NORTH TORONTO TREATMENT PLANT

2025 Annual Report

March 31, 2026

EXECUTIVE SUMMARY

The North Toronto Treatment Plant (NTTP) is one of four wastewater treatment facilities operated by the City of Toronto. This facility, located in the Don Valley, has a rated capacity of 45.5 ML/day, normally operates at a controlled flow rate, and serves an equivalent population of approximately 183,000. The NTTP discharges to the Don River and operates under Environmental Compliance Approval (ECA) No. 7459-B6QPM2 issued June 21, 2019.

The average daily influent flow rate in 2025 was 27.1 ML/day. Influent concentrations of Biochemical Oxygen Demand (BOD_5), Total Phosphorus (TP) and Total Suspended Solids (TSS) averaged 189 mg/L, 5.2 mg/L and 222 mg/L, respectively.

NTTP achieved the following effluent quality and loading rates in 2025 in comparison to ECA limits:

Parameter	ECA[1]	2025 Final Effluent
Total Suspended Solids (TSS)	25.0 mg/L	8.9
Carbonaceous Biological Oxygen Demand ($CBOD_5$)	25.0 mg/L	2.5
Total Phosphorus (TP)	1.0 mg/L	0.48
Escherichia Coli (E. Coli)[2]	200 CFU/100mL	16
pH	6.0-9.5	7.1
Total Residual Chlorine (TRC) (Dechlorination)	0.02 mg/L	0.012
TSS Loading Rate	1,137.5 kg/day	240.6
$CBOD_5$ Loading Rate	1,137.5 kg/day	67.5
TP Loading Rate	45.5 kg/day	13.0

[1] Referenced from ECA No. 7459-B6QPM2 issued on June 21, 2019.

[2] Arithmetic mean of monthly geometric mean data.

Sludge (raw sludge and waste activated sludge) generated at the NTTP is conveyed by gravity via the North Toronto Sanitary Trunk Sewer (STS) and the Coxwell STS to the Ashbridges Bay Treatment Plant (ABTP) for further treatment and disposal. A daily average of 560 m^3/day at 0.68 % Total Solids (TS) sludge was transferred in 2025.

Ferrous chloride consumption for phosphorus removal totalled 107.6 tonnes as iron (Fe). Total sodium hypochlorite (12% w/v) consumption for effluent disinfection totalled 181.5 m^3. Sodium bisulphite (SBS) (38% w/w) consumption for effluent de-chlorination totalled 102.5 tonnes.

Work continued on capital projects, with the construction of a new server room achieving completion in summer 2025. A variety of scheduled, preventative, predictive and reactive maintenance was performed, including annual calibration of effluent monitoring equipment.

Total annual consumption for potable water and hydro was 64,181 m^3 and 3.41 M kWh, respectively.

Direct operating costs for 2025 totalled $3.25M. In 2025, the NTTP had nine (9) employees. As of December 31, 2025, there were no lost time incidents and no lost time days due to work related injuries.

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GLOSSARY OF ABREVIATIONS

AAC	Annual Average Concentration
BOD5	Five-Day Biochemical Oxygen Demand
CBOD5	Five-Day Carbonaceous Biochemical Oxygen Demand
CEU	Continuing Education Units
CFU	Colony Forming Units
E. Coli	Escherichia Coli
ECA	Environmental Compliance Approval
Fe	Iron
kg	kilogram
kWh	Kilowatt-hour
MAC	Monthly Average Concentration
MGMD	Monthly Geometric Mean Concentration
MWh	Megawatt-hour
m3	Cubic metre
m3 /day	Cubic metre per day
mA	Milliamps
mg/L	Milligrams per litre
mL	Millilitre
ML	Megalitre (million litres)
MECP	Ministry of the Environment, Conservation and Parks
Q	Flow Rate
RAS	Return Activated Sludge
SBS	Sodium Bisulphite
SBS (P)	Sodium Bisulphite Presence
scm	Standard Cubic Metres
SS	Suspended Solids
TRC	Total Residual Chlorine
TP	Total Phosphorus
TS	Total Solids
TSS	Total Suspended Solids
TVS	Total Volatile Solids
TWAS	Thickened Waste Activated Sludge
µg/L	Micrograms per litre
WAS	Waste Activated Sludge
% w/v	Percent concentration of components of solution expressed as weight by volume
% w/w	Percent concentration of components of a solution expressed as weight by weight

Definitions

Bypass: A bypass is defined as a diversion of sewage around one or more unit processes within the plant with the diverted sewage flows being returned to the plant treatment train upstream of the final effluent sampling location and discharging to the environment through the plant outfall.

