



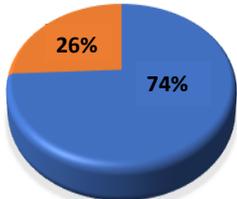
**Update #12
January 2022**

2,595,477 m³



2021 total volume:
Parkville wells and ERWS

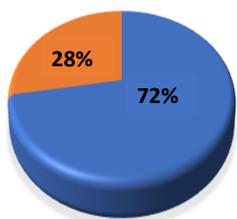
**2021 Production
Source**



Well Plant

Annual Parkville wells and
ERWS totals

2021 Consumption



RDN Parkville

ERWS total, well water not
included

**Interesting
consumption facts**



Highest day
consumption:
**June 29 15.7 MLD
(15700 m³)**
Well and Plant

**Englishman River Water Treatment Plant Operations
2021: YEAR IN REVIEW**

- New chlorine analyzer installed, programmed, and commissioned to increase monitoring accuracy on the final treatment process, finished water, before leaving the plant.
- Replaced clean-in-place tank heaters with titanium elements to increase the life expectancy of the units; completed under warranty.
- New on-board temporary process/program engineer and permanent utilities engineer to work and support operators to amend the system to suite to operational needs. This included managing and executing the warranty contracts.
- SCADA contractor retained to provide programming services on an as and when needed basis.
- Process equipment inspected and serviced including ultraviolet disinfectant reactors, strainers, air compressors, carbon dioxide system, and air handling motor.
- Chemical lines, skids, and pumps inspected and serviced frequently to improve handling and safety measures such as reduced sodium hydroxide chemical concentration from 50% to 25%. Configured and amended the sulfuric acid chemical system to enable transfer automatically eliminating the need for operators to be in the room during the chemical transfer.
- Flush water line for raw water pump seals installed and commissioned. This will help extend the life of the pump seals.
- Intake chamber deep cleaning completed to remove silt and debris accumulated inside and outside of the intake chamber. Can only to be carried out during low river water levels.
- River water levels monitored and adjusted daily as needed to ensure adequate flow is maintained for water consumption and fish habitat. Increased monitoring this year to respond to the heatwaves and drought conditions.
- Analyzers (pH, UV, turbidity) calibrated, cleaned, and serviced routinely to upkeep with various river water quality levels.
- Critical spare parts list developed; storage units purchased and to be installed in preparation for additional parts purchase in 2022.
- Membrane fiber repair (as expected) completed for the first time since commissioning to improve process treatment, aeration, and circulation.
- Fish Monitoring Program and Arrowsmith Dam Safety Review process started to meet regulatory requirements.
- Contractor on site from November 2021 to January 2022 preparing the plant for final performance tests. The works included evaluation of the membrane process and outstanding items to be corrected under warranty.





2021: YEAR IN REVIEW CONTINUATION

- Pump vibration monitoring and testing completed for the river intake and treatment plant facilities to ensure equipment reliability, safety, and production capability are maintained.
- Generator and automatic transfer switch programming, testing, and commissioning completed to enable the power transfer to diesel generator power in an emergency. Routine testing completed frequently thereafter to validate the equipment and programming logic of the system.

Residual Handling Dewatering Geobag Project



Geobag Dewatering Pad

- In February the contract was awarded. Sampling and testing followed immediately thereafter to maximum winter seasons with high turbidity levels.
- By June, the design was 65% complete and the polymer skid location and dosing control narrative were reviewed.
- Construction started in November. By the end of December, the Geobag exterior construction was 95% complete. The work consisted of asphalt pad, conveyance system, communication conduit, swale, tree removal and pond overflow pipe.

- The Geobag dewatering system interior construction will commence in January/February. Delivery of the polymer dosing skid is on route to the site (delayed due to interior flooding and highway closures). We anticipate the testing, commissioning, and completion end of February/March 2022, weather permitting.

Watershed and Dam Level Highlights

- **January to May**, the snow pillow and Arrowsmith Lake Dam are above average and full, respectively.
- **June**, the snow pillow depth (Gauge 3B26P) was still higher than average; however, the expected amount of snow has melted. The Arrowsmith Lake Dam is at 99.6% full.
- **July**, Arrowsmith Lake Dam is at 84.2% full, marginally below average due to multiple heatwaves.
- **August**, the region was under a Stage 5 drought level, most severe drought level in the province: new normal. The dam is at 57.6% full, approximately 5.5% below average.
- **September**, rainfall events alleviated the seasonal drought conditions with dam and rivers starting to replenish. Fish migration was noticed. The dam level is at 41% full, at average for this time of the year.
- **October to December**, heavy rains filled up the dam faster than normal, approximately a month ahead of schedule. Dam valves and lower-level outlets opened to alleviate and balance high inflow of water to the dam. Snow pillow (snow water equivalent) depth currently at ~750 mm, above average.

