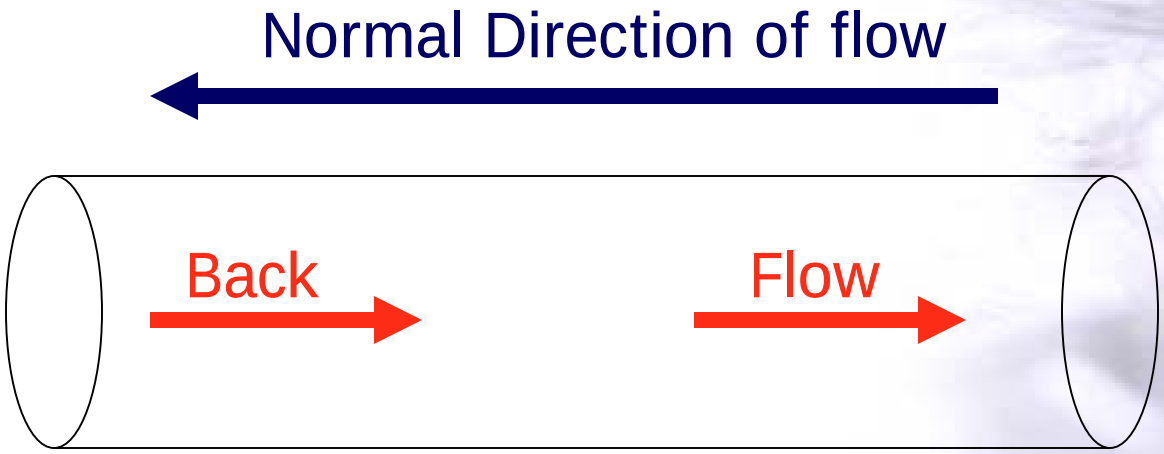
CITY OF NANAIMO
THE HARBOUR CITY

Implementation

CCC PROGRAM BYLAW

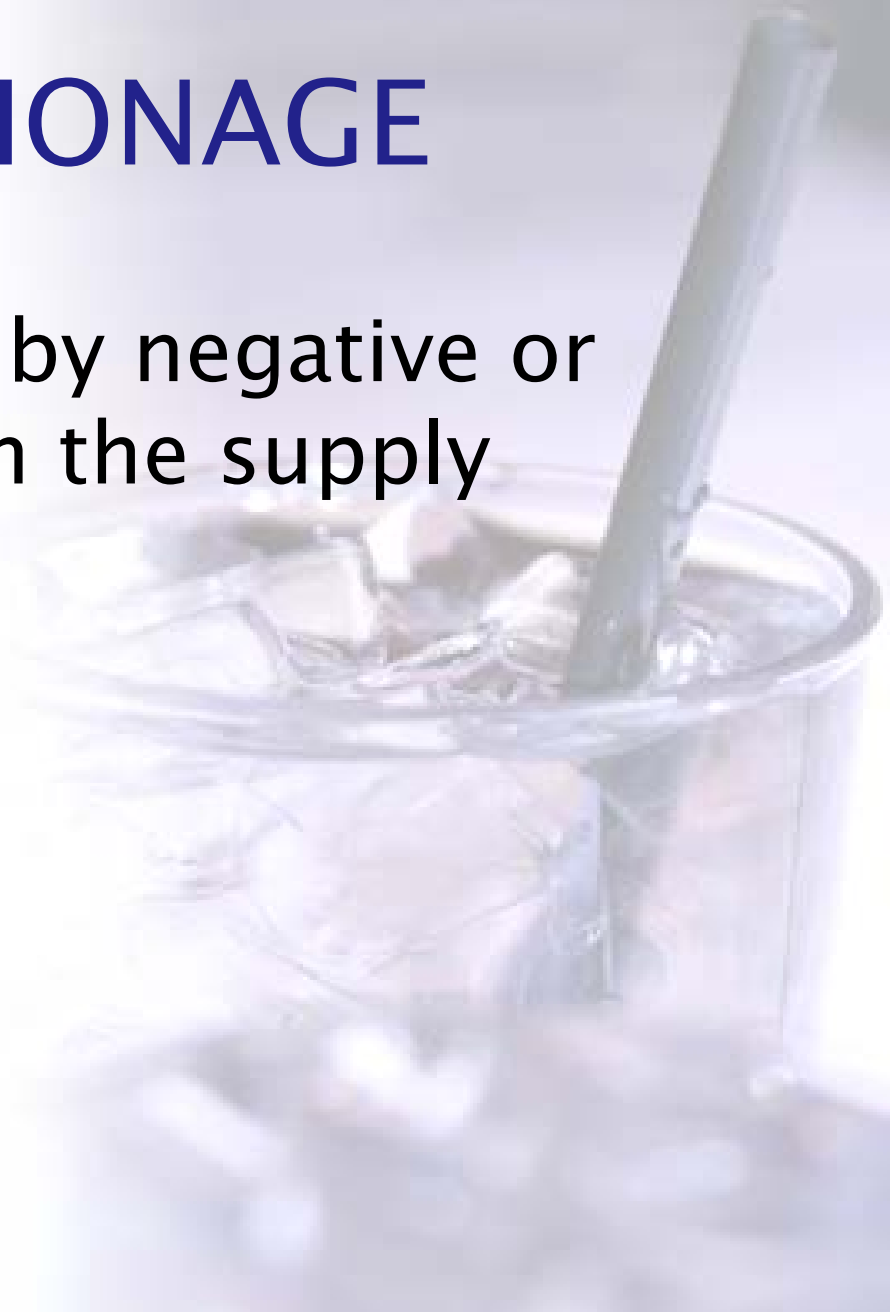
What Is Backflow?

