



Best Practices for Groundwater Wells Going Dry and Drought Preparation

No water coming from your well?

A well has gone dry when the groundwater table is below the bottom of the well and no more water can be pumped. If you are noticing discoloured water, or sediment in your water, it could be a sign your well is going dry. If nearby wells are going dry, your well may be next.

There are other reasons a well may not produce water, such as mechanical issues or more water being pulled from the aquifer than it can provide. These or other possible causes are detailed within this brochure. The cause of a well going dry must be confirmed by a Registered Well Driller or Well Pump Installer.

Climate change and drought can also reduce the amount of seasonal recharge to the aquifer, resulting in lower groundwater levels.



Figure 1 Cisterns storing rainwater collected off a roof.
Credit: Leia Fougere (WLRs).

What can you do?

As a well owner, it is your responsibility to manage your well and to prepare for potential water shortages from climate change and drought. This can include implementing water conservation measures, utilizing water storage options, exploring alternate water sources, and monitoring your well. If your well is dry, it is important to understand the contributing causes.

Water conservation is important throughout the year to build resilience in times of drought. Knowing local drought conditions and watering restrictions can help to guide your water conservation efforts.

Preparing for drought and water shortages will help conserve groundwater, a shared water source that supports individuals, communities, and ecosystems.

If you live close to the coast (e.g. ~100 m), your well may not go dry during drought, but it could be impacted by saltwater intrusion.

Details on this issue are provided in a **Best Practices for Prevention of Saltwater Intrusion** document linked in the "More Information" section.

Drought preparation and planning

To prepare and plan for drought, you can:

Conserve water: This should be done year-round and can include using less water, using low-water appliances, and drought-friendly landscaping. Further conservation is needed during times of drought.

Follow local watering restrictions: This can help guide your own water conservation practices.

Check observation wells: Observation or monitoring wells nearby and in the same aquifer (groundwater source) and nearby can give you an idea of changes in groundwater levels in your area (see link in More Information).

Add storage for groundwater: When water is plentiful, store groundwater in cisterns for use during drought or add capacity year-round.

NOTE: potable water usage requires treatment.

Collect rainwater as alternate water source: Rainwater can be used for watering gardens or other non-potable uses. Rainwater is not safe to drink unless it has been treated to meet potable water standards.

NOTE: potable water is possible with appropriate infrastructure and treatment.

Schedule well system maintenance and necessary upgrades/improvements: Hire a Registered Well Driller or Well Pump Installer for repairs and maintenance, and to recommend improvements to your system to plan and prepare for drought.

Look for possible rebates: Rebates or programs to support well owners during drought may be available from your local municipality or regional district.

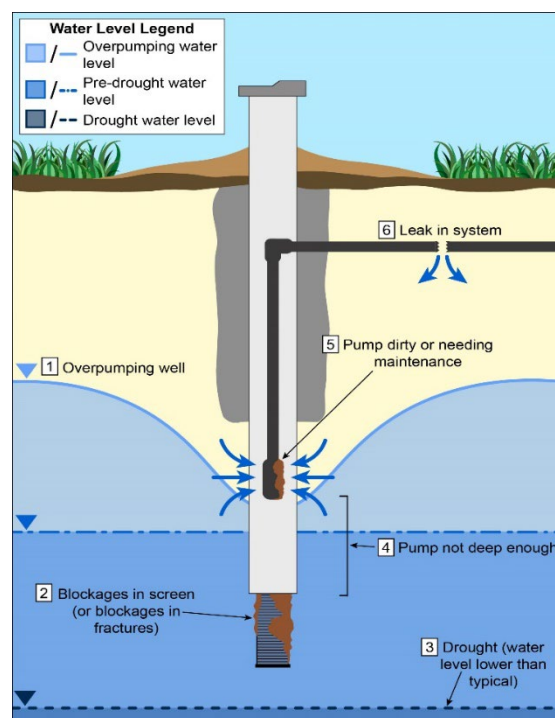
Work with your community and neighbours: Groundwater is a shared resource. Consider working together to conserve water or implementing a timing plan for water use.

Possible reasons for a well going dry

There are many possible reasons your well is not producing water, including:

1. Over-pumping the well (you and/or your neighbours). Storage in a well is limited, and once the storage is used up, the rate of refill may be slower than the rate of use.
2. The well screen or bedrock fractures are blocked.
3. Drought or water scarcity conditions have lowered the water table beyond what your well can capture.
4. Your pump is not deep enough in the well, or your well is not deep enough.
5. Your pump needs maintenance.
6. There is a leak in your system that is wasting water.

Figure 2 A cross-section of a well showing possible reasons for a well to be dry or not producing water. Credit: Erin Seagren (WLRs).



What to do if your well is dry

If you suspect that your well is already dry or going dry (seeing discoloured water or sediment in your water) - what should you do?

