



MISSEZULA LAKE WATER SYSTEM

2020 Annual Water Quality Report

May, 2021

Regional District of Okanagan - Similkameen Public Works

Missezula Lake Improvement District—Transfer to the RDOS

The Missezula Lake Improvement District voted at an Annual General Meeting May 20th, 2018 to dissolve and create a water service area owned and managed by the Regional District of Okanagan-Similkameen (RDOS). The Provincial government approved the request through an Order in Council in November of 2019. At the RDOS Board meeting on December 5th, 2019, RDOS elected officials voted in favour of RDOS assuming ownership. In late 2019, RDOS staff began monitoring the system, performing operational tasks, and taking water samples in accordance with a water quality monitoring program approved by the Interior Health Authority (IHA).

Water System Improvements

Interior Health requires the Missezula Lake water system meet the Provincial 4-3-2-1-0 Treatment Standards. In order to meet the Standard, a water filtration system will need to be installed. The Regional District has applied for grants, that if successful, will reduce capital costs up to 73%.

A \$50,000 grant contribution was used to pay for a new telemetry and pump control system (SCADA, see 2nd page) and a new chlorine analyzer. These improvements enhanced public safety by providing the RDOS with the ability to remotely monitor the system resulting in improved response times to system failures.

Should the Regional District be successful in obtaining a grant to build a water filtration plant, the RDOS will need to increase rates in order to cover its share of the capital costs and additional operational costs for the filters and solids management. While there is a cost to build and operate a water filtration system, this cost will be much less than if than the MLWD had to achieve it without access to infrastructure grants, only available to the RDOS.

Water System Notifications—2020

On May 8th, 2020 the RDOS, in consultation with the Interior Health Authority, issued a *Water Quality Advisory (WQA)* in response to the turbidity from Missezula Lake exceeding the IHA’s Turbidity Index “Fair” Rating. This remained in effect until August 31st when turbidity levels were consistently reported below 1 NTU.

- Good** (<1 NTU) – No Public Notification required
- Fair** (1-5 NTU) – A **Water Quality Advisory** is required
- Poor** (>5 NTU) – A **Boil Water Notice** is required.



On October 13th, 2020, a *Boil Water Notice (BWN)* was issued in response to a failure in the chlorine dosing system. This BWN remained in effect until October 30th.

IHA's Role

The Interior Health Authority's team of drinking water officers are responsible for providing the oversight to ensure compliance and drinking water safety. The IHA is responsible for issuing *Permits to Operate* to drinking water systems. IHA has four levels of water notifications.

WATER QUALITY ADVISORY (WQA)

- There is some level of risk associated with consuming the water, but a boil water notice is not needed.
- The risk is elevated for people with weakened immune systems.

BOIL WATER NOTICE (BWN)





- There are organisms in the water that can make you sick.
- To safely consume the water, you must bring it to a rolling boil for at least 60 seconds, or use a safe alternate source of water.

DO NOT CONSUME (DNC)

- There are harmful chemicals or other bad things in the water that can make you sick if you consume (swallow) it.
- You cannot make the water safe by boiling it.
- You can bath, shower, and water plants and gardens with the water.

DO NOT USE WATER (DNU)

- There are known microbial, chemical, or radiological contaminants in the water and that any contact with the water, with the skin, lungs, or eyes can be dangerous.
- Do not turn on your tap for any reason and do not use your water .
- You CANNOT make the water safe by boiling it.

	WATER QUALITY ADVISORY (WQA)
	BOIL WATER NOTICE (BWN)
	DO NOT CONSUME (DNC)
	DO NOT USE (DNU)



In 2020 a total of **25** water samples were drawn from the treated water leaving the Pump Station and **53** samples from locations throughout the distribution system. Samples were analyzed by an accredited laboratory for Total Coliforms and *Escherichia coli*. All samples drawn in 2020 had no detections for *E.coli* however there was **1** distribution sample that was positive for Total Coliforms.

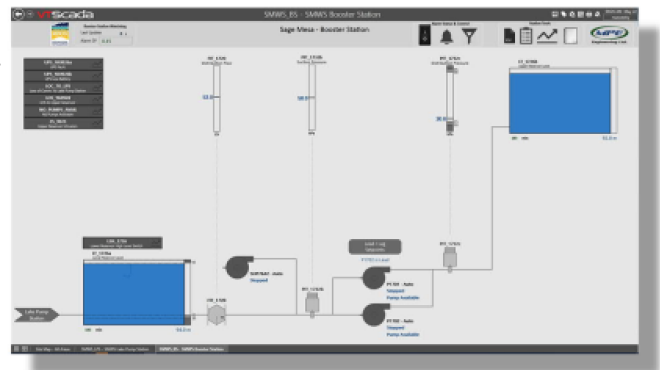
In addition to the bacteriological samples, field tests were conducted for temperature, pH, conductivity, free chlorine and turbidity. Free chlorine residuals are required to be maintained between 0.2 mg/L and 2.0 mg/L of free chlorine in the distribution system.

