

Water Treatment Plant Year-end Report for 2025

For Information Only

Water demand

The total influent volume of water drawn from the Assiniboine River for treatment in 2025 was 9,957,576 m³, which was higher than any year previous. The influent volume in 2024 was 9,617,934 m³ or approximately 3.5% less than 2025.

The total treated volume of water pumped to the distribution system from the water treatment plant was approximately 9,238,156 m³ in 2025, compared to 8,866,354 m³ in 2024.

The volume of water used internally for the treatment process in 2025 was 174,346 m³ versus 182,093 m³ in 2024. This water is used in the process production for mixing chemicals, dilution of chemicals for pumping purposes, and flushing pipes after sludge removal from process systems.

Raw Water Quality

The raw water quality for 2025 showed increased variability compared to 2024, with more frequent and pronounced turbidity spikes associated by the spring thaw conditions, and ice jams on the Assiniboine River. The Actiflo clarifier effectively reduced these higher turbidity levels, minimizing the impact on the downstream treatment processes. Increases in river turbidity often contributes to an increase in plant effluent turbidity. This is due to organics, and water chemistry changes as the near freezing water warms up.

The overall 2025 raw water hardness was higher than in 2024, which is typical for a dry year like 2025. The average raw water hardness for the winter months; January, February, March, October, November, and December 2025, was 423 ppm. The average raw water hardness for the other six months was 390 ppm. The treated water average hardness was 197 ppm and 187 ppm for the respective periods. This is compared to 2024 yearly average hardness for Raw Water was 369 ppm and Treated Water was 180 ppm.

Plant operation during fall freeze up was similar to an average year with no major problems.

Distribution System Water Quality

Distribution testing for 2025 was done on a weekly basis for Total Coliforms and Escherichia Coli. All Office of Drinking Water treatment parameters were met.

General Chemistry sampling was conducted on a semi-annual basis from our WTP Raw and finished water, and two other locations in the City. The samples were sent for the assessment of multiple water parameters, including routine, nutrients, metals, and non-

metals. The samples were sent to an independent lab, and all results were forwarded, by the lab, to the Manitoba Environment and Climate Change, Office of Drinking Water Officer assigned to the City of Portage la Prairie.

THM and HAA samples are to be taken quarterly. In 2025, the May HAA samples were lost by the third-party lab. The November THM and HAA samples were not obtained due to a scheduling error in ordering bottles.

On March 8, 2019, Health Canada set new regulatory guidelines for lead in potable water. The new Canadian Drinking Water Quality Guideline maximum acceptable concentration (MAC) for total lead was lowered from 0.010 mg/L, set in 1992, to 0.005 mg/L. This is based on a sample of water taken at the consumer's tap.

Starting in 2022, the provincial Office of Drinking Water, partnered with Manitoba Health has mandated the City conduct lead testing in forty residences per year. In 2025, forty sets of samples were obtained from participants homes and tested for total lead. Each home submitted two samples. One sample was taken straight out of the tap without flushing and a second sample was taken after flushing the tap for five minutes.

The findings from Portage la Prairie's 2025 drinking water testing in residential homes show that three out of forty homes had lead in drinking water at levels above the guideline on a random day time sample (RDT). However, after five minutes of flushing the water, all of the higher risk homes that were tested, had decreased lead in drinking water levels at or below the standard.

More information may be obtained from the City's web page, and in the 2025 Public Water system annual report, including how the City mitigates corrosion to reduce lead exposure.

Water Quality Monitoring and Analyses

Each year, an annual water system report is to be completed by the City and submitted to Manitoba Conservation & Climate, Office of Drinking Water by March 31st. The Office of Drinking Water and the City of Portage la Prairie will continue implementing testing improvements at the Water Treatment Plant to enhance the water quality and will continue to work jointly with the local Drinking Water Officer.

The following graphs demonstrate the various influent and effluent quality for various parameters.

In 2025 the WTP experienced near normal turbidities. The higher spring raw water turbidities impact was negligible on the effluent turbidities. None of the results were above the standard of 0.3 NTU for more than 12 hours.