- Flow in reverse from the normal direction in a piping system.
  - Back-siphonage
  - Backpressure

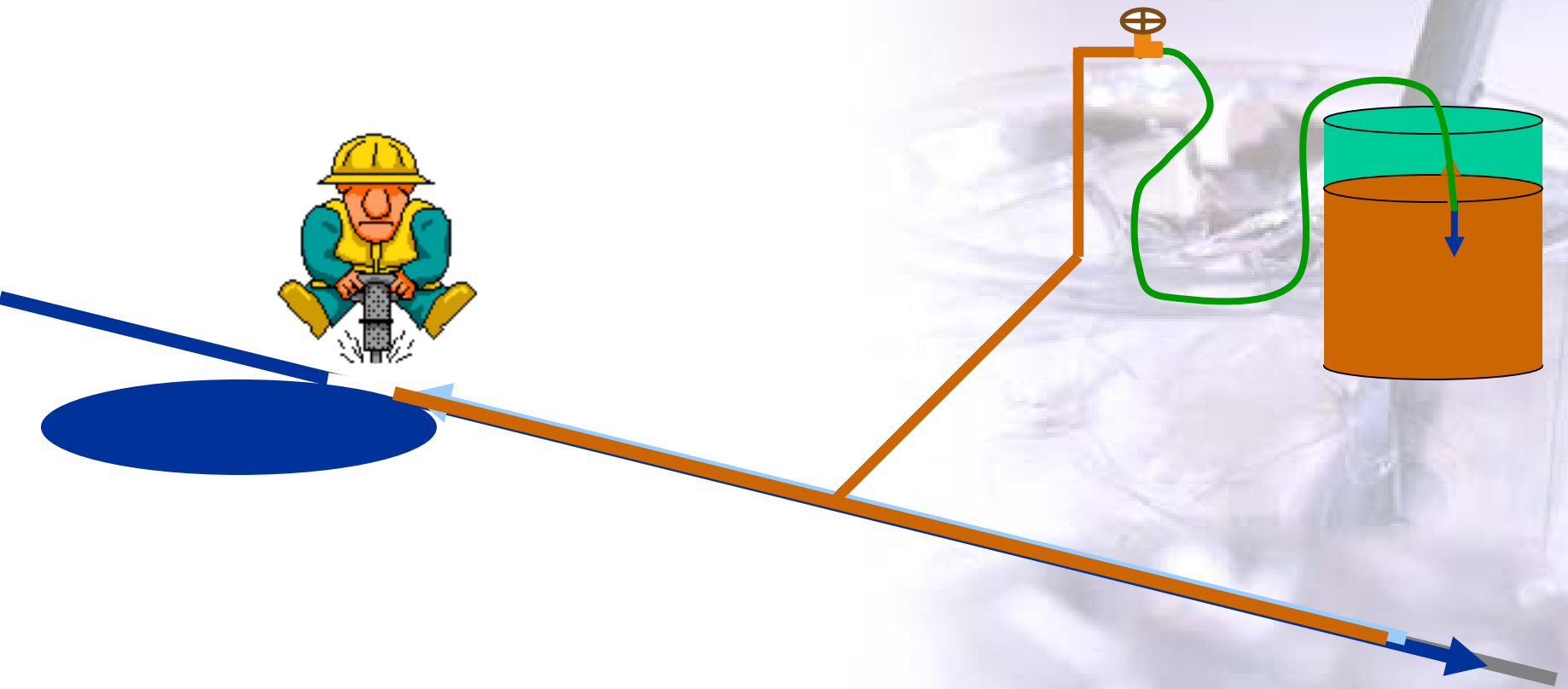


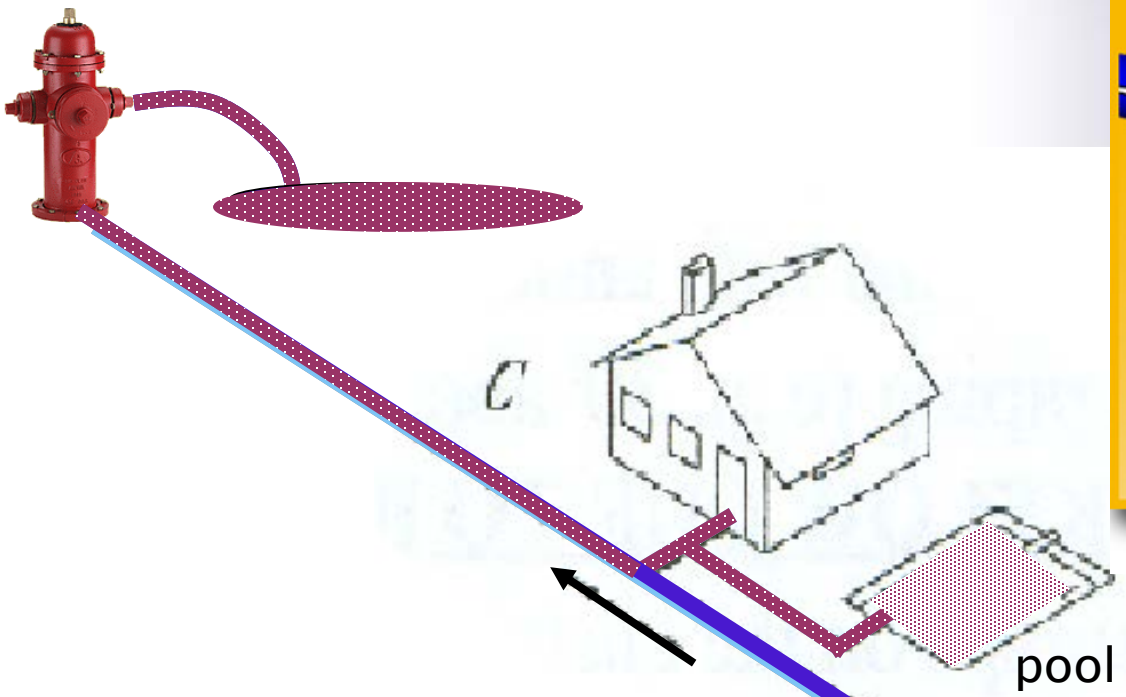
BACK-SIPHONAGE

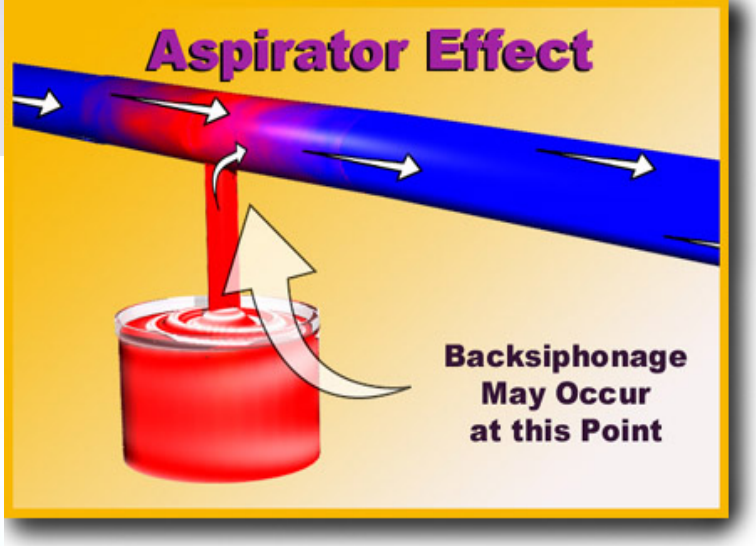
- Backflow is caused by negative or reduced pressure in the supply piping.



