



Cedar Lane Manganese Removal Upgrade Open House

February 9, 2026

Territorial Acknowledgement

The CRD conducts its business within the Territories of many First Nations, including but not limited to BOKÉĆEN (Pauquachin), MÁLEXEŁ (Malahat), paaʔčiidʔatx (Pacheedaht), Spune'luxutth (Penelekut), Sc'ianew (Beecher Bay), Songhees, SʔÁUTW (Tsawout), T'Sou-ke, WJÓŁEŁP (Tsartlip), WŚIKEM (Tseycum), and x^wsepsum (Kosapsum) Nations, all of whom have a long-standing relationship with the land and waters from time immemorial that continues to this day.

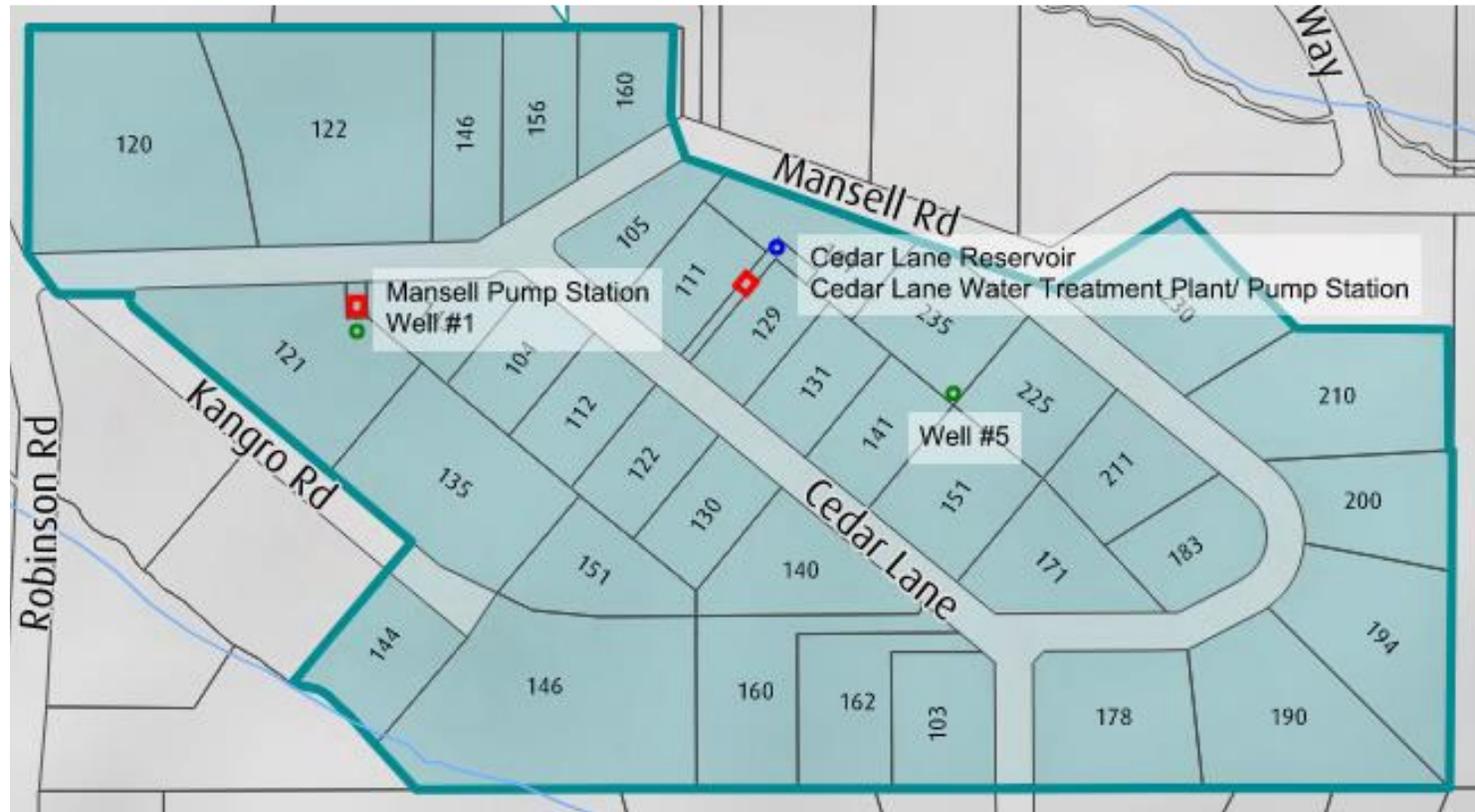


Overview

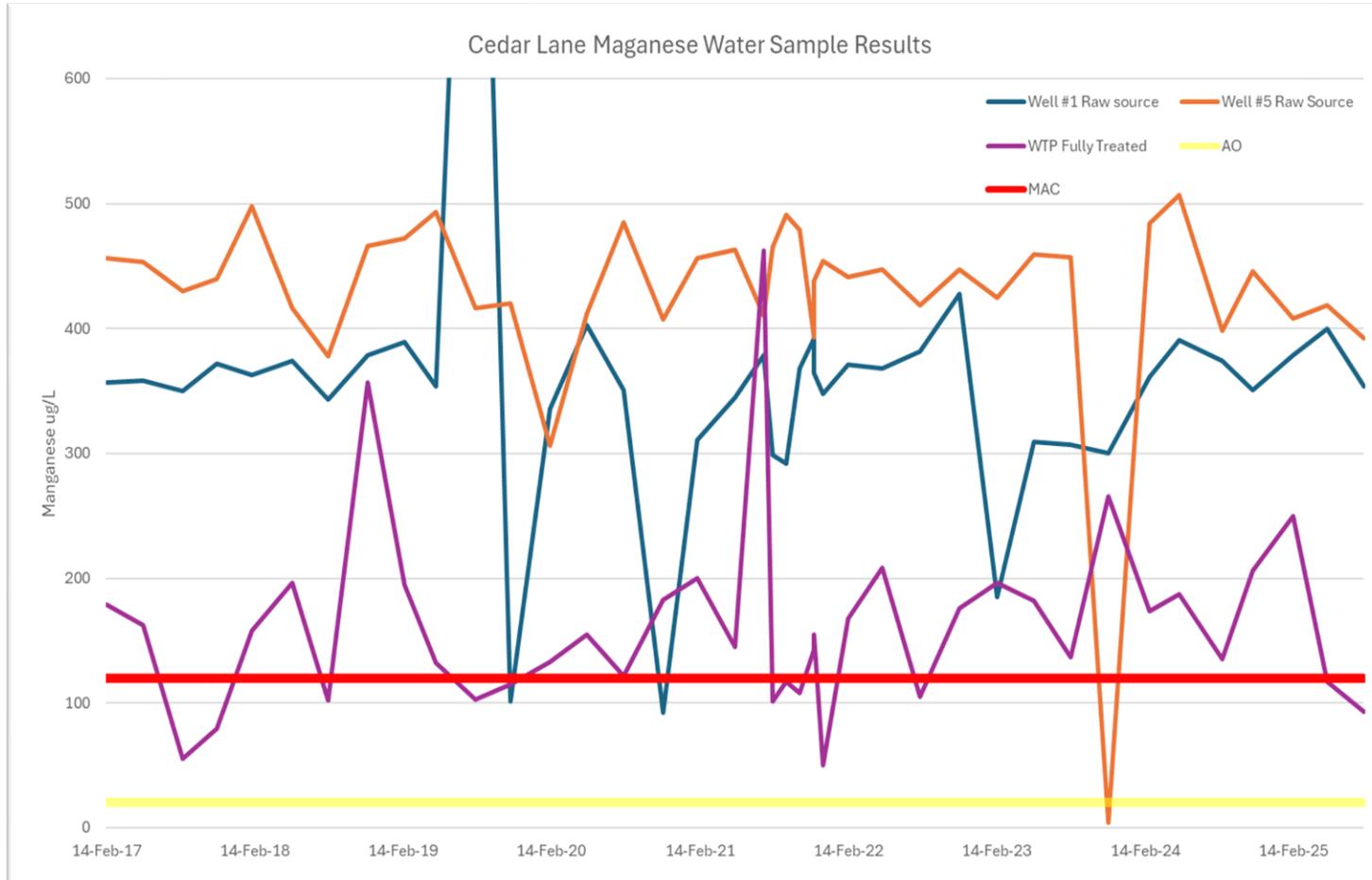
The Cedar Lane Treatment Plant/Pump Station services 37 properties.