Hardness- The Hardness graph shows the Raw Water followed a typical annual pattern, being softer after spring runoff and harder near year end. Overall, the Assiniboine River was harder in 2025 than in 2024. The average finished total hardness was about 193 ppm which was higher than the previous years, 180 ppm.

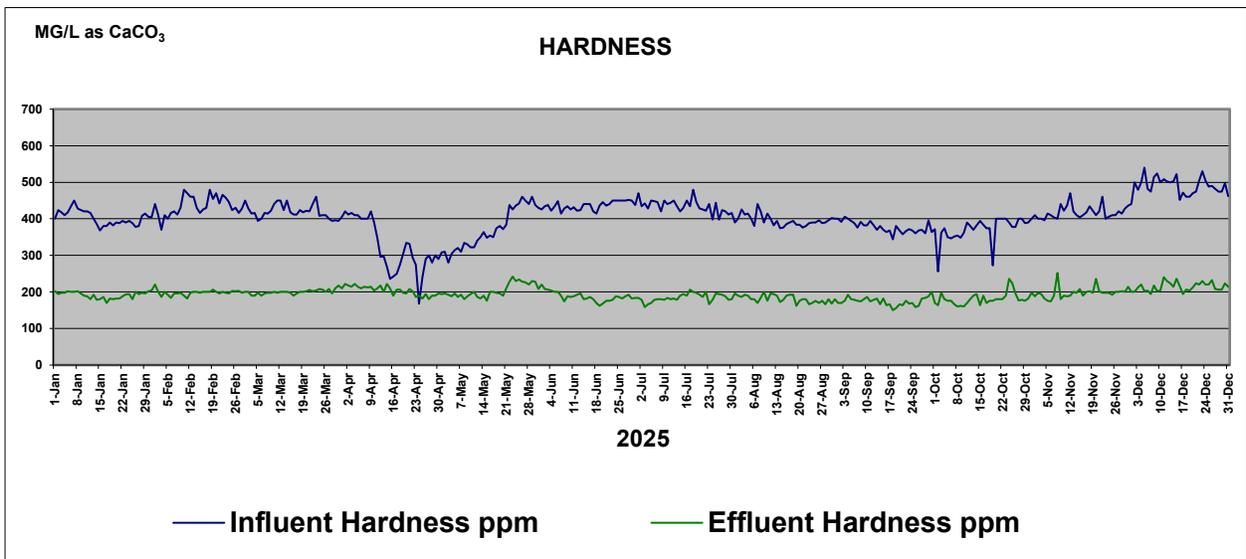
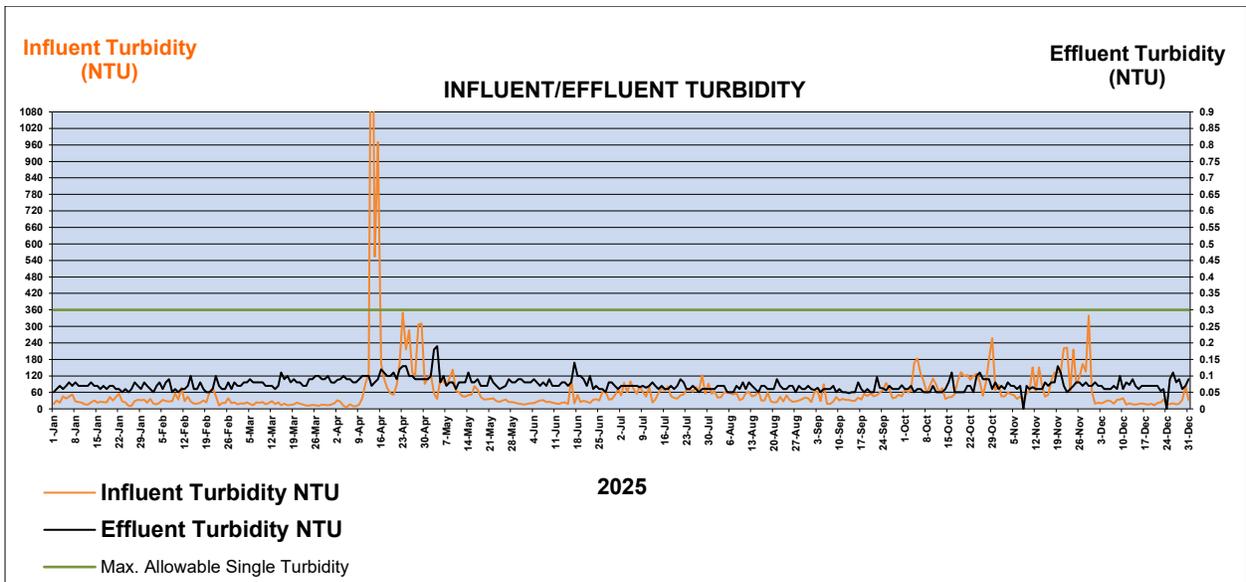
Sodium hydroxide is added to help increase the pH of the finished water. However, final pH is difficult to control due to consistent fluctuations in the raw water pH. The raw water pH tends to follow seasonal trends for highs and lows with substantial variance within each season or sometimes even day to day. Sodium hydroxide is added to help prevent metal corrosion, and the leaching of metals into the water when pH is too low. The effluent pH was consistently over 7.5 and was always over 7.0.