Overflow: An overflow is defined as a discharge to the environment from the plant at a location other than the plant outfall downstream of the final effluent sampling station.

Spill: A spill is defined within the meaning of Part X of the Environmental Protection Act. "Spill", when used in reference to a pollutant, means a discharge,

a) into the natural environment,
b) from or out of a structure, vehicle or other container, and
c) that is abnormal in quality or quantity in light of the discharge.

Abnormal Discharge: A discharge of a pollutant designated by the regulations at a location designated by the regulations shall be deemed to be in a quantity or with a quality abnormal at the location. R.S.O. 1990, c. E.19, s. 91 (2).

$$Loading\left(\frac{kg}{day}\right) = Concentration\left(\frac{mg}{L}\right) \times Flow\left(\frac{ML}{day}\right)$$

$$Percent\ Removal\ (\%) = 1 - \frac{Concentration\ (Final)}{Concentration\ (Initial)}$$

$$Aeration\ Loading = \left(\frac{kg\ cBOD}{m^3\ aeration\ capacity}\right) = \frac{(Q_{Primary\ Effluent} + Q_{RAS}) \times [cBOD_{5\ primary\ effluent}]}{V_{aeration\ Tanks}}$$

$$Solids\ Capture\ (\%) = \frac{Centrifuge\ Feed\ TS - Centrate\ TSS}{Centrifuge\ Feed\ TS} \times 100$$

1 INTRODUCTION

The North Toronto Treatment Plant (NTTP) is one of four wastewater treatment facilities operated by the City of Toronto under the responsibility of the Wastewater Treatment section of Toronto Water. The facility is located at 21 Redway Rd., in the Don Valley on a 27.2 ha site serving a sewershed of approximately 3,060 ha. This area contains an estimated connected population of 183,000[1]. The NTTP operates at a controlled flow rate and has a rated capacity of 45,500 m^3/day, or 45.5 ML/day. Wastewater in excess of the controlled rate is diverted to the North Toronto Sanitary Trunk Sewer (STS) and then conveyed by gravity to the Ashbridges Bay Treatment Plant (ABTP) via the Coxwell STS.

Major treatment processes include screening and grit removal, primary treatment, secondary treatment, phosphorus removal, effluent disinfection and de-chlorination. Treated effluent is discharged to the Don River. All primary sludge, waste activated sludge, and scum from the Primary and Secondary Clarification Tanks, collectively called sludge, is transferred via the North Toronto STS and the Coxwell STS to the ABTP for further treatment and disposal. Numerous auxiliary systems are required for proper operation of many plant processes, including potable water, process water, heating, ventilation and air conditioning (HVAC), SCADA, odour control, electrical power distribution, and chemicals.

The Ministry of the Environment, Conservation and Parks (MECP) has classified the NTTP as a Class III wastewater treatment facility under Regulation 129/04. The facility operates under Environmental Compliance Approval (ECA) No. 7459-B6QPM2 issued June 21, 2019.

This report is a summary of plant operations and performance in 2025. Highlights of the report include a discussion on effluent quality and summaries of process operations, maintenance, chemical and utility consumption, capital projects, operational costs and human resources.

[1] Population estimated by sewershed delineation and 2021 census data

2 PLANT PROCESS OVERVIEW

A description of the plant process is included below. A plant process flow diagram is available in Appendix A. Additional information on the plant's process can be found on the City of Toronto website[2].

2.1 Influent

Wastewater from the Forman-Yonge Combined Trunk Sewer and Millwood Combined Trunk Sewer flows to the plant via a common sewer.