Back-siphonage due to main break



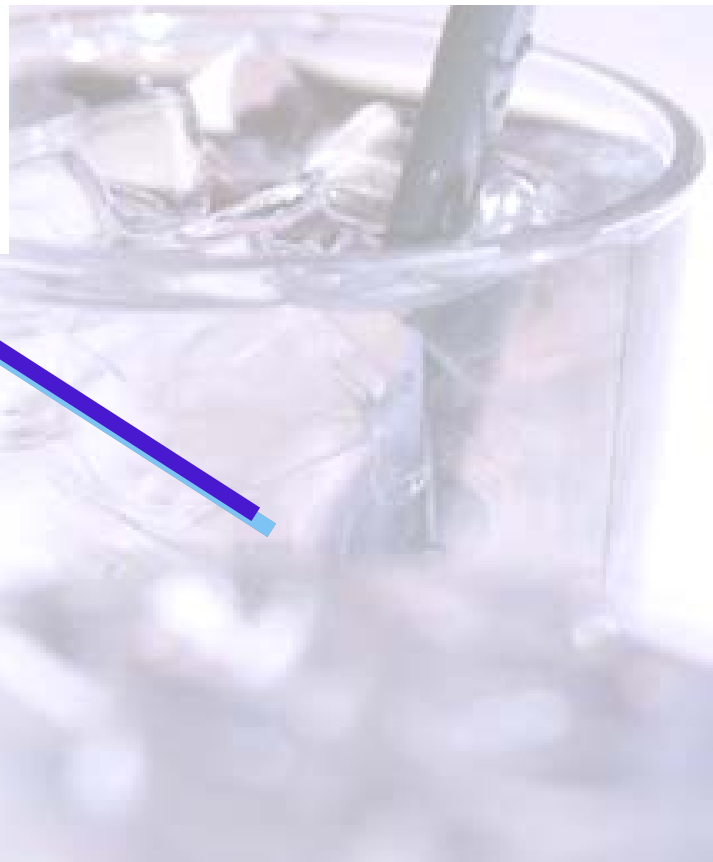




Normal flow

High velocity flow

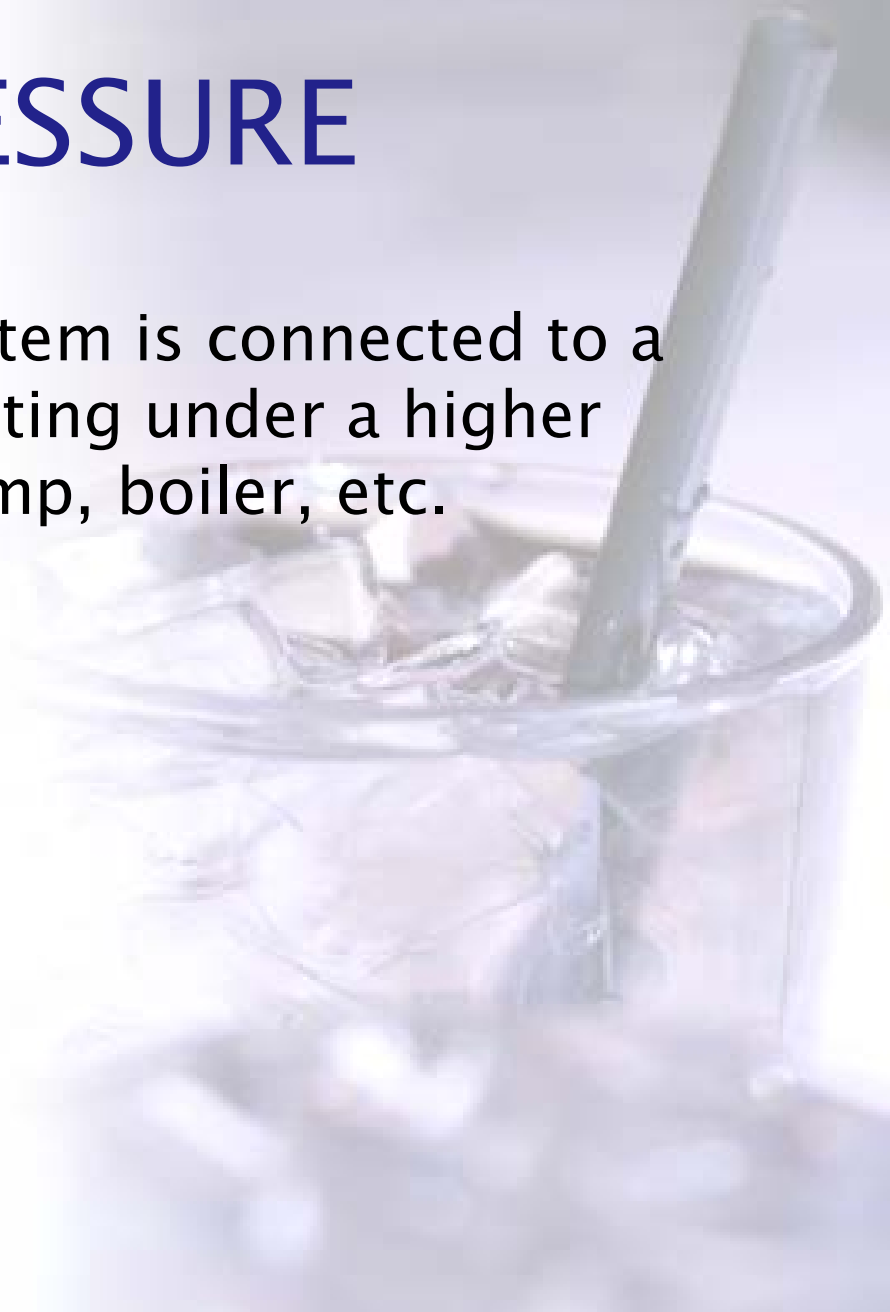
Contaminant



Pressure loss due to High velocity occurrences.