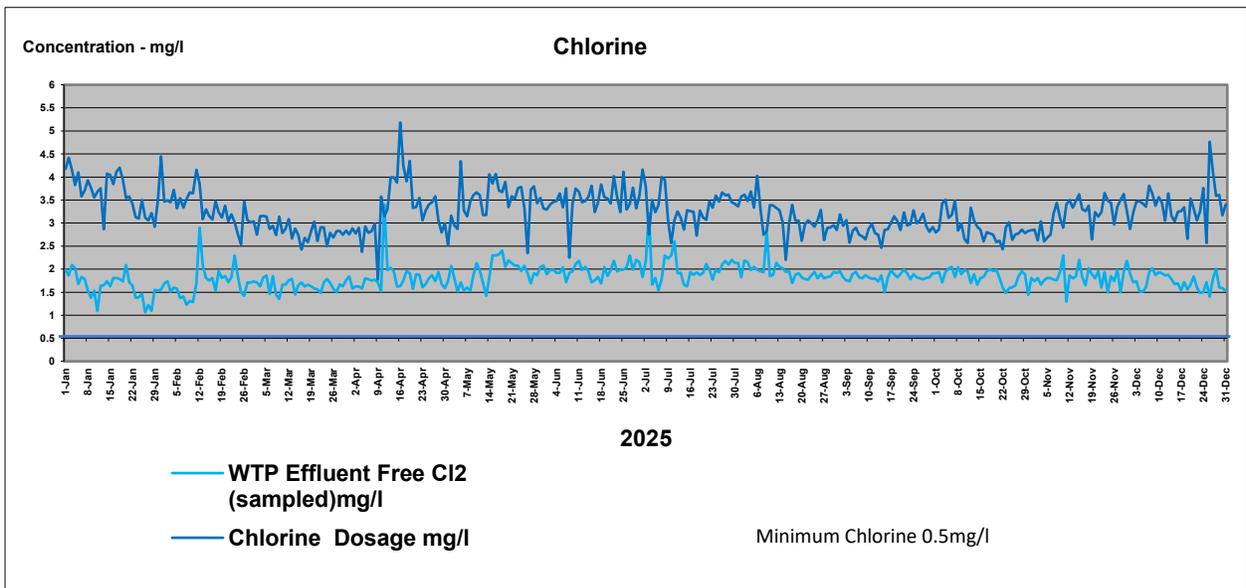
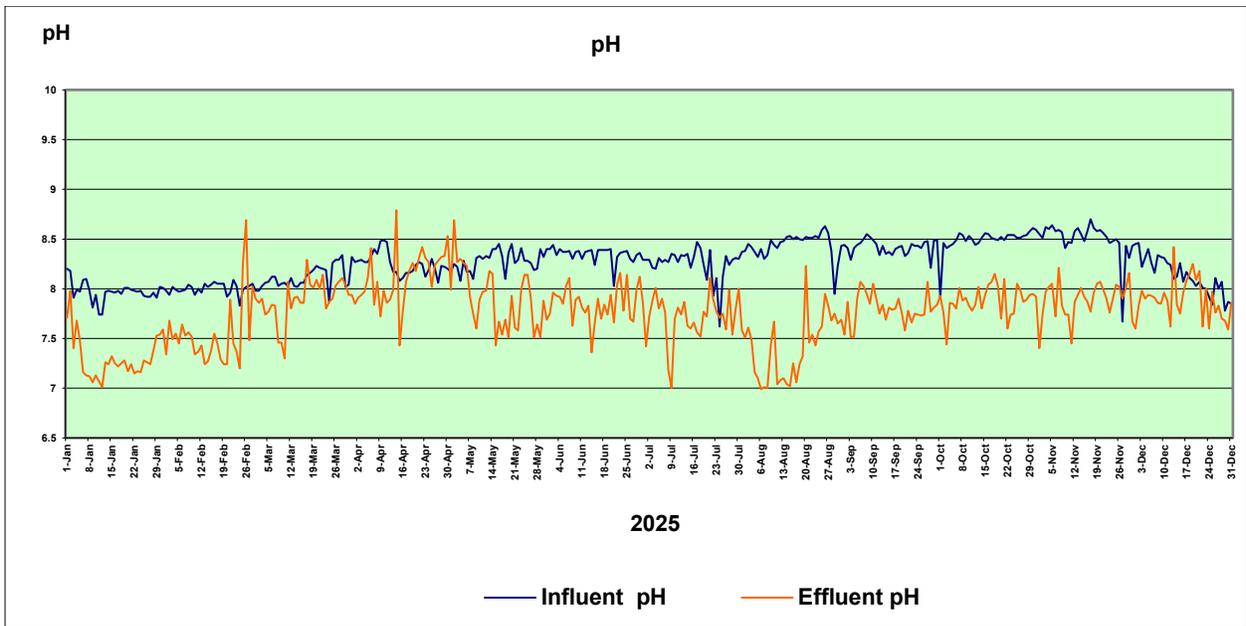
Chlorine- As a whole, the chlorine feed was more consistent in 2025 than in 2024 and there was less day-to-day variation in residuals. The plant is also working towards more redundancy in the chlorine feed systems. Weekly sampling of the distribution areas for chlorine residual was conducted while samples were collected for bacteria analysis. The samples are sent to an independent lab for coliform analysis- and reporting to the Drinking Water Officer and Water Plant Management. None of the scheduled weekly samples came back as positive as coliforms out of over 350 taken each year.