- Water is pumped from the Mansell Wells #1 and #5 to the water treatment plant which has cartridge filtration, ultraviolet disinfection, and chlorination secondary disinfection
- The treated water is then pumped to the Cedar Lane Reservoir which has a capacity of 136 m³ (30,000 IG) then distributed via mains to residents

The Cedar Lane Water System was first developed in 1970. The CRD took ownership of the system and then established the 'CRD Cedar Lane Water Service' in 2007.



Why we are upgrading



- Maximum Acceptable Concentration (MAC) and Aesthetic Objective (AO) levels for manganese in drinking water were updated by Health Canada and adopted by Island Health in 2019.
 - MAC=0.120 mg/L and AO=0.02 mg/L
- Manganese levels in Cedar Lane were flagged by Island Health in late 2021.

Why we are upgrading

CRD engaged in an assessment of options to ensure Cedar Lane can meet the new guidelines



Additional wells had been explored for source water, but no viable options were uncovered



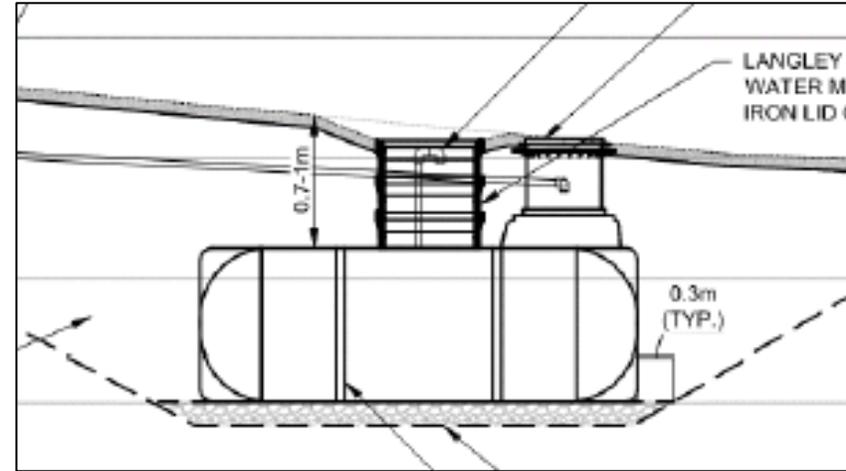
Other treatment options were also explored (biofiltration, chlorine oxidation, etc.)



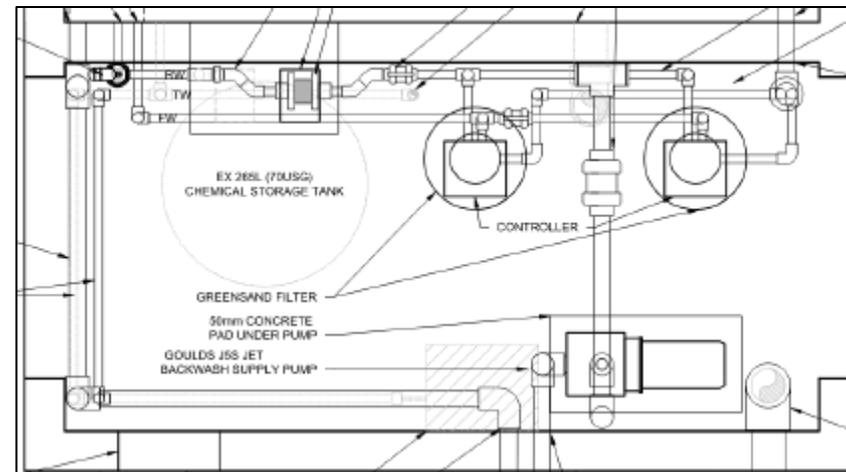
Greensand filtration system (which also assists with Iron levels) was recommended as providing the most effective solution. The system was proven with successful bench scale testing

