

QUESTIONS & ANSWERS

1. Why are changes to current water sourcing needed in the Rivers Edge Water Service Area?

The Regional District of Nanaimo (RDN) recently commissioned a study of the groundwater supply in the water service area. This study found that the groundwater quality in the area has declined over time. Changes to the way water is accessed would need to be made to secure a safe and reliable supply for the future.

2. How is drinking water currently supplied to this service area?

The drinking water source for the Rivers Edge Water Service Area is a series of two groundwater wells located nearby that draw from one of three aquifers located below ground. The water is chlorinated and stored in one reservoir before being distributed to 152 separate water service connections throughout the service area. Sampling and testing of raw and treated water are carried out regularly by the RDN and a third-party laboratory to ensure quality and safety standards are maintained.

3. What is an aquifer?

An aquifer is an underground area of gravel, sand, or broken rock that allows water to collect beneath the surface. Water is drawn from aquifers via wells and is a very common source of drinking water throughout the world. **Unconfined aquifers** are permeable and allow water to flow across their borders, while **confined aquifers** are surrounded by impermeable rock or soil which water cannot pass through. The aquifers in this area are both semi-confined and unconfined, meaning water can travel between systems under certain conditions.

4. Why is the quality of groundwater declining in this area?

Three aquifers exist beneath the Rivers Edge Water Service Area and are stacked on top of each other at varying depths. The two wells currently in use draw water from the middle aquifer, which has good water quality. As water demand in the service area has increased over time, the middle aquifer has begun to pull in water from the aquifer below it, which has poor water quality. Water consumption in this RDN service area is far above RDN per capita average, particularly in summer months when demand is highest. This has resulted in poor quality water being drawn from the lower aquifer into the middle aquifer and into the area supply. Water quality will continue to diminish as long as the middle aquifer continues to be contaminated by the lower aquifer.



5. What would happen if no changes are made?

If no action is taken to correct the issues in this service area, water quality will continue to steadily decline until it is no longer potable. High levels of sodium chloride (salt) are found in the lower aquifer at levels that exceed maximum allowable concentrations in drinking water. If water consumption at current levels continues without action it is expected that sodium chloride levels in the drinking water aquifer would exceed safe levels in approximately ten years, at which point the installation of dedicated water treatment (desalination) would be necessary. The capital and operating costs associated with desalination are very significant. If alternate solutions are not found it is possible that permanent Stage 4 watering restrictions could be put in place in the future to reduce water consumption and lessen the demand on the aquifer.

6. What does the RDN propose to solve this problem?

Based on recommendations from a recent hydrogeological and water demand assessment, the RDN proposes to install an additional four to six wells in various locations that would further connect the middle aquifer to the service area supply. Installing more wells spread over a greater area will allow each well to be pumped at a slower rate, which will reduce the rate of contamination from the lower aquifer.

7. What are the steps involved in the process of installing more wells?

The RDN expects the project to upgrade the water supply to Rivers Edge to take place in three phases:

- Phase 1 - Finish preliminary design and cost estimates for the new wells and transmission watermains in 2022.
- Phase 2 - Engage with service area property owners to inform them of the planned upgrades and the costs involved and get their approval to borrow the funds necessary to complete the project in 2023.
- Phase 3 - Complete engineering, construct the wells and transmission system and bring new supply online in 2024.

8. Who pays for this proposed project and what is the expected cost?

This project would be completely funded by the residents of the Rivers Edge Water Service Area. The RDN is currently working to gather information on the overall expected project cost as part of the projects' first phase. Funding would be spread evenly between the 152 properties within the service area and amortized over 20-30 years. The RDN approximates annual payback costs to be in the hundreds of dollars, rather than thousands. Grant funding will be sought to reduce the borrowing required but the availability of grants is currently unknown.

9. Does the drinking water currently pose a health risk to residents?

No. The RDN regularly monitors drinking water in all service areas it manages to ensure only safe water is ever distributed to residents. Exceedances of drinking water quality parameters within this service areas' supply are not expected to be seen for approximately 10 years at current consumption rates.

FURTHER QUESTIONS OR COMMENTS? E-mail: rcu@rdn.bc.ca

Thank you!