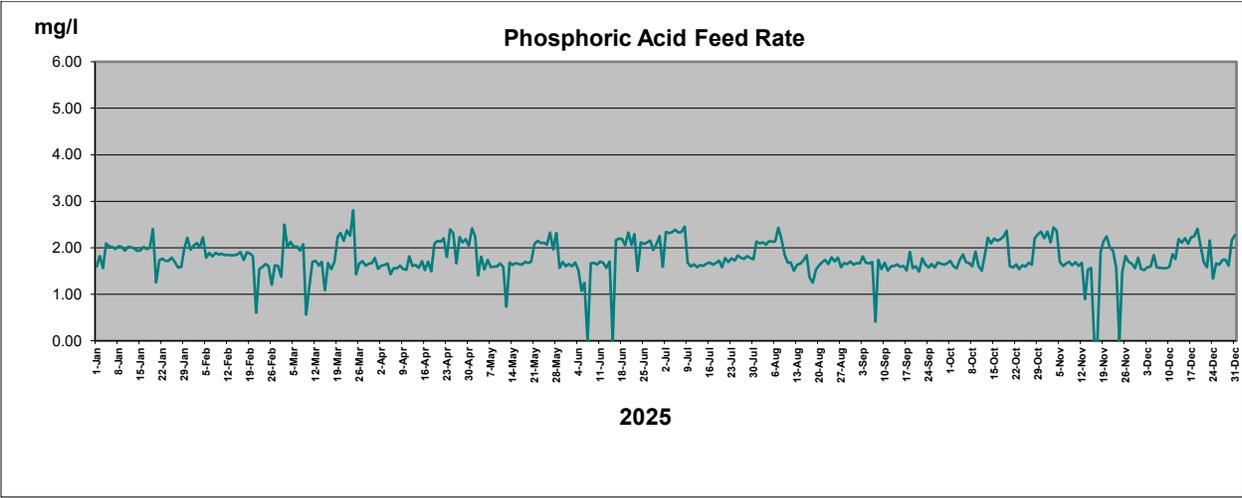
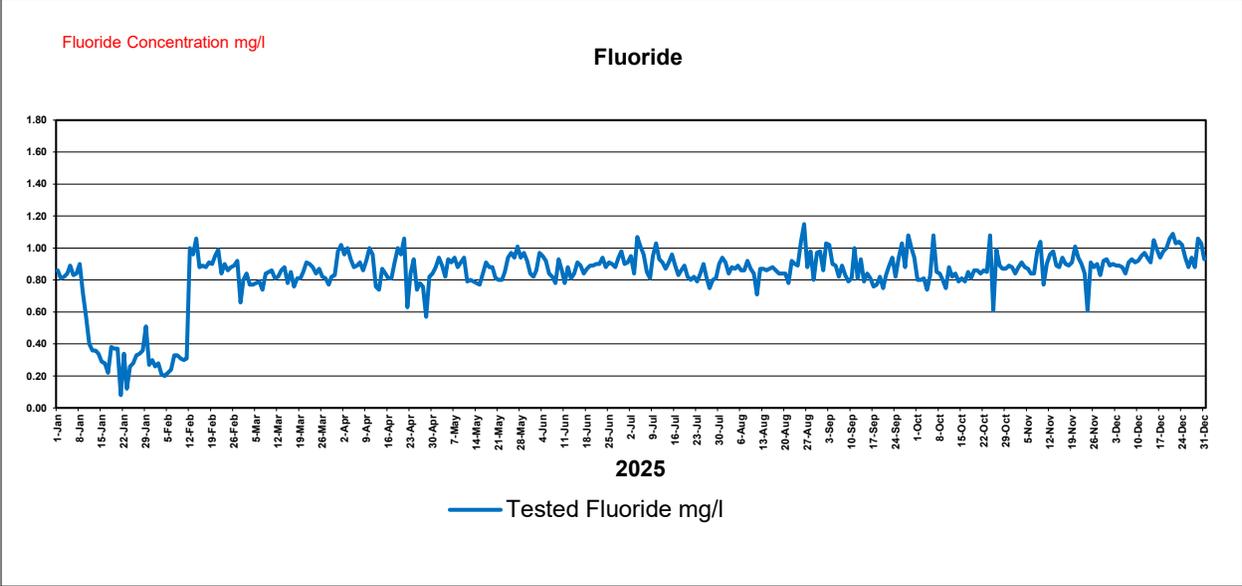
Fluoride- The Fluoride graph shows some variation in Fluoride levels in 2025. Fluctuation is common on feeding fluoride due to the very low level injected and the fact that the method used for in-house testing of Fluoride is not very accurate. The fluoride test results are from the morning sample and represent the reading in the effluent water at that time, and not as a daily average. A concentration of 0.70 mg/l has been deemed optimum by Health Canada.

