



Annual Water Report

2023

Water System Description

The Alto Utilities Ltd. water system provides water for approximately 430 domestic unmetered connections, 1 school and 1 metered church (approximately 1000 people).

Untreated groundwater is drawn from two deep wells located on Lodge Road. These wells replenish three concrete reservoirs with a total capacity of over 1,700m³. The reservoirs are situated above the subdivision where gravity feeds the system through a series of mains, 29 fire hydrants, and two pressure reducing valve stations (PRVs).

Alto Utilities operates as required, and in accordance with the following programs:

- Capital Plan – Alto continues to develop both near and long-term plans for source, treatment, and distribution infrastructure upgrades. An asset management plan will be completed early in 2024 and will pave the way for a subsequent treatment plan. Alto anticipates a rate increase over the next three years to accommodate long-term infrastructure replacement and new treatment infrastructure.
- Water Quality Monitoring Plan – In addition to the regular daily and weekly monitoring, Alto continues to implement a well protection plan that will continue to ensure safe drinking water for its customers on into the future. In 2023 Alto's South well was successfully rehabbed.
- Emergency/Drought/Wildfire Response Plans – Each year Alto reviews its Emergency Response Plan to ensure that it is prepared for any kind of emergency. This includes keeping emergency contact information current, as well as developing strategies for drought and wildfire situations.
- Cross Connection Control Program – The cross-connection program was updated in 2021 and we will provide suggestions in future correspondence about ways that you can help protect your drinking water from cross connection dangers.
- Environmental Operators Certification - Alto continues to provide Level II Operator oversight as per Alto's Operating Permit.



Lodge Road Pump House



Inside the Lodge Road Pump House

System Improvements & Maintenance

The distribution system was originally constructed in 1970 and has seen many upgrades over the years and 2023 was no exception. This year Alto upgraded battery backups to improve communication from the reservoirs during power outages. As many of Alto's customers know, power outages were a regular problem over the summer and the Velda reservoir experienced 3 extended power outages in the summer of 2023 due to the private powerline that supplies power to Alto and two telecom companies tripping over weekends. The additional battery backup provides 4-5 days of power for communication.

Interior Health regulates, issues operating permits, and requires water quality reporting from all water purveyors in the interior of British Columbia. In 2020, Interior Health mandated several changes on Alto's operating permit. Since then, Alto has been working towards compliance with these requirements. In 2023 Alto began to update its Asset Management Plan (AMP) as part of a continuing provincial mandate to protect its citizen's health and the water sources they use.

The AMP has focused on Alto's current infrastructure to identify future infrastructure needs and project costs so that Alto can make long-term plans for infrastructure replacement and upgrades. Recent leak detection testing confirms that there is minimal water loss and suggests mainlines are in good condition. Mainline repairs are infrequent (the last repair was due to a tree root and occurred 7 years ago) and reinforce the findings from the leak detection testing on Alto's mainlines. Regardless, time eventually catches up with all infrastructure and Alto must plan for future spending on pumps, wells, pipes, PRV, valves, reservoirs, computers, and software, etc. The AMP will be completed early in 2024 and will pave the way for the next condition on Alto's operating permit, treatment options for Alto's water.

