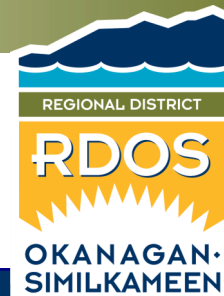


Regional District of Okanagan-Similkameen

Missezula Lake Water System Upgrade

Spring 2025



Keeping the Community Informed

The Regional District of Okanagan-Similkameen (RDOS) owns and operates the Missezula Lake water system (MLWS). The water system draws water from Missezula Lake and services approximately 190 residential and seasonal lots.

Background:

Before the RDOS ownership of MLWS, an engineering assessment was done by a third party, TRUE Consulting (TRUE). TRUE identified numerous deficiencies in the system infrastructure including insufficient water treatment, lack of water storage for fire protection, and a poorly constructed distribution system that lacks proper engineering records. To address these deficiencies and meet the requirements of the Provincial Drinking Water Protection Act (to protect against bacteria, viruses and Protozoa), major upgrades are necessary.

Currently, drinking water standards are not being met for a surface water source and this leads to sporadic boil water notices; sometimes lasting months. A new water treatment plant is the main upgrade required to address deficiencies in the water system. It is expected that the Provincial 4-3-2-1-0 Drinking Water treatment standards for a surface water source will be met with a filtration, Ultra Violet (UV), and chlorination system. The new facility is intended to be designed and constructed near the existing reservoir and lake intake.

At present, the reservoir is supplied through a siphoning action based on the level of the lake. In order to ensure a constant water supply and water pressures for the treatment system, pumps will be installed for the intake system to eliminate the reliance on a high lake level for supply. The updated intake system will allow for increased releases from the lake dam providing all downstream agricultural and fisheries needs, without the risk of losing supply water due to a lower lake level.

The main objective of this project is to increase access and reliability of drinking water for the Missezula Lake community.

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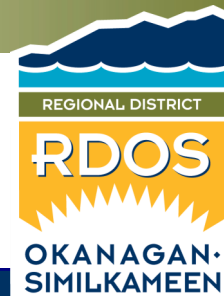
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Keeping the Community Informed

Seeking a solution:

The cost to install and operate a surface water source treatment plant is estimated to be high. The RDOS tasked Associated Engineering (AE) to explore other options.

As part of this evaluation, AE conducted the following analysis:

- Oversaw the drilling of a new water supply well (WIPN 52992) and characterized aquifer properties, including potential capacity, water quality, and aquifer vulnerability; and
- Analyzed raw water quality from the surface and groundwater sources to identify treatment requirements to meet current BC standards for drinking water and develop treatment options along with estimated costs.

AE concluded the following regarding the groundwater source:

- WIPN 52992 is completed in a sand and gravel provincially unmapped aquifer and has a long-term sustainable yield of 5.14 L/s versus the MLWS's 2021 maximum daily demand (MDD) of 11 L/s observed in July 2021.
- In terms of water quality, the groundwater source contains elevated concentrations of total organic carbon, aluminum, manganese, dissolved solids, and hardness. Based on the characterization of the well, AE assumed that the groundwater source would be considered as Groundwater At Risk of containing Pathogens (GARP) with viruses only.
- Two treatment scenarios were considered: One provides treatment for all of the aforementioned water quality parameters that do not meet current BC drinking water standards, and the other that proposes a simplified treatment schematic that did not include treatment for hardness and total dissolved solids, as these are considered aesthetic parameters to meet in the standards.

AE concluded the following regarding the surface water source:

- Treatment objectives for the surface water would involve algae removal and organics reduction, as well as filtration with disinfection to reduce the presence of microbiological parameters.

Please note that a capacity assessment of the surface water source has not been conducted, nor has AE conducted an inspection of the existing intake infrastructure.

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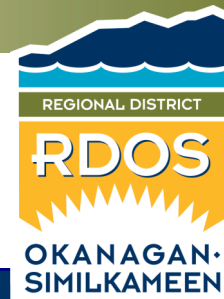
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Keeping the Community Informed

Decision on Treatment Options

The estimated capital cost for the three treatment scenarios were as follows:

- Option 1 – surface water: \$2,990,000
- Option 2 – groundwater: \$4,647,500
- Option 3 – groundwater (simplified): \$2,470,000

Based on a multi-criterion decision-making process, the surface water option ranked the highest, and one of the main factors was that the groundwater source can only meet half the MDD. Therefore, AE recommends that the RDOS pursue upgrading the MLWS using surface water.

Next steps:

- Seek and secure qualified professional/consultant to design a water treatment system.
 - Detailed Design and Installation Request for Proposal released in January 2025 did not yield any proposals.
 - Continue to seek and secure a qualified professional/consultant to perform the design.
 - Execute detailed design May—October 2025 (tentative)

The complete Source Evaluation and Conceptual Design, Missezula Lake Water System Upgrade Report is available for review on the Regional Connections Missezula Lake Water System Upgrade project page.

rdosregionalconnections.ca

Source Evaluation and Conceptual Design, Missezula Lake Water System Upgrade Report

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