Sampling Location	Unit	Avg	Min	Max	Number of Results
Phase 1	mg/L	0.63	0.33	1.17	5
The Gate	mg/L	0.6	0.29	1.12	25
Tower	mg/L	0.54	0.08	1.02	19

2020—Distribution System Free Chlorine Residuals

The Role of SCADA Systems in Water Supply

A Supervisory Control and Data Acquisition (SCADA) system is an integral part of a modern water system. It is comprised of sensors, programmable controllers, communications and network devices installed at pump stations and treatment facilities. These components control equipment such as pumps and monitor system operations while storing important data. The system also provides the ability to monitor the system remotely through software packages along with the generation of alarms that will notify the system Operators when there is a problem or failure. In 2019 the RDOS developed a *SCADA Master Plan* that provides direction for upgrading the existing SCADA network and how to efficiently integrate new water systems into the existing network.



Potable Water – Missezula Lake

A variety of tests are carried out in the water system on a weekly and annual basis. Annually, the RDOS submits a sample of the untreated lake water to an accredited lab for full comprehensive potable water testing. This comprehensive test includes physical parameters (e.g. color, turbidity, temperature, ultraviolet transmittance), chemical parameters (e.g. hardness, total metals and nutrients) and bacteriological quality. Changes in these parameters may result in the need for water notifications for customers (i.e. *Boil Water Notice* or *Water Quality Advisory*) or the requirement for treatment processes to be implemented. In 2020, all of the tested parameters, with the exception of turbidity, met the applicable potable water standards.



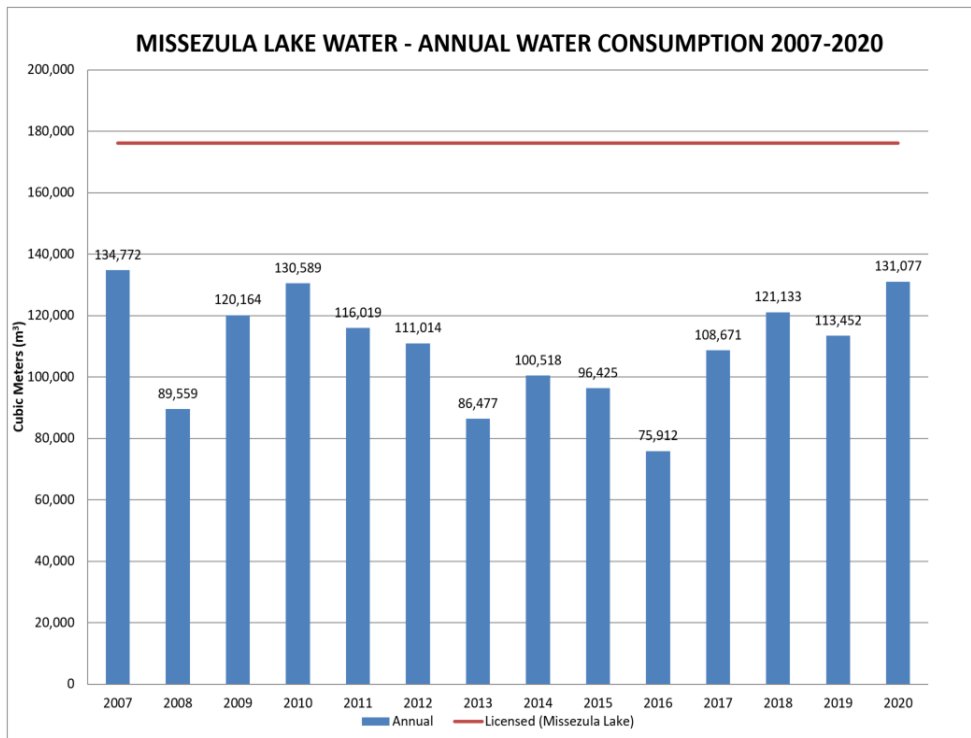
Standards for Potable Water

The *British Columbia Drinking Water Protection Act (DWPA)* and supporting Regulation along with the *Federal Guidelines for Canadian Drinking Water Quality (GCDWQ)* define parameters for potable water in BC. These include Aesthetic Objectives (AO) and Maximum Allowable Concentrations (MAC) for numerous water quality parameters.