BACKPRESSURE

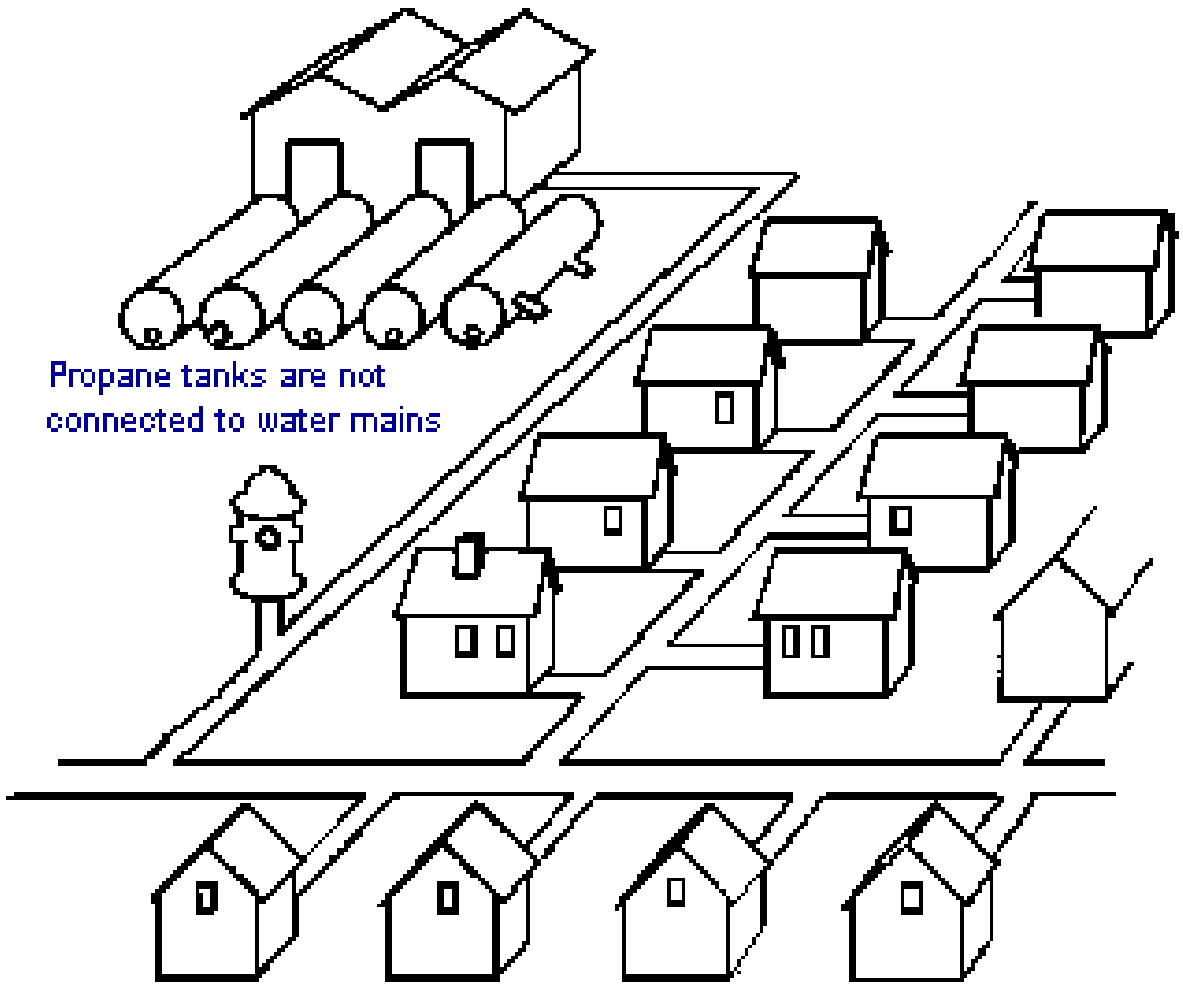
- When a potable water system is connected to a non-potable supply operating under a higher pressure by means of pump, boiler, etc.




Pump
#1


JACUZZI

Backpressure



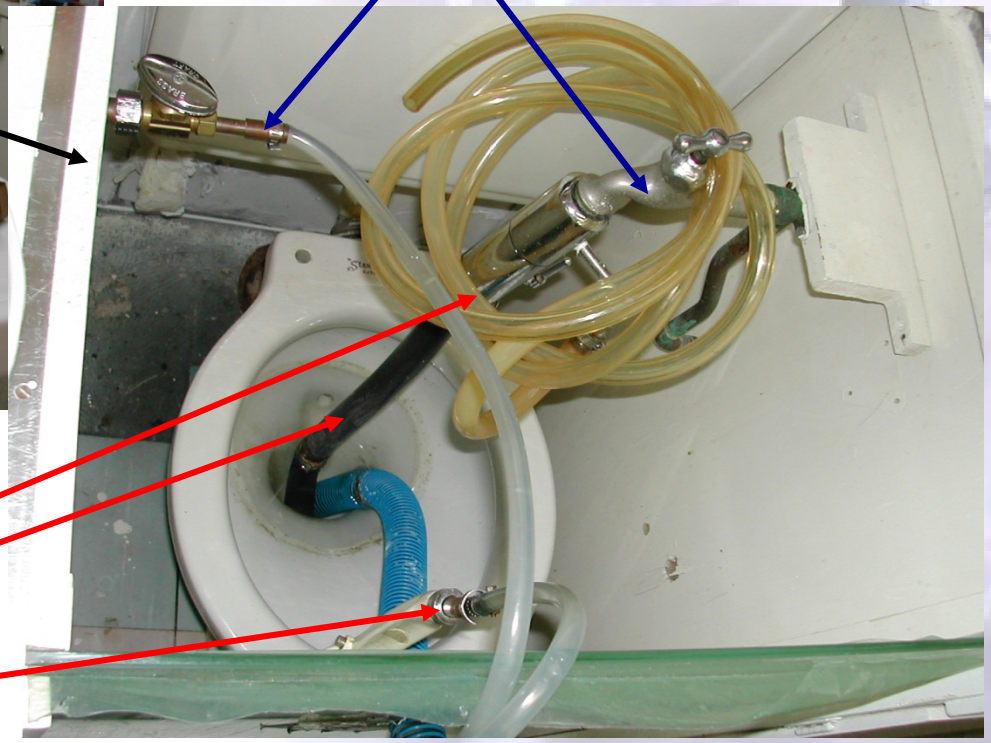
What is a Cross Connections?

- Any existing or potential physical connection between any part of a potable water system and any other non-potable system containing other substances in a manner which, under any circumstances, would allow such substances to enter the potable water system.

