

Water Demand Measures

Demand management measures are implemented when the demand forecast predicts that the volume of water in a reservoir will be below a certain percentage within a defined number of days. This situation is more likely to occur between May and September when:

- Extended periods of hot dry weather between May and September resulting in increased customer demands for lawn/garden watering.
- Spring runoff usually occurs in March or April and results in poor raw water quality that limits the production capacity of the water treatment plants.
- Heavy rains in the catchment area upstream of the water treatment plants affect raw water quality and limit the production capacity of the water treatment plants. This scenario combined with local warm weather conditions leads to high demand.
- Failure of a major plant, key pumping station or critical network main resulting in a sudden shortage of treatment, supply or transmission capabilities.
- Treatment chemical supply issues impacting water treatment plant operation.
- Microbial or chemical contamination affecting zones' water supply or transmission.
- Contamination from human activity or rupture of pipe crossings of the North Saskatchewan River resulting in a total shut down of one or both water treatment plants.

During normal operation, EPCOR's daily production rates are set to meet the predicted demands and maintain the reservoir volumes between 60-80%. The purpose of the Demand Management Measures is to minimize water storage loss by reducing demands 2-10%.

The number of days used to define a demand scenario is determined by each municipality based on the size and function of the local water infrastructure.

For example, EPCOR uses the following definitions:

Measure A: Operational

- Reservoir levels have dropped to **below 40%** and recovery is a concern OR demand forecast predicts that within the next **4-7 days** the total or zonal reservoir storage will be **below 30%** of available volume.
- Is an immediate **operational** response to achieve up to a 2% reduction in demand. The actions are taken by Edmonton Water Treatment Plants (EWTP), Water Distribution & Transmission (Water D&T) and operational groups and Regional Water Customer Group (RWCG) but there is limited external communication. This condition needs to be investigated within **24 hours** to determine if recovery is possible or escalation to Measure B or C is required.

- Reduce operating pressures to **low** alarm levels.

Measure B: Voluntary

- Demand forecast predicts that within the next **3 days** the total or zonal reservoir storage will be **below 30%** of the available volume. This condition is expected to improve with information on resolution of problem and recovery time estimation is considered short (**less than 1 week**).
- Includes the operational actions in Measure A and is a **voluntary** public restriction on lawn watering and non-essential water use (no bylaw enforcement in place) and up to a 5% reduction in demand is desired.
- Reduce operating pressures **30 kPa below low** alarm levels.

Measure C: Mandatory

- Demand forecast predicts that within the next **day** the total or zonal reservoir storage will be **below 20%** of the available volume. This condition is expected to be sustained with no information on resolution of problem OR information on resolution of problem and recovery estimation is considered long (**more than 1 week**).
- Includes the actions in Measure B and is a **mandatory** public restriction for up to a 10% reduction in demand. *EPCOR will turn off water supply to any customer who does not comply and the customer will bear the charge to turn on the service.*
- Reduce operating pressures to **low low** alarm levels.

All Measures – Termination Process

- When the total or zonal reservoir storage volumes are **above 50%** of the available total storage at 7:00 AM and the demand forecast predicts that the total or zonal reservoir volumes will be **above 65%** of the available volumes within the next **3 days**.
- Notify residential and commercial customers that the water ban has been lifted and all water use can return to normal.
- Increase operating pressures to normal levels.

Water Demand Measures at a glance

Condition	Water restriction/ban requirement
A	<ul style="list-style-type: none"> • Ban on municipal operations
B	<ul style="list-style-type: none"> • Ban on municipal operations • Voluntary water restrictions for general public
C	<ul style="list-style-type: none"> • Ban on municipal operations • Mandatory water ban - enforced for general public

The Capital Region Southwest Water Services Commission (CRSWSC) receives Demand Measure notifications from the Regional Water Customers Group (RWCG), who receives notification directly from EPCOR. The CRSWSC is then responsible to communicate Demand Measures to member municipalities.

The municipality is responsible for communicating with the public in a Demand B or Demand C situation and for enacting demand protocols.