2.2 Preliminary Treatment

Raw wastewater enters the Headworks for grit and screenings removal. There is one automatic climber type bar screen that removes rags and large pieces of debris. Grit channels located downstream of the screen remove sand, gravel and similar heavy inorganic material by gravity separation. The removed grit and screenings are hauled to a sanitary landfill site.

2.3 Primary Treatment

Primary Treatment occurs in the Primary Clarification Tanks, where the flow velocity of the wastewater is reduced to allow heavier solids to settle to the bottom. There are four Primary Clarification Tanks. Sludge collectors in the tanks sweep the settled sludge, called primary or raw sludge, into sludge hoppers at the bottom of the tank. Floating solids, called scum, are drained periodically from the top of the tanks. The primary sludge and scum are then pumped out via the North Toronto STS and the Coxwell STS to ABTP for further treatment. The primary effluent continues to secondary treatment.

2.4 Secondary Treatment

The primary effluent undergoes secondary treatment through a Conventional Activated Sludge process, which includes an aeration step followed by secondary clarification. Ferrous chloride is injected into either the distribution conduits to the Aeration Tanks or the grit chamber effluent conduit for chemical phosphorous removal.

There are a total of eight (8) Aeration Tanks and five Final Clarifiers. Upon completion of the Process Upgrades capital project, the secondary treatment process was configured into

[2] *https://www.toronto.ca/services-payments/water-environment/managing-sewage-in-toronto/wastewater-treatment-plants-and-reports/*

three plants: Plant 1, 2 and 3. Each plant has dedicated final clarifiers and RAS pumps, and air to the aeration tanks is supplied by three turbo blowers.

Plant 1 consists of Aeration Tanks 1 and 2 and Final Clarifier 1. These aeration tanks are equipped with Membrane Aerated Biofilm Reactor (MABR) technology in the anoxic/swing zone, and membrane diffusers in the aerobic zone.

Plant 2 consists of Aeration Tanks 3 and 4 and Final Clarifier 2. This plant is equipped with membrane diffusers in all zones of the aeration tanks.

Plant 3 consists of Aeration Tanks 5 to 8 and Final Clarifiers 3 to 5. This plant has membrane diffusers in the anoxic/swing zone of all four tanks but has three different types of diffusers in the aerobic zones: ceramic diffusers in Tank 5, high density membrane diffusers in Tank 6, and Strip/Panel Diffusers in Tanks 7 and 8.

The Process Upgrades project also eliminated the need for co-settling in Primary Clarifiers by upgrading the waste activated sludge (WAS) pumping system, allowing the plant to discharge all WAS into the North Toronto STS, which leads to ABTP for further treatment. The ability to send WAS to the Primary Clarifiers is retained as a backup wasting option.

2.5 Final Effluent

Sodium hypochlorite is used to disinfect and kill pathogens in the final effluent. Sodium bisulphite (SBS) is added after disinfection to remove excess chlorine from the wastewater (i.e. dechlorinate), helping to protect the aquatic environment. The final effluent is discharged into the Don River. The plant uses direct measurement of Total Residual Chlorine (TRC) in the final effluent for monitoring and compliance.

2.6 Solids Handling

All primary sludge, WAS, and scum from the Primary and Secondary Clarification Tanks, collectively called sludge, is transferred to the ABTP for further treatment.

3 PROCESS SUMMARY

3.1 Process Parameters

In 2025, the NTTP continued to produce a high-quality effluent. A summary of key final effluent parameters against the ECA objectives and limits are shown in Table 1. Influent and effluent performance charts are available in Appendix B. Historical performance data is included in Appendix C.