Not everything connected to our drinking water supply is safe!

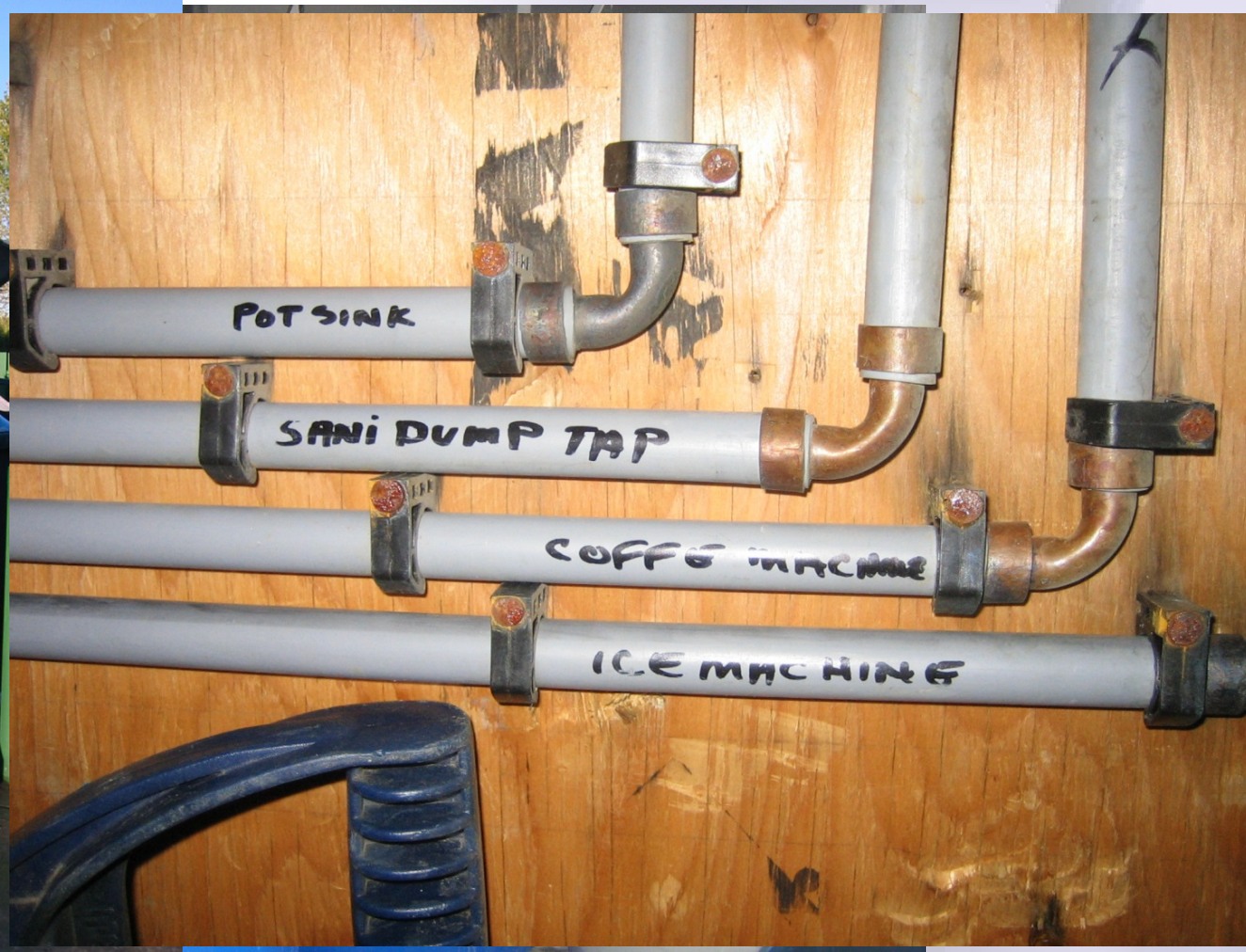
Autopsy & Embalming Labs

Water Supply



Cross Connections
Cadaver fluid hose
Sewer and tissue
Rinse wand & hose

Cross Connections




H2O
FRESH
EFFLUENT

Purpose of Bylaw

- To enforce non-compliance
- Reduce Liability
- Provide safe drinking water

City of Nanaimo

1. Title:

Cross Connection Control Bylaw 2017 No. 7249:

CCC Program Current State

- CCC Bylaw drafted
- Updated Engineering Standards (Nov 2016)
- CCC Program implemented and operational
- 20 Municipal Facilities Surveyed
- 93 BFP’s Tracked