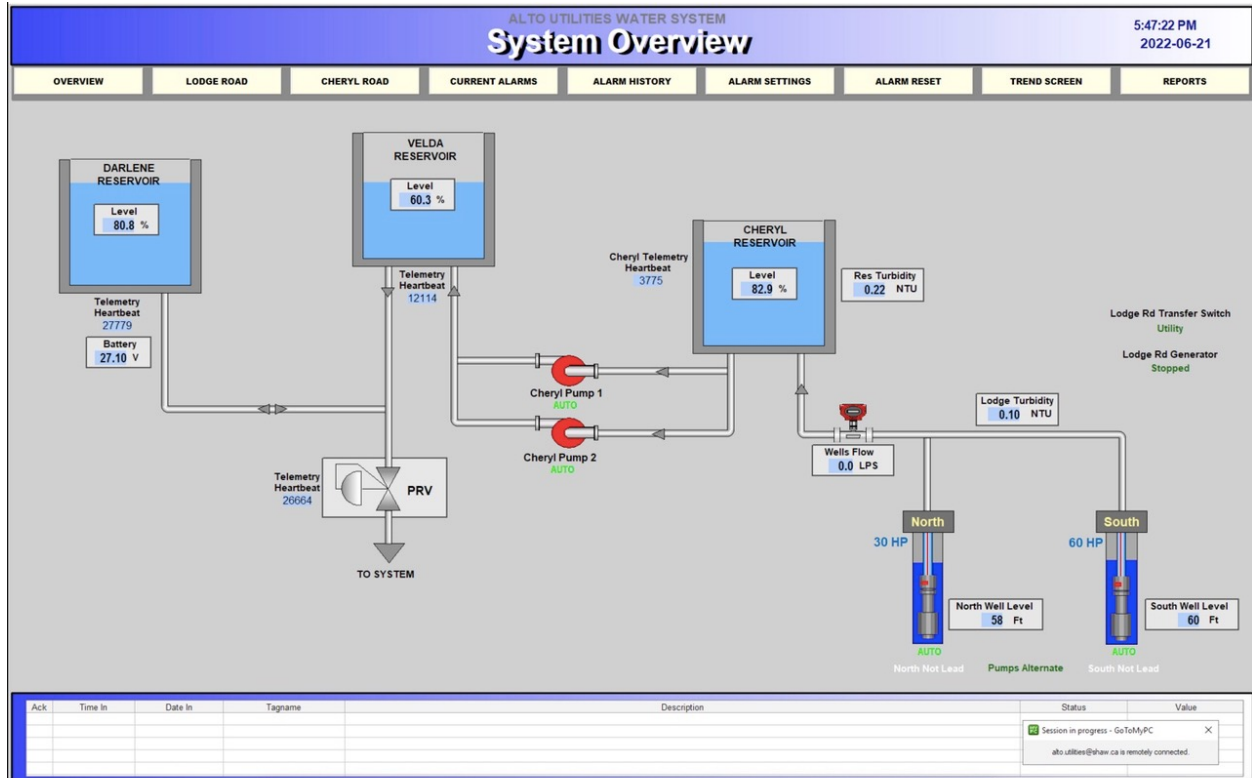


As part of gathering information for developing long-term source plans Alto requested Western Water Associates, a company with hydrogeological expertise, to assess a third well site on Alto's Lodge property. One of the main purposes of the report was to help determine the likelihood of Alto being able to replicate the low Manganese levels found in Alto's South well. In 2019 Canada issued new guidelines for Manganese. The former guidelines did not have a maximum allowable concentration (MAC), however, the new guidelines introduced a MAC of 0.12 mg/l for Manganese. Alto's North well regularly reports levels of 0.13 – 0.14 mg/l, just over the Canadian Drinking Water guidelines, whereas Alto's South well regularly comes in at 0.05mg/l of Manganese. It was thought that if we could understand the lithography (geological formation) of Alto's South well perhaps we could replicate the levels of Manganese in a new (third) well.

Something else that Western Water was asked to do was make recommendations on a well rehab for Alto's South well. It has been documented elsewhere that the South well was losing pumping capacity and that this issue was exacerbated by the new pump installed in spring of 2022. The new pump moderately increased the pumping capacity from 31 L/s to 34 L/s but drastically increased the well drawdown from 43 feet to 60 feet over the course of the 2022 summer. Western Water encouraged Alto to perform a well rehab on the South well and the results were remarkable. The rehab regained most of the original capacity of the well. Well drawdown went from 60 feet to 15 feet. In addition, Alto also changed out the soft start drive to a variable frequency drive. This provides several benefits. One, it allows Alto to adjust the power to the 60hp pump and match pump output with water demands. This in turn reduces the velocity of water around the well and through the filter screens. This should help with both biological and mechanical deterioration around the well screen over time. This has been a big win for Alto's source and pumping infrastructure.

The entire system is flushed semi-annually in to ensure water is refreshed and minor sediment within the pipes is removed. Monthly flushing is also performed on all ends of the system.

Billing continues to be streamlined with the introduction of an electronic billing system. We are thankful that so many of you have already taken this step and would encourage all of Alto's customers to help us reduce costs and use less paper.