Tri-halomethanes- In 2025, the Tri-halomethane (THM) regulation requirements were met in the city limits. In the regional water systems where the water age increases, THM results are often higher. THM's and other disinfection byproducts develop when chlorine reacts with organics in the water, organics can also cause taste and odour issues. Taste and odours are removed in part by the granular activated carbon filters. While these filters still are reducing tastes and odour, they are showing higher levels of embedded total organic carbon (TOC) that could react with chlorine to form THM'S. The effective removal of THM-forming compounds is limited. We have currently completed year 2 out of a 4-year project to improve the GAC filters and replace their media.

City of Portage la Prairie Water Treatment Plant - 2025 Annual Data Summary										
	Influent Hardness ppm	Effluent Hardness ppm	Influent Turbidity NTU	Effluent Turbidity NTU	Influent pH	Effluent pH	WTP Effluent Free Cl ₂ (sampled)mg/l	W.T.P. Effluent Fluoride (Sampled) mg/l	WTP Reservoir Influent Flow m3	Reservoir Effluent less process water m3
TOTAL ANNUAL									9,823,670	9,212,915
AVERAGE	406	193	63.49	0.07	8.27	7.76	1.82	0.83	26,914	25,241
PEAK DAY	540	252	1934.00	0.19	8.70	8.79	3.40	1.15	34,850	31,193
90th PERCENTILE	460	214	118.00	0.10	8.52	8.13	2.09	0.98	9,823,670	9,212,915
MEDIAN	410	194	37.50	0.07	8.30	7.81	1.82	0.87	34,850	31,903
WINTER AVG	423	197								
SUMMER AVG	389	189								