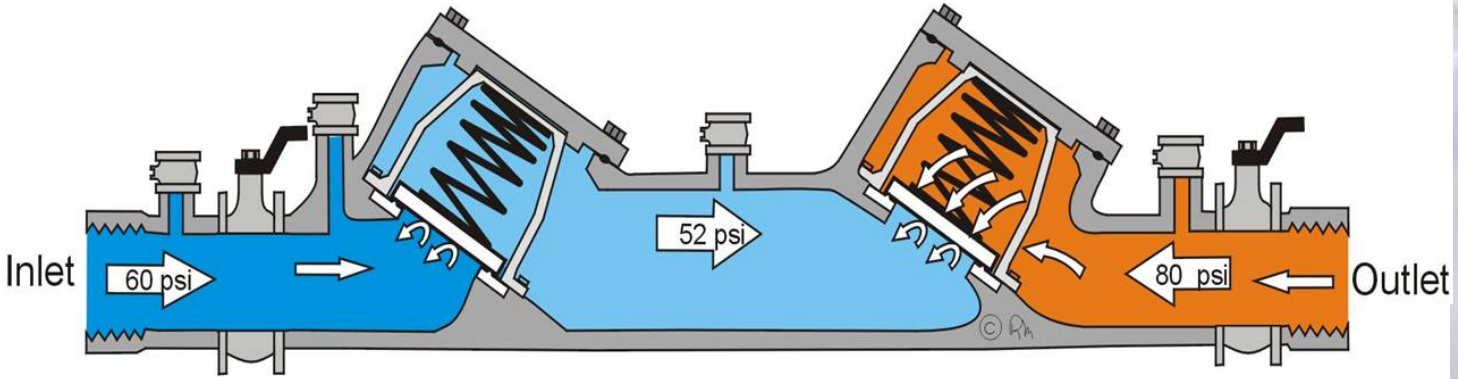
2. Definitions

- Bylaw definitions describe key words pertinent to the components of the Bylaw:

"Backflow Preventer"

means a mechanical apparatus installed in a water system that prevents backflow of contaminants into the potable water system…

Backflow Preventer



Double check valve backflow condition

2.2 Standards

- 2.2 Most current standards used in bylaw

1. CSA B64.10 “Selection and installation of backflow preventers”
2. CSA B64.10.1 “Maintenance and field testing and of backflow preventers”
3. CSA B128.1 “Design and Installation of Non-Potable water systems”

Consistency: the BC Plumbing Code also references the above

3. Water supply and pressure

- City cannot guarantee water PSI / Temp etc.