Missezula Lake Water Usage

The RDOS started trending annual pumping volumes extracted from the Missezula Lake. In 2020 a total of 131,077 cubic meters of water was pumped from Missezula Lake, up from 113,452 cubic meters in 2019.



Missezula Lake Annual Water Consumption 2007-2020

Certified Water Operators

The British Columbia *Environmental Operators Certification Program (BC EOCP)* is responsible for the classification of water systems in BC. The EOCP is also responsible for certification of all water system Operators.

All RDOS Operators are certified through the *BC EOCP*. Operators may hold certification in the disciplines of Water Distribution and/or Water Treatment with 4 levels of certification achievable within each discipline.

Annually, RDOS Operators attend courses and seminars and complete online training required to maintain and progress through their levels of certification.



Water Conservation

New for 2021

4 x 6 Magnet

These handy little reminders were provided to all property owners in RDOS owned or operated water systems. The hanger can be attached to exterior hose bibs, and the magnets to any metal surface like fridges, filing cabinets, or metal garage doors. If your property is a rental, please insure they are delivered to tenants, and all outdoor irrigation is set to align with regulations.

MAKE WATER WORK FOR YOU

2 x 3 outdoor faucet (hose bib) hanger



For the complete Water Use Restriction Stages visit: [Water Restrictions](http://www.rdos.bc.ca/restrictions)
For more water wise tips visit : www.makewaterwork.ca

Provincial Drought Levels vs. Water Restrictions

It can be confusing when Provincial Drought Levels are circulated in the media and appear to contradict local Water Restriction Stages. They are two different rating systems.

Provincial Drought Levels are based on 'environmental flow needs' in creeks and rivers. BC River's Forecast Centre monitor volumes of water and water levels in order to insure water levels are adequate to support fish as they move through their life cycle. Fish are indicators of the overall health of the creek ecosystem, especially in times of increasing water scarcity during a drought. The Province developed a system to rate Drought Levels, and the response actions required at each incremental stage.

Regional Water (sprinkling) Restrictions relate to the capacity of each individual water system to provide potable water to users. Restrictions are required in times of heavy use or water scarcity (drought) and may not be at the same stage for all water systems.

The RDOS's *Regional Water Use Regulation Bylaw* and *Regional Water Conservation Strategy* are used to regulate the water use within the nine water systems that the RDOS owns/operates.

Restrictions begin at *Stage Normal* which represents normal (average) conditions for a local area and are in effect year round unless a higher stage (Stages 1 to 4) are in effect.

Water Quality Complaints

If you have a water quality complaint, concern, observe changes in your water or would like to request further information regarding any of the RDOS water systems please contact the following:

Public Works Department
RDOS Environmental Technologist
Toll Free: 1-877-610-3737
Phone: 250-490-4106
Email: info@rdos.bc.ca

Water Connections

During regular business hours water related emergencies, questions regarding applications for water service and water service turn on/off requests can be directed to the following:

Public Works Department
Administrative Assistant
Toll Free: 1-877-610-3737
Phone: 250-490-4135
Email: info@rdos.bc.ca

After-Hours Water Emergencies

For all after-hours water related emergencies please call:
Regional Dispatch
250-490-4141



Additional Resources

RDOS Water System Home Page
[Water Systems | RDOS](#)

Interior Health Authority Drinking Water Homepage
[Home \(interiorhealth.ca\)](#)

Federal Guidelines for Drinking Water Quality
[Water Quality - Reports and Publications - Canada.ca](#)

Be Safe—Be Informed—Be Involved In Your Community

SIGN UP TO RECEIVE IMPORTANT RDOS WATER SYSTEM NOTIFICATIONS



To ensure the residents and property owners of the Regional District of Okanagan-Similkameen are safe, informed and up-to-date with community activities, the RDOS has implemented a mass communication service called *CivicReady*. This system allows the RDOS to communicate out routine and emergency messages through email, text and/or phone call.

To sign up and or learn more about *CivicReady* go to: www.rdos.bc.ca & look for the alarm button or sign up link on the right-hand side



Routine Notifications:

- Community Events
- Water & Sewer System Alerts
- Curbside Pick Up & Landfill Hours
- Regional Recreation
- Land Use Changes
- And More....

Emergency Notifications:

- EOC Updates
- Sandbag Pick-Up Locations
- ESS Locations
- Wildfire Updates
- Dangerous Animals in the Area

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