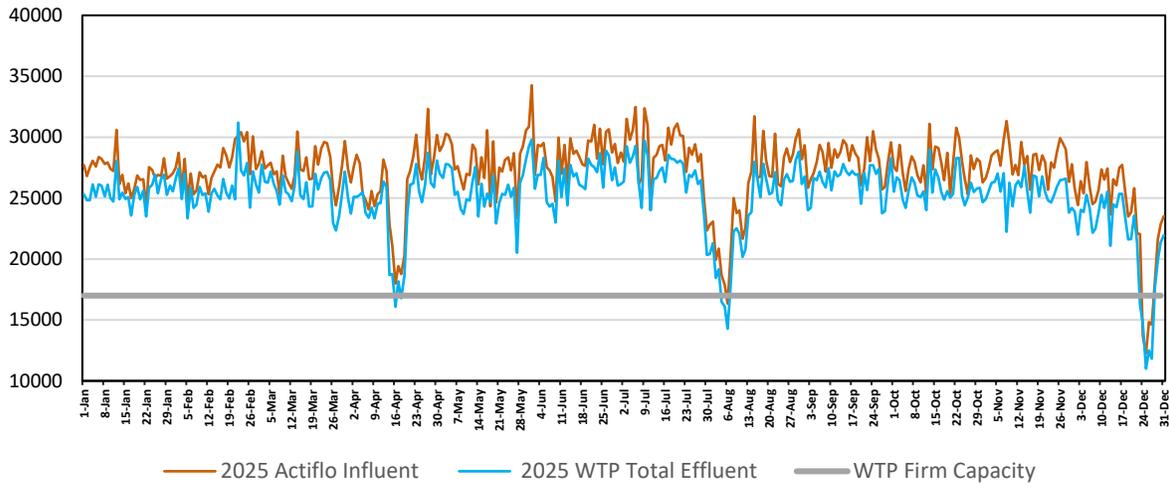




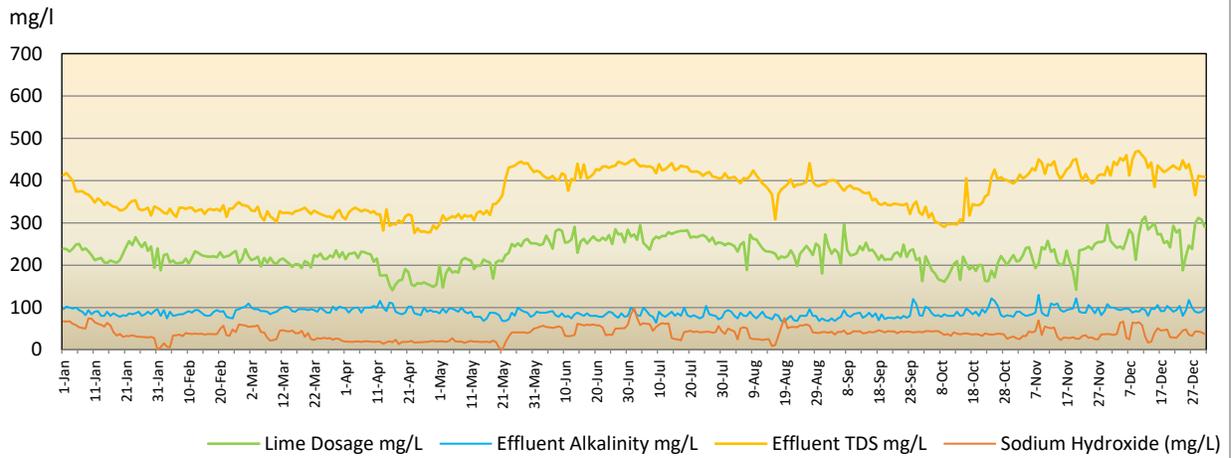


Litres per day

Main Plant Influent/ Effluent FLOW

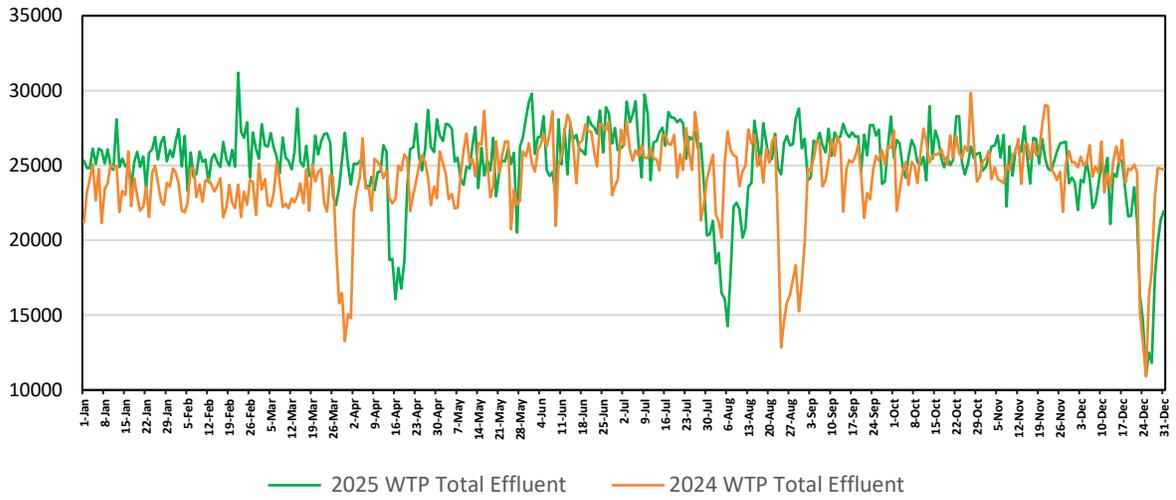


Lime Dosage, Effluent Alkalinity, Effluent TDS, Sodium Hydroxide



Litres per day

WTP Total Effluent 2024 and 2025



Major Maintenance in 2025

PROJECT	BUDGET	SPENT
WTP membrane expansion	\$ 98,236,808.00	\$ 714,671.00
East Lime Pond cleaning	\$ 1,200,000.00	\$ 1,183,027.00
Ozone cooling system	\$ 250,000.00	\$ 117,700.00
Repair GAC filter	\$ 225,000.00	\$ 159,149.00
Two McKay Pumps	\$ 70,000.00	\$ 76,079.00
Chlorine system backup	\$ 45,000.00	\$ 46,613.00
Unit Heater Replacements	\$ 25,000.00	\$ 19,302.00
Actiflo raw water valve	\$ 25,000.00	\$ 13,524.00
Drainage in Lime tank room	\$ 22,000.00	\$ 18,275.00
Lime pump	\$ 20,000.00	\$ 21,793.00
Lime slaker wetting cones	\$ 15,000.00	\$ 14,925.00
Anionic Polymer Pump	\$ 11,000.00	\$ 11,454.00
Total	\$ 100,144,80.00	\$ 2,396,512.00

Summary

Ongoing continuous improvement will be used to optimize the treatment process to ensure a safe, reliable product for our customers.

The plant was kept in operation during maintenance work and plant shutdowns were done in a manner to keep the consumers supplied with water.

Operating staff will continue to abide by all Government operational requirements and work with the local Drinking Water Officer to ensure the best quality of water for all customers.