4. Inspection

4.1 Authorized Access to facilities

4.1.1 Determine degree of hazards

4.1.2. Impose standards are met relating to type & methods of protection

4.1.3 Locate and inventory Existing Backflow preventers and state of installation

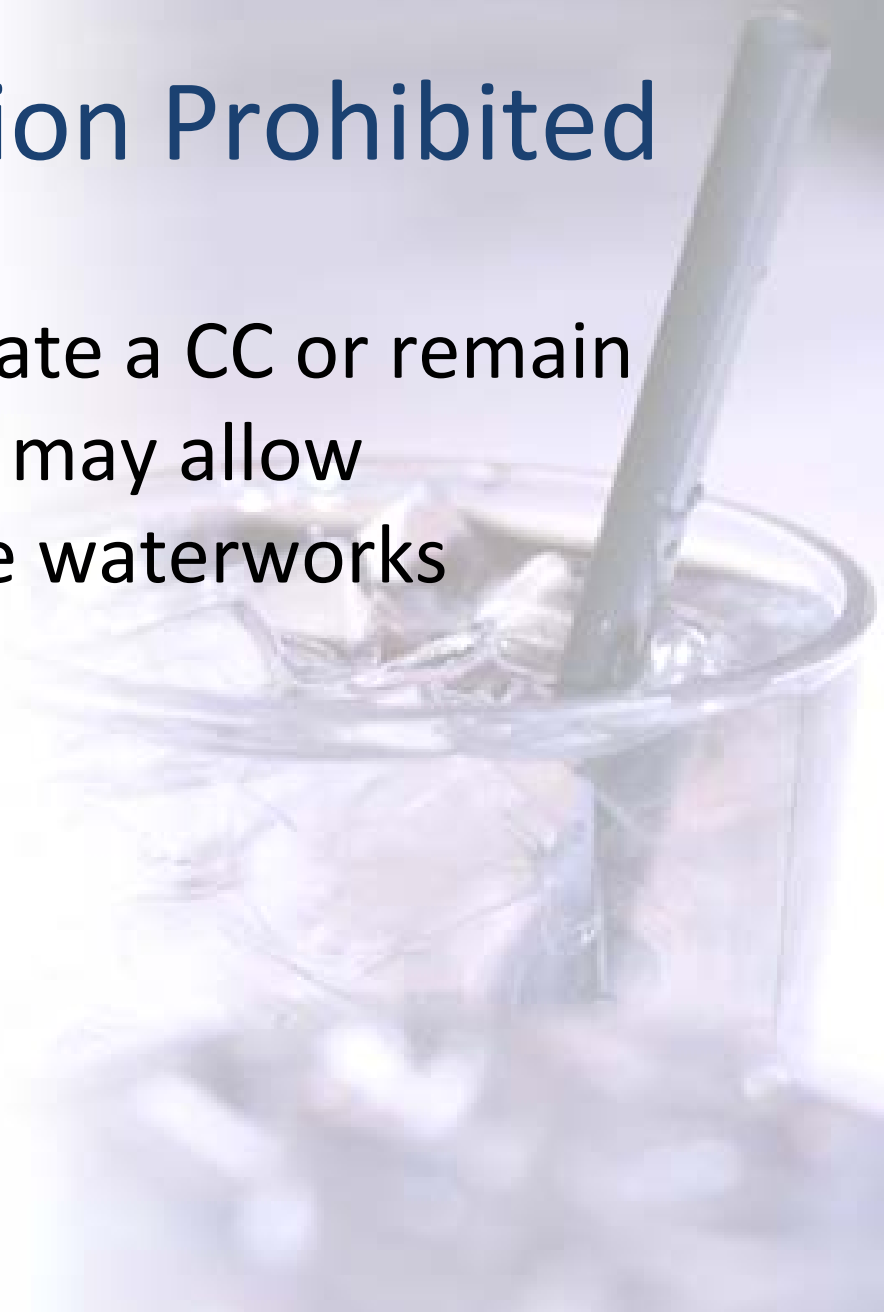
5. Condition of Service

- 5.1 Service is only provided to a facility if in the opinion of the City, the premise is effectively protected from CC.

- 5.2 City shall not provide water to new or renovated premises unless protected from CC per CSA B64.10 or has been approved by the Senior Manager of Engineering.

6. Cross Connection Prohibited

- 6.1 No person shall create a CC or remain connected to a CC that may allow substances to enter the waterworks system.



7. Regulations

- 7.1 If the Senior Manager of Engineering determines a connection poses a risk of contamination to the waterworks system, the Owner, at their expense, will be required to install a BFP on the main service connection **OR** other location approved by the City.

7. Regulations

7.2 City is authorized to take the following actions:

- 7.2.1 The City shall give notice to the Owner to correct or control the hazard with a time period specified in a notice or as per schedule “B”, or

- 7.2.2 Discontinue service until corrected.

Schedule “B”

a) 2 Inch & smaller……90 Days or no later than 2018*
b) 2 inch and Larger…..90 days or no later than 2019*
c) Fire systems…..at next upgrade to the system

*Unless otherwise agreed to by the Senior Manager of Engineering


SHRED
FOR DOCUMENT
DESTRUCTION


WATTSBOX

7. Regulations

- 7.3 Installation or correction of CC's must conform to CSA B64.10 standards

- 7.4 Failure to receive a notice does not relieve an Owner of compliance (eg. Annual testing etc.)

- 7.5 Water will not be turned on until requirements of this bylaw or order has been met including fines.

8. Testing & Maintenance of BFP’s

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- 8.1 Owners must provide proof of proper installation and operation of BFP's on a City test report form including pertinent information list 8.1.1. through 8.1.4

- 8.2 Owners must inspect & test BFP's Annually

8. Testing & Maintenance of BFP's

- 8.3 City to notify Owners to have BFP's tested within 30 days "per Schedule "B"
- 8.4 Owners must notify the City if BFP's are removed

8. Testing & Maintenance of BFP's

- 8.5 BFP's that fail to function as designed (per CSA B64.10.1) must be repair in 30 days "Per Schedule "B"