What we are upgrading

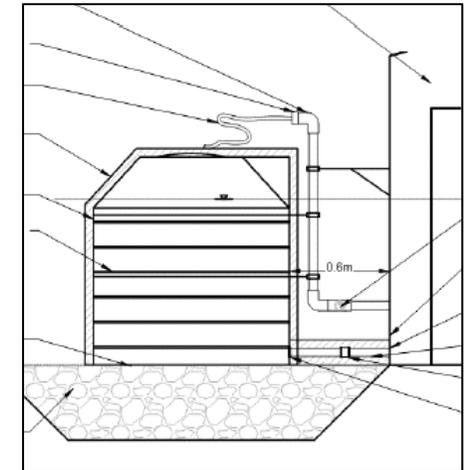
- Current filtration equipment includes, 20-micron cartridge filter, UV disinfection and hypochlorite injection, as a secondary disinfection.
- Upgrade consists of the addition of two 12-inch Greensand Plus media filters, chlorine pump, backwash supply pump, backwash water/wastewater tanks and HVAC for chlorine room ventilation.



Backwash waste tank



Chlorine room with filters and HVAC



Backwash supply tank



How we are executing

Project funding timeline

- Community engagement – Feb 2026
- Bylaw approval – May 2026
- Funds approval – Jun/Jul 2026

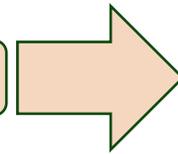
Execution timeline

- Tender process – Aug 2026
 - Contractor onboarding – Sep 2026
 - Construction – Fall/Winter 2026
 - Commissioning and Full operation – Late 2026
-
- Financial outcomes are planned to be reported in 2027 AGM

How we are funding

Overall Project Financials	
Project Budget	\$476,500
Spend to date (Jan 2026)	\$96,500
Remaining budget	\$380,000

Funding Source	Budget (2026)
Debt	\$ 190,000
Grant (CWF)	\$ 120,000
Capital Reserve Fund	\$ 10,000
Capital Funds on Hand	\$ 60,000
TOTAL	\$ 380,000



- \$190,000 debt funding is required to support the finances of this project plus \$40,000 for the Spare Pressure Pump project for a total of \$230,000 of debt borrowing
- A loan authorization bylaw and participating area approval is required prior to adopting a loan
 - Participating area approval will be determined through electoral assent (petition)

Borrowing options

Borrowing Amount	\$230,000				
Borrowing term (years)	10	15	20	25	30
Indicative Interest Rate*	3.89%	4.42%	4.64%	4.64%	4.64%
Cost of Borrowing (\$)	286,888	332,610	375,267	413,447	452,726
Annual Debt Payment (\$)	28,689	22,174	18,763	16,538	15,091
Annual Parcel Tax per taxable folio (\$) **	775	599	507	447	408
Representative monthly payment (\$)	65	50	42	37	34

*MFA Indicative Market Rates used for analysis, taken from MFA Website, December 05, 2025.

** Calculated parcel tax assuming no change in total folios, set at 2025 level of 37 folios.

- A 15-year term is has been chosen to optimize payments, cost of borrowing and interest rate
- Over the term of the debt, the annual repayment of the debt, including principal and interest payments, will be collected through annual Property Taxes
- The actual cost of borrowing will be dependent on the loan amount, actual interest rates at the time of borrowing and refinancing, and the amortization term selected.