Table 1: Final Effluent Parameters

Parameter	$cBOD_5$ (mg/L)	TSS (mg/L)	TP (mg/L)	TRC[1] (mg/L)	E-Coli (count/ 100mL)	pH Min	pH Max
January	4.7	15.5	0.6	0.020	9	6.7	7.2
February	2.1	8.4	0.4	0.020	9	6.7	7.5
March	2.1	8.7	0.3	0.020	38	6.8	7.3
April	2.4	7.6	0.3	0.020	16	6.8	7.2
May	2.0	10.1	0.4	0.020	40	6.8	7.3
June	1.6	8.4	0.5	0.020	29	7.0	7.3
July	2.6	10.6	0.7	0.020	14	6.9	7.4
August	1.8	7.6	0.5	0.020	7	6.9	7.3
September	1.2	4.0	0.5	0.020	3	6.9	7.3
October	2.8	7.3	0.6	0.020	6	6.9	7.3
November	4.2	9.3	0.5	0.020	20	7.0	7.4
December	2.4	9.2	0.4	0.020	5	6.9	7.4
Annual Average	**2.5**	**8.9**	**0.5**	**0.012**	**16**	**7.1**	
Loading (kg/d)[2]	67.5	240.6	13.0	N/A	N/A	N/A	
Removal Efficiency[3] (%)	98%	96%	91%	N/A	N/A	N/A	
ECA Requirements[4,5]							
Effluent Objective	AAC: 15 mg/L	AAC: 15 mg/L	MAC: 0.9 mg/L	MAC: non-detect	MGMD: 150 CFU/100 mL	6.5 - 8.5	
Effluent Limit	AAC: 25 mg/L	AAC: 25 mg/L	MAC: 1 mg/L	MAC: 0.02 mg/L	MGMD: 200 CFU/100 mL	6.0 - 9.5	
Average Waste Loading Limit[2]	AAL: 1,137.5 kg/d	AAL: 1,137.5 kg/d	AAL: 45.5 kg/d	N/A	N/A	N/A	

[1]TRC – Total Residual Chlorine. Reported figure is the monthly maximum for the month. Annual Average is the average of all sample results.
[2]Loading is calculated based on flow rates as provided in Table 2
[3]CBOD = 0.8 * BOD assumed for removal efficiency calculatons
[4]Referenced from ECA No. 7459-B6QPM2 issued June 21, 2019.
[5]AAC refers to Annual Average Concentration, MAC refers to Monthly Average Concentration, MGMD refers to Monthly Geometric Mean Density, and AAL refers to Annual Average Daily Loading.

Influent and final effluent concentrations of 11 select heavy metals have been included in Appendix D. Any discharge into City sewers must meet the sewer use By-law limits. Final effluent concentrations are presented to assess the treatment plant's removal capacity.

A summary of the annual average of process parameters over the past three years is shown in Table 2.

Table 2: Process Summary

Parameter	Units in report	2025	2024	2023
Influent Parameters				
Flow[1]	ML/day	27.1	18.3	14.7
Total Annual Flow[1]	ML	9880	6714	5358
Total Suspended Solids (TSS)	mg/L	222	275	334
Biological Oxygen Demand (BOD)	mg/L	189	211	233
Total Phosphorus (TP)	mg/L	5.2	5.2	5.3
Total Kjeldahl Nitrogen (TKN)	mg/L	46.0	42.4	40.1
Preliminary Treatment				
Grit and Screenings	kg/day	245	204	166
Primary Treatment				
TSS	mg/L	99	183	97
cBOD5	mg/L	108	143	87
Secondary Treatment				
Aeration Loading	Kg cBOD5/ m3 day	0.29	0.26	0.13
Mixed Liquor Suspended Solids	mg/L	3378	4301	2561
Solids Handling				
Sludge to Ashbridges Bay Flow	ML/day	0.56	0.43	0.56
Sludge to Ashbridges Bay TS	%	0.68	0.73	0.55

[1]Based on final effluent flow meters

Influent flow to the NTTP increased by 47% in 2025. This was primarily due to process upgrades which improved operational efficiency and allowed the plant to manage higher flows within the existing ECA limits. Influent strength of BOD, TSS, and TP decreased by 10%, 19%, and 0.4% respectively, while influent TKN increased by 9%.

Final effluent annual average concentration for cBOD, TSS, and TP was 2.5 mg/L, 8.9 mg/L, and 0.5 mg/L, respectively, and met the yearly average effluent concentration limits for cBOD and TSS and the monthly average effluent concentration specified in Schedule C of the ECA for TP throughout 2025. The final effluent annual average for E. coli monthly

geometric mean density in 2025 was 16 CFU/100 mL and also met the Schedule C compliance limit for each month. Final effluent total residual chlorine analysis did not exceed 0.02 mg/L in 2025. Furthermore, final effluent pH remained between the range of 6.0 – 9.5 throughout the course of 2025.