- 8.6 the City may require owners to test BFP's more frequently (than every 12 months) if risk is higher than usual.

9. Temporary Water Use Connection

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- 9.1 No person can connect to a fire hydrant or other temporary connection:
  - 9.1.1 That could contaminant the waterworks system
  - 9.1.2 Without using a BFP
  - 9.1.3 Without obtaining a City hydrant use permit

9. Temporary Water Use Connection

- 9.2 in addition to previous penalties regarding connections to hydrants etc., Persons can be refused future access to these types of connections.

10. Auxiliary and non-potable water supplies

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- 10.1 Premises that have an auxiliary water system are required to have a BFP installed (on the main service connection) pending the degree of hazard as indicated in the CSA B64.10

- 10.2 No direct connections between an auxiliary water or non-potable water system and a potable water system are permitted.

10. Auxiliary and non-potable water supplies

- 10.3 non-potable systems and piping must be designed and identified as such per CSA B128.1 (Design & Installation of non-potable water systems)

11. Commercial & Agricultural Irrigation systems

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Where a cross connection exists between the City system and Private system;

- 11.1.1 Agricultural use properties shall be subject to premise isolation per CSA B64.10

- 11.1.2 BFP's on Irrigation systems must be tested prior to operation

- 11.1.3 RP's are required of chemical systems

12. Penalty Section

- Fines
- Daily offences
- Ticketing system
- Enforced by Bylaw Enforcement Officers
- Amounts
- Disputed tickets to City CAO

13. Forms & Schedules

- “A” Daily Fine Schedule

a) Failing to eliminate a CC or install a BFP $ 500
b) Failing to Test or maintain a BFP $ 200
c) Removal of a BFP without consent $ 200
d) Failing to repair a BFP $ 200
e) Fire hydrant or Temporary connections without a BFP or Permit $200
f) Connections to Auxiliary non-potable systems $ 500

13. Forms & Schedules

- "B" Time Period Schedule

1. Installation of a BFP
   - 2 inch and smaller - 90 days or prior to 2018*
   - 2 inch and larger – 90 days or prior to 2019*
   - Fire systems – at next upgrade or change
2. Test required – 30 days
3. Repair of a BFP – 30 days*

(* Unless otherwise agreed to in writing)

Summary

- Health Authority / Permit
- BC CCC roll out (starting in 2003)
- CCC Programs throughout the Province
- Pain points
- Public awareness