Electoral Assent Options

Petition

- Only property owners may participate (one vote per property).
- 50% approval threshold representing at least 50% of taxable value of land and improvements
- Highest likelihood of approval success

Cost \$5,000 est.



Petition process has been selected to reduce expense on ratepayers and expedite issue resolution

Alternative Approval Process

- Commonly used in relation to long-term borrowing bylaws
- Borrowing initiative can be quashed if more than 10% of electors sign a counter-petition opposing the bylaw.
- A referendum must be held within 80 days if the need to proceed with the borrowing is still required.
- Less expensive than a referendum

Cost \$20,000 est.

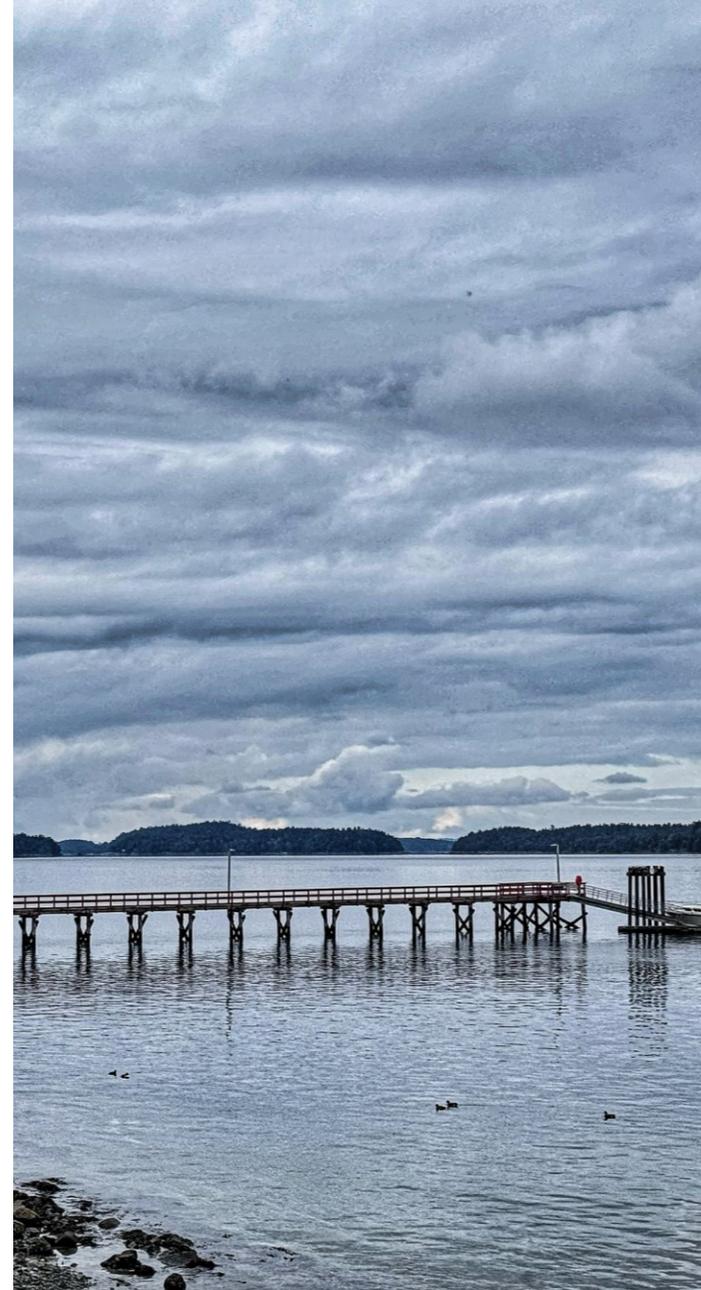
Referendum

- Majority of the valid votes are counted in favour of the bylaw to fund a project.
- A referendum question is developed and then reviewed by the inspector of Municipalities at the province, requesting the electors to approve the borrowing of a specified amount of funds for the project.
- Must wait at least six months before seeking elector assent on another bylaw for the same purpose in a referendum
- More expensive than an Alternative Approval Process

Cost \$60,000 est.