Suggested Protocols to Implement

Demand A

- Municipalities suspend all non-essential potable water use:
 - Water main flushing
 - Sewer main flushing
 - Parks watering
 - Fire fighting training that uses water
 - Street cleaning (sweeping and flushing)
 - Irrigation
 - Fleet vehicle washing (including buses)
 - Spray decks (unless in recirculation mode with appropriate signage)
 - Other non-essential water use that can be deferred for a three-day period (non-essential use is defined by all water not used for human consumption)

Demand B

- Municipalities suspend all non-essential potable water use:
 - Water main flushing
 - Sewer main flushing
 - Parks watering
 - Fire fighting training that uses water
 - Street cleaning (sweeping and flushing)



- Irrigation
 - Fleet vehicle washing (including buses)
 - Spray decks (unless in recirculation mode with appropriate signage)
 - Other non-essential water use that can be deferred for a three-day period (non-essential use is defined by all water not used for human consumption)
 - Hydrant meter usage
 - Private development and infrastructure commissioning
 - Private development (commercial contract) flushing
 - Water quality investigation
 - Post voluntary water ban signage at Truck Fills
- Notify Customers of the voluntary water restrictions:
 - Suggest that residents follow an alternate day lawn watering schedule.
(Water your lawn on an odd calendar day if you live in an odd-numbered house, and water your lawn on an even calendar day if you live in an even-numbered house. Regular lawn requirements are only 2.5 cm of water per week, equal to 1 hour of watering per week.)
 - Avoid washing vehicles, driveways and home exteriors.
 - Avoid filling a Jacuzzi, hot tub or swimming pool.
 - Encourage wise water use (e.g. short showers instead of baths, turn off tap while brushing teeth or shaving, delay doing laundry, hand wash dishes, rain barrel use)
 - Request commercial customers implement management measures where applicable.
 - Measure B is not applicable to:
 - Residential water necessities such as drinking, cooking, bathing, toilets, dishwashing
 - Businesses that depend on water to deliver a product or service, for example: commercial car washes, market gardens, greenhouses, commercial farm contractors, golf course greens
 - Residential water necessities including new lawns and gardens when failure to apply water may destroy greenery and customers who have added high nitrogen fertilizer to lawns.

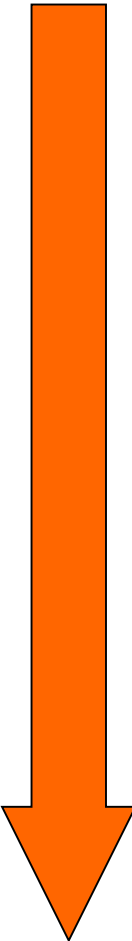
Demand C

- Municipalities suspend all non-essential potable water use:
 - Water main flushing
 - Street cleaning (sweeping and flushing)
 - Parks watering
 - Fire fighting training that uses water
 - Street sweeping and cleaning
 - Irrigation



- Fleet vehicle washing (including buses)
 - Spray decks (unless in recirculation mode with appropriate signage)
 - Other non-essential water use that can be deferred for a three-day period (non-essential use is defined by all water not used for human consumption)
 - Hydrant meter usage
 - Private development and infrastructure commissioning
 - Private development (commercial contract) flushing
 - Water quality investigation
 - Water quality flushing
 - Shut down Truck Fills
 - Operation of all water features/ fountains
 - Pool filling
- Notify Customers of mandatory water restrictions and explain how to comply:
 - Possibility to invoke mandatory water reduction through Bylaw or agreement.
 - Inform residents to follow a (insert duration) lawn watering schedule or enact a total ban on lawn watering. Refer to your local Bylaw for authority.
(Regular lawn requirements are only 2.5 cm of water per week, equal to 1 hour of watering per week.)
 - No washing vehicles, driveways and home exteriors.
 - No filling Jacuzzis, hot tubs or swimming pools.
 - Request commercial customers implement management measures where applicable.
 - Encourage wise water use (e.g. short showers instead of baths, turn off tap while brushing teeth or shaving, delay doing laundry, hand wash dishes, rain barrel use)
- Measure C is not applicable to:
 - Businesses using water to deliver a product or service that is life-sustaining (e.g. greenhouses or food manufacturers) and facing significant financial losses. This does not include car washes and laundromats, which are included in the mandatory ban.
 - Any businesses that must use water to meet health code standards, such as restaurants, schools and hospitals

ACTIONS IN A WATER DEMAND SITUATION

Demand Progression	ACTIONS	
	Partially reduce pressure	Demand "A"
	Suspend all hydrant flushing	
	Suspend all sewer flushing, parks watering, street cleaning, fire fighter training	
	Lower pressure to minimum	Demand "B"
	Increase production	
	Relax internal standards, while continuing to meet Alberta Environment standards	
	Maximize water production, transmission and distribution capabilities	
	Appeal to public to restrict water usage to non-essential purposes	
	Request high priority users to reduce water usage as predetermined in the planning process	
	Meet with Regional Customers/EPCOR to determine actions*	
	Heighten level of appeal, referring to mandatory reduction and enforcement	Demand "C"
	Introduce/enforce bylaws, contracts or regulations restricting usage	
	Import alternative sources of potable water through Mutual Aid Agreements or other arrangements	
	Meet with Regional Customers/EPCOR and appropriate authorities to determine actions*	
	Invoke the Alberta Disaster Services Act	

* To review status, actions and communications plans.