



WATER FACILITY EVALUATION REPORT

Health Protection

Premises Name Lund Waterworks District	Tel: (604) 414-0230 Fax:	
Premises Address Lund Waterworks District Lund, BC	Inspection Date March 26, 2024	Time Spent 2 hours
Operator (Person in Charge) Courtenay Robertson 414-0230 or 483-1410		
Inspection Type Evaluation		

Observed Violations
There are no observed violations.

Section Details

Comments

Annual Drinking Water System Evaluation Report
Prepared by DWO Jack Davidson for Lund Water District (LWD).

System Overview
LWD receives water from Thulin Lake, which is then gravity fed to the Main pump station and chlorination building. The water is disinfected with hypochlorite and then pumped into the distribution system. The distribution system has three reservoirs and one booster station. The system serves roughly 150 connections.

Chemical Assessment:
The most recent full chemical spectrum water tests were conducted in June 2023, analysing samples of raw water from Thulin Lake. The results of the water test indicate that health-related chemical parameters (excluding Trihalomethanes) were within safe levels according to the Guidelines for Canadian Drinking Water Quality (GCDWQ).
However, total organic carbon (TOC) in the source water poses an ongoing challenge. TOC impacts the ability to treat the water to the full standard required and leads to elevated levels of chlorination by-products, including Trihalomethanes (THM). LWD conducts annual THM tests, revealing that THM levels regularly exceed the maximum allowable concentration (MAC) as per the GCDWQ.

Bacteriological Assessment:
Bacteriological sampling has met the frequency requirements outlined in Schedule B of the Drinking Water Protection Regulation. Permit conditions mandate monthly bacteriological sampling throughout the year, with a rate of 7 samples per month. Further details can be found in the attached sample range reports.
> 96 samples were collected from the distribution system across 8 sites.
> 8 samples were submitted of per month on average.
> 23 raw water samples were taken from the source.
Total Coliforms results complied with the potability standard specified in Schedule A of the Drinking Water Protection Regulation.
> Total Coliform was detected in 2.08% of water samples, as a result of 2 separate samples with more than 10 total Coliform bacteria per 100 ml.
E. Coli results also met the potability standard set forth in Schedule A of the Drinking Water Protection Regulation.

> E. Coli was not detected in any water samples.

Summary of Issues and Activities:

As noted in previous evaluations, surface water sources such as Thulin Lake require two levels of treatment. Chlorine alone cannot effectively treat harmful parasitic protozoa such as Giardia or Cryptosporidium. Surface water is susceptible to fecal contamination from sewerage runoff and animals, including deer, rodents, beavers, and birds, all of which may be present within the Thulin Lake watershed.

Treatment technology is necessary to remove microbial contamination from surface water. Typically, filtration and UV disinfection are employed for the removal or inactivation of pathogenic parasites (e.g., Giardia and Cryptosporidium), while chlorination is used for disinfecting bacteria and viruses.

LWD currently relies solely on chlorine for treatment. This, combined with the high level of organics in Thulin Lake, results in elevated levels of THM (Trihalomethanes). Filtration and UV disinfection are essential for reducing organics, chlorine demand, and the risk from bacteria and parasites.

Additionally, aging infrastructure poses a significant challenge. The two large storage tanks above the pump station are beyond repair and require replacement.

Facing substantial financial constraints, the LWD board of trustees was dissolved in early 2022. The provincial Ministry of Municipal Affairs appointed a receiver for the improvement district, working with LWD and the qathet Regional District (qRD) to determine the best path forward for grant funding and necessary improvements required for transferring ownership to the next available level of government (i.e., the qRD). In 2022, Joanne Edwards, Provincial Drinking Water Officer, was formally briefed on the situation. LWD's predicament was subsequently highlighted in the Provincial Health Officer's Drinking Water Report published in 2024.

On March 22nd, 2024, it was announced that the LWD district qualified for an \$11 million grant through the green infrastructure stream of the Investing in Canada Infrastructure Program (ICIP). The proposed funding aims to make necessary upgrades to improve water quality by reforming the four main components of the system: supply, pump stations and treatment, storage, and distribution. To utilize this grant, the qRD would require elector approval for borrowing up to \$4,007,002 to fund the local portion of the eligible project costs. To request this approval and borrow funding, the LWD would need to convert to a regional district service.

Requirements

To date, Vancouver Coastal Health (VCH) has refrained from imposing a long-term Drinking Water Advisory (DWA) on LWD (Local Water District) under the condition that LWD continually provides evidence of efforts toward achieving Canadian drinking water treatment objectives. However, considering the potential risks and the undetermined timeframe for improvements, VCH believes that advisory action is now necessary while LWD plans and executes its next steps.

Actions to be taken include:

- > Completion, posting, and distribution of a water quality advisory template signage to water users.
- > Submission of the following documents for the year 2023 annual report:
 - Updated Emergency Response and Contingency Plan.
 - 2023 System Annual Report (including the attached template for water-sample range).
- > Scheduling of routine annual inspection for June 2023.
- > Water operator to provide VCH with results from turbidity testing using the benchtop turbidity meter loaned to LWD by VCH.

Your prompt attention to these matters is greatly appreciated. Should you require any assistance or further clarification, please do not hesitate to contact us.

Hazard Rating For Your Facility: <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low

DWO

DWO Printed Name
Jack Davidson