Next Steps

- Public Engagement session for Cedar Lane residents
- Initiate the petition process with ratepayers
- Proceed with the loan authorization process
 - CRD Board approval required
 - Debt financing will be provided through the Union of BC Municipalities (UBCM) at favourable interest rates.
- Initiate construction tendering process
- Field construction, installation and commissioning of the equipment
- Key Performance Indicator (KPI) monitoring to ensure project success
 - Quarterly monitoring of water quality, supply and demand



Comments and feedback

Thank you for attending this meeting on the Cedar Lane Manganese Removal project.

Questions and/or comments may be submitted in person at the SSI CRD Administration Office, located at #8-121 McPhillips Avenue, or by email at saltspring@crd.bc.ca

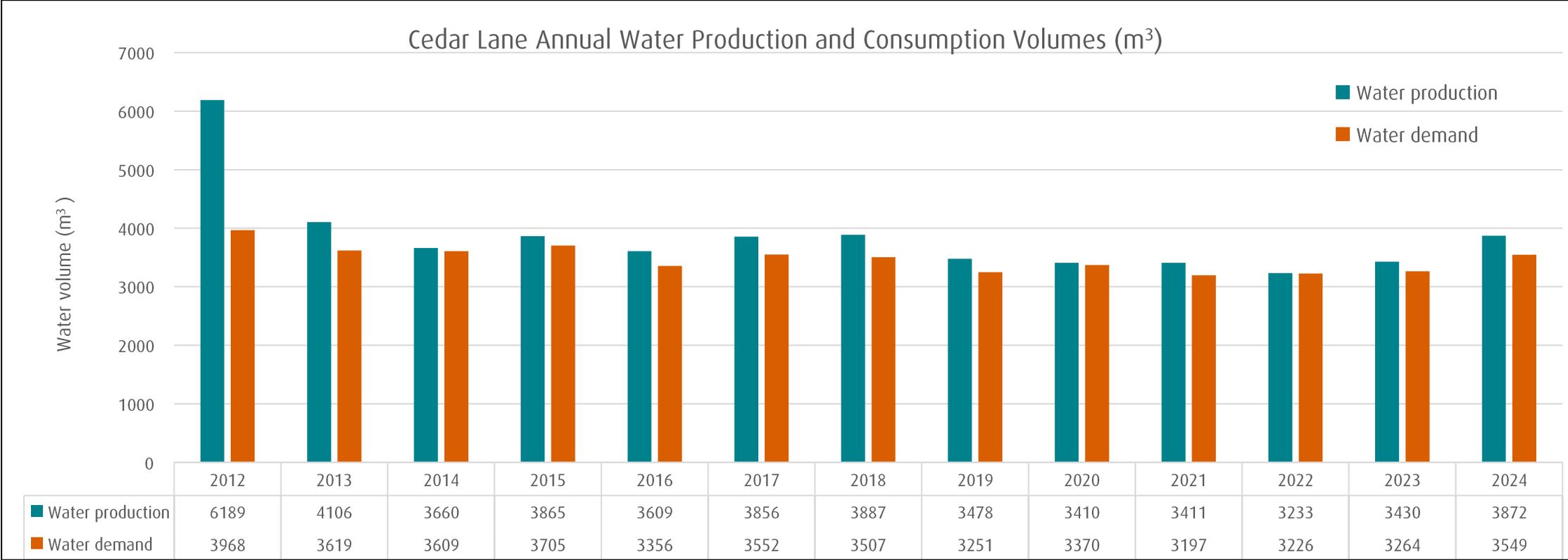
Please subscribe to your water commission page to be notified of commission meetings.

www.crd.ca/cedarlane-ws



Appendix

Water Supply



This graph depicts annual water production and consumption between 2012 and 2024. During these years, the treatment plant produced an average of 3,847 cubic meters per year, and the average water demand (water meter billing) was 3,475 cubic meters per year.