- Hire a Registered Water Well Driller, Registered Well Pump Installer, or Qualified Professional who specializes in groundwater to determine the cause of your problem and perform necessary maintenance.
- Purchase water cisterns for water storage, such as holding potable trucked water. If you purchase water, ensure the water is from a regulated water delivery service and is properly stored and treated as needed.
- Consider working with other well users in your area to see if a timing use schedule might help.
- Create a long-term plan for drought-resiliency.

What NOT to do if your well is dry

Do NOT pour any water from an outside source (e.g. trucked water, rainwater) into your well.

Adding any foreign substances to your well is prohibited under Water Sustainability Act (WSA) s. 59.

This unlawful practice wastes your money and can have unintended consequences to the shared groundwater and aquifer.

- Water added to a well will flow out of your well and only a small amount (if any at all) of the water will be available for use.
- Adding water (even potable water) can change your well water chemistry, and unintentionally cause blockages in your well, which can affect the amount of water your well can provide.
- Anytime your well is opened and not sealed is a potential opportunity to introduce contamination to your well and drinking water source.

If you suspect your well is going dry or is dry:

- **Do NOT** put anything into your well to check for water.
- **Do NOT** pull the pump out to see if it is working.
- **Do NOT** conduct your own maintenance or repairs.

These can introduce contamination into your well and could contaminate the aquifer. **This work MUST be done by a Registered Well Driller, Registered Pump Installer, or Qualified Professional who specializes in groundwater.**

As a well owner you have a responsibility to ensure that nothing gets into your well that could contaminate the groundwater. The groundwater is your source of drinking water AND it is a shared resource with your neighbours.

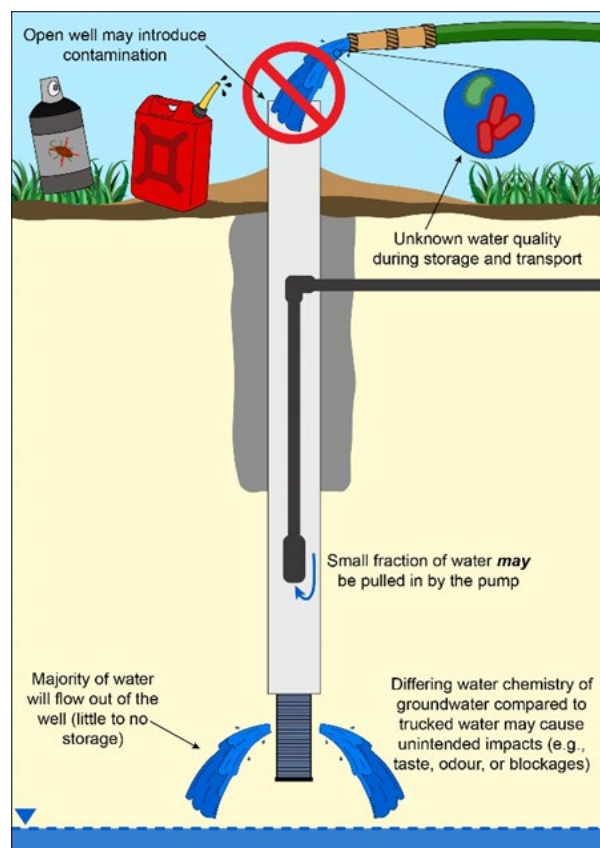


Figure 3 A cross-section of a well showing that it is prohibited to use a well for water storage. Credit: Erin Seagren (WLRS).

How much water is in my well?

Monitoring the level of water in your well can be a great way to understand how much water is available and to inform your water use practices.

Why monitor groundwater levels in your well?

- You can see the effect of well pumping on your water levels.
- You can see seasonal changes to water levels (such as drought and seasonal rains).
- You can use data to identify any leaks, which can waste water and cause your well to go dry.

How can you get started?

- Hire a Registered Well Driller, Registered Pump Installer, or Qualified Professional who specializes in groundwater to consider equipment options and install suitable monitoring equipment.
- Apply to join a volunteer monitoring network in your area (where available).

More information

Drought

[gov.bc.ca/drought](https://www2.gov.bc.ca/drought)

Water conservation tips:

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/drought-information/water-conservation>

Provincial Groundwater Observation Well Network:

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/groundwater-wells-aquifers/groundwater-observation-well-network>

Non-domestic water storage—Dugout authorization.

https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-licensing-and-rights/info_bulletin_-_dugouts_livestock_-_aug_2017.pdf

Hiring the right person:

Registered Well Driller or Well Pump Installers:

<https://apps.nrs.gov.bc.ca/gwells/registries>

Engineers and Geoscientists British Columbia:

<https://tools.egbc.ca/Registrant-Directory>

Other:

BC Groundwater Wells and Aquifers database:

<https://apps.nrs.gov.bc.ca/gwells/>

Best Practices for Prevention of Saltwater Intrusion

https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/water-wells/saltwaterintrusion_factsheet_flnro_web.pdf

Known Municipal or Regional District Rebates:

<https://www2.gov.bc.ca/gov/content/drought#water-conservation>