Radio Telemetry System Overview

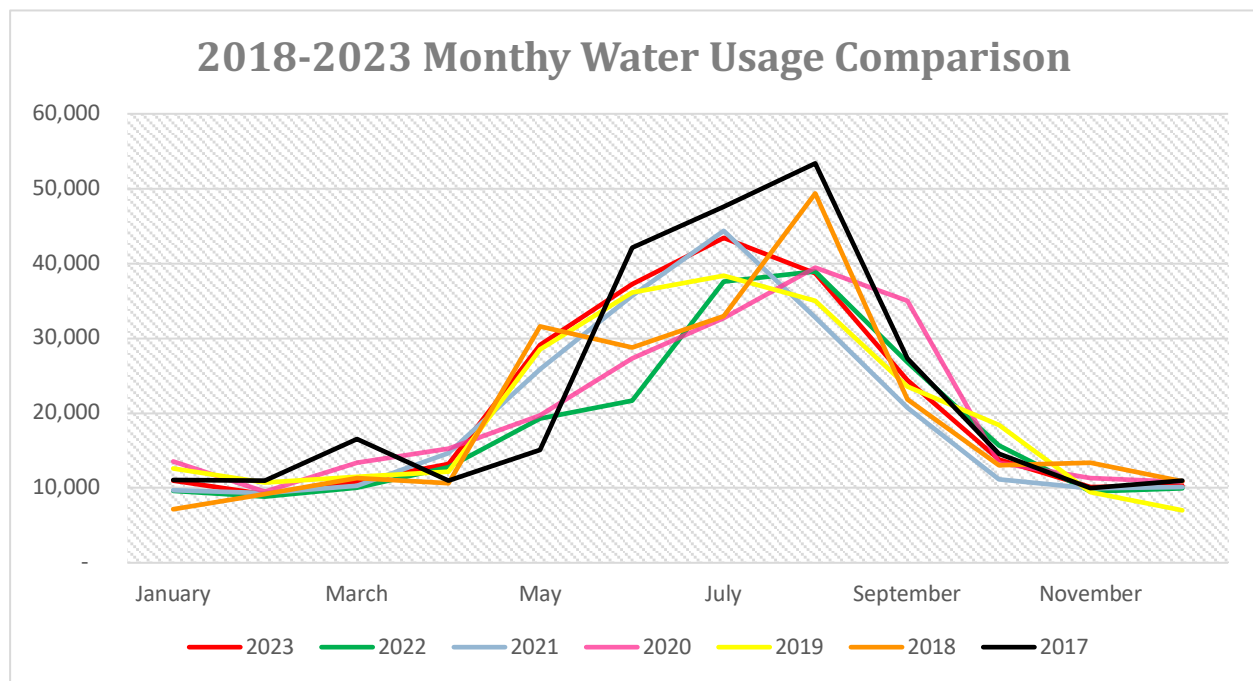


Water Consumption

Below is the annual consumption for the last five years in cubic meters. Usage generally reflects weather patterns with highest usage occurring during the summer months.

2023	2022	2021	2020	2019	2018	2017
251,155	220,698	234,379	241,517	243,474	239,944	270,544

The graph below shows the monthly water usage over the last five years. In 2021 usage increased significantly in late June due to the extreme heat dome. In 2022 temperatures were cooler in May and June and reduced overall consumption.



Water Sampling & Quality Monitoring

Every utility that supplies water to Canadians is governed and regulated by the *Guidelines for Canadian Drinking Water Quality*. These guidelines set both water quality parameters and priorities. As these guidelines state, "the highest priority guidelines are those dealing with microbiological contaminants", and in this regard Alto Utilities continues to meet the Canada guidelines for drinking water as it has done for the last 45 years without any water treatment.

Water samples are collected on a weekly basis and analyzed for indicator pathogens (*Escherichia coli* and *total Coliforms*). In addition to this, every Spring and Fall a comprehensive water analysis is performed to track water quality factors that change with seasonal conditions and to establish a baseline for the chemical parameters. Alto then submits monthly reports to Interior Health. We have four distribution points from which we collect and one source point; these are tested by an accredited laboratory. All bacteriological analysis in 2023 met the standards set out in the *B.C Drinking water Protection Regulation*.

Alto Utilities Ltd. is a privately-owned, public regulated water utility.



It is true that in 45 years, Alto Utilities has never had to issue a Boil Water Advisory and has met all of the requirements found in the *Guidelines for Canadian Drinking Water Quality*. However, the regulations are evolving and reflect the most recent water quality and health research. While Alto continues to meet these *Guidelines*, one of Alto's wells slightly exceeds the limits for Manganese. Since Alto uses two wells to supply water to its customers the combined average is below the parameters found in the *Guidelines for Canadian Drinking Water Quality*. This is an issue that Alto takes seriously and is monitoring. One of the goals of the Asset Management Plan is to identify infrastructure upgrades and costs associated with them. The Treatment Plan that follows will determine the best course of action to continue provide safe drinking water to Alto's customers and will likely include chlorine treatment. This Asset Management Plan will be completed in early 2024 and a Treatment Plan will follow. Alto will continue to work with Interior Health, its engineers, and industry leaders to develop a strategy to continue to provide safe drinking water to its customers on into the future.

Alto Water System	Total # of samples in 2023	E. Coli	positive for Coliform
Source	21	0	0
Distribution	45	0	0

*No Total Coliform detected on resample

Sample Locations

- Woodsdale Road Test Station
- Darlene Road Test Station
- Velda Road Test Station
- Peter Greer Elementary School
- Main Pump House, Lodge Road

In addition, a complete chemical analysis of each well source is completed every other year by an accredited laboratory in the spring and fall; the most recent one was completed in the fall of 2023.

If you are interested in the Comprehensive Analysis these are available on Alto's website.