Letter to residents – July 2021

Frequently Asked Questions

How does Health Canada determine the Maximum Acceptable Concentration (MAC) for manganese?

The MAC is based on animal studies and includes safety factors to ensure even sensitive individuals are protected. Concentrations approaching, but remaining less than, the MAC are not associated with increased health risks in individuals. Health Canada calculated the MAC assuming that people would be constantly exposed to elevated levels of manganese for long periods of time. Occasionally consuming water with manganese concentrations slightly greater than the MAC is unlikely to cause any health issues. Health Canada has adopted a precautionary approach due to the limitations on the available information. Manganese concentrations greater than the guideline are only representative of a potential risk to health, but do not represent measureable health impacts.

What are the health effects of manganese?

People who are exposed to high levels of manganese can develop manganese toxicity. The primary target of manganese toxicity is the central nervous system, followed by the reproductive system. There is no evidence to conclude that detectable differences in health will be present at concentrations less than the MAC, the available evidence does suggest that measureable neurological impacts may be possible when infants and children are chronically exposed to manganese concentrations greater than the MAC. New evidence has shown that consuming drinking water with high levels of manganese may impact the memory, attention, motor function, and the overall intellectual development of infants and young children. The high degree of uncertainty and limitations of available information, the guideline of 120 ppb should be interpreted as being protective of ongoing exposure to all infants relying solely on formula made with tap water. Health impacts in other human groups with decreased exposure or sensitivity might not be significant until drinking water concentrations are much higher.

Can I be exposed to manganese through skin contact?

No. Exposure through skin contact is not harmful. Exposure through hand washing, showering, or bathing from water with manganese is unlikely to be significant. Inhalation of manganese aerosols during showering has not been directly evaluated but it is not expected to pose any risk to human health.

Can I boil the water to remove the manganese?

No. Boiling water is not an effective form of treatment of manganese reduction. Boiling water can increase the concentration of dissolved, and therefore absorbable, manganese in drinking water.

What can I do to reduce my exposure to manganese?

There are several ways you can lower the manganese in the drinking water at home:

- Infants need to be supplied an alternate drinking water source such as bottled water.
- Switching your drinking water to an alternate source such as bottled water.
- Tap filters suitable for manganese removal.
- Point of Entry treatment for the home.

RE: WATER QUALITY ADVISORY FOR CEDAR LANE WATER SYSTEM

Dear Resident:

You are receiving this notice because your property is served by the Cedar Lane drinking water service. The Cedar Lane drinking water service is experiencing elevated concentrations of manganese. Manganese is a naturally occurring element that is present throughout the environment and can normally be found in many water sources and in particular in groundwater from certain geological formations. Manganese is an essential nutrient and consuming a small amount of manganese is necessary to maintain your overall health. Until recently, elevated levels of manganese in drinking water were not considered a health risk but rather only an aesthetic concern. The latest science now associates high manganese concentrations in drinking water with health issues in infants. High levels of manganese can make water appear brown, purple or black at concentrations less than what Health Canada considers the Maximum Acceptable Concentration (MAC) in drinking water.

Health Canada has set a MAC for manganese at 120 parts per billion (ppb) and an aesthetic objective of 20 ppb. The current levels in the Cedar Lane water distribution system range from 23.6 - 200 ppb. Therefore, infants should not consume the tap water and formula made with tap water. As a precaution, it is recommended that you avoid drinking discoloured water, or using it to prepare food or infant formula. Children and adults are less sensitive to manganese than infants, and Health Canada suggests that the health risk from manganese concentrations of less than 300 ppb is insignificant to these parts of the population. A list of Frequently Asked Questions regarding manganese is included with this letter.

Manganese can be reduced to acceptable levels through specific water treatment. The Capital Regional District (CRD) is working on strategies to reduce the concentration of manganese that enters the distribution system following treatment of the well water. A short-term strategy includes cleaning the storage tank to remove manganese accumulation. Monthly manganese sampling will be occurring for a minimum of six months. Longer term strategies are being developed in consultation with Island Health. The CRD anticipates that additional water treatment to address the manganese issue will be in place by the end of 2023. The CRD will continue to provide information directly to residents as the issue is addressed, and updated information will be available on the CRD website at www.crd.bc.ca/service/drinking-water/systems/cedar-lane-water-system.

If you have any immediate concerns or questions, please contact the CRD (Matt McCrank, 250.940.7402 or mmccrank@crd.bc.ca) or Island Health at gateway_office@viha.ca.

Sincerely,
Ted Robbins
General Manager, Integrated Water Services

Island Health Notices and Permit



November 5, 2021

Christoph Moch
Manager, Water Quality Operations
Capital Regional District (CRD)
179 Island Highway
Victoria, BC V9B 1H7

Dear Christoph Moch:

Re: Notice of Proposed Changes to Terms and Conditions of Operating Permit No. 6040948, Cedar Lane Water System

The *Drinking Water Protection Act* requires Drinking Water Officers to exercise discretion in their oversight of drinking water systems. Specific requirements may be made of a water supplier to ensure that the system is operated in a manner that protects the health of water users. Operating Permit Terms and Conditions can often help to clarify the expectations and responsibilities associated with being a water supplier.

Section 8(4) of the *Drinking Water Protection Act* states:

The drinking water officer or an issuing official may change the terms and conditions of an operating permit if the officer or issuing official considers this advisable, but must first consult with the water supplier respecting the proposed changes and must consider any comments of the water supplier in response.

As an issuing official, I propose to attach the following Terms and Conditions to your operating permit:

- Monthly sampling of manganese concentrations for a minimum of six months starting in July 2021. A summary of the manganese results must be submitted to Island Health for review by February 2022.
- Design and upgrade treatment works to ensure manganese concentrations meet the Guidelines for Canadian Drinking Water Quality by December 31, 2023. Note that prior to the installation of any treatment equipment, a construction permit from Island Health is required.

Please respond in writing within 30 days of receiving this notice if you wish to comment on the proposed changes to your permit. Your comments will be considered before a final decision is made.



HEALTH PROTECTION

PERMIT to OPERATE A WATER SUPPLY SYSTEM

Water System Name: Cedar Lane Water System

Premises Number: 6040948

Premises Address: Mansell Road
Salt Spring Island, BC V8K 1P9

Water System Owner: Capital Regional District

This system is hereby permitted to operate the above potable water supply system and is required to operate this system in accordance with the *Drinking Water Protection Act* and in accordance with the conditions set out in this operating permit and conditions established as part of any construction permit.

The water supply system for which this operating permit applies is generally described as:

Service Delivery Area: Cedar Lane Waterworks District
Source Water: Well #1 - West of 145 Mansell Road and Well #5 - 400 Feet North of
Water Treatment methods are: UV & Chlorination
Water Disinfection methods are: UV & Chlorination

Number of Connections: 15 - 300 Connections

Operating conditions specific to this water supply system are:

Date: February 8, 2024 Issued By: [Signature]

**This permit must be displayed
in a conspicuous place and is not transferable.**

APPENDIX A

WATER SYSTEM OPERATING CONDITIONS FOR

Cedar Lane Water System
6040948
Mansell Road
Salt Spring Island, BC V8K 1P9

Design and upgrade treatment works to ensure manganese concentration meets the Guidelines for Canadian Drinking Water Quality by December 31, 2025. Note that prior to the installation of any treatment equipment, a construction permit from Island Health is required.