The NTTP encountered no chronic operating problems and continued to produce a high-quality effluent through the continued improvement of operations and maintenance of treatment processes. The plant consistently surpassed the design objectives highlighted in Condition 6 as well as Schedule B of the ECA.

All parameters highlighted in the sampling program specified in Schedule D of the plants ECA meet or exceed the sampling frequency of 3 times/week specified by Condition 9(1)(b), negating the requirement for future sampling forecasts and scheduling. Plant operations were shut down on January 15 to facilitate capital works construction and from April 29 to May 2 due to a watermain break. Therefore, no samples were taken on these days.

3.2 Biosolids Management

All sludge (primary sludge, WAS, and scum) generated at the NTTP is transferred to the ABTP for further treatment. The sludge generated during 2025 averaged 560 m^3/day (0.68% TS).

It is expected that the plant will treat a similar flow in 2026 as in 2025 and will generate a similar sludge volume. The ABTP is designed to manage these additional solids.

3.3 Chemical Usage

Several chemicals are used during the treatment process at the plant. Table 3 outlines the chemical consumption for the current and previous year. Costs listed exclude applicable taxes. Chemical usage at the NTTP increased in 2025 mainly due to higher influent flows to the facility. Chemical costs have increased as a result of treating higher flows and price increases.

Table 3: Chemical Usage Summary

Process	Chemical		2025	2024	2023
Phosphorus Removal	Ferrous Chloride as Fe	Dosage (mg/L)	9.23	10.94	12.06
		Consumption (tonnes)	107.63	82.42	75.79
		Cost ($)	$274,554.37	$105,826.11	$93,737.09
Disinfection	Sodium Hypochlorite (12% w/v)	Dosage (mg/L)	2.20	2.37	2.44
		Consumption (m^3)	181.50	132.62	109.09
		Cost ($)	$160,953.55	$74,537.83	$114,780.85
Dechlorination	Sodium Bisulfite (38% w/w)	Dosage (mg/L)	4.00	4.20	4.01
		Consumption (tonnes)	102.5	74.62	55.79
		Cost ($)	$61,507.02	$44,678.41	$33,211.57

3.4 Bypasses, Spills, and Abnormal Discharge Events

3.4.1 Bypasses

Treatment bypasses are not required or possible with the current plant configuration. The inflow to the plant is controlled.

3.4.2 Spills

There were no reportable spill events at the NTTP in 2025.

3.4.3 Abnormal Discharge Events

There were no abnormal discharge events at the NTTP in 2025.

3.5 Complaints

There were no odour or noise complaints received at the NTTP in 2025.

3.6 MECP Procedures F-5-1 and F-5-5

Condition 11 (4)(m) of the ECA describes requirements to summarize efforts to achieve conformance with MECP Procedure F-5-1 – Determination of Treatment Requirements for Municipal and Private Sewage Works and MECP Procedure F-5-5 – Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems.

In reference to procedure F-5-1, the plant utilizes the activated sludge treatment process to meet secondary or equivalent treatment and consistently achieves effluent quality at or beyond the objectives outlined in the ECA.

Furthermore, Toronto Water is committed to efforts to control the frequency and volume of Combined Sewer Overflow (CSO) discharges and bypass events referenced in Procedure F-5-5. The City is currently implementing a 25-year plan related to its Wet Weather Flow Master Plan (WWFMP), which aims to reduce and eliminate the adverse impacts of storm water runoff and CSO discharges associated with wet weather events. As part of this plan, improvements have been made to the CSO Detention System adjacent to NTTP. It is expected that the ongoing implementation of capital projects related to the City's WWFMP will virtually eliminate CSO discharges and ultimately improve the water quality in the Don River and the Inner Harbour.

3.7 Effluent Quality Assurance and Control Measures

Analytical tests to monitor required parameters are performed by the Toronto Water Laboratory which is accredited to ISO/IEC 17025 by Canadian Association for Laboratory Accreditation Inc. Plant operation and performance is monitored by licensed operators as well as by the facility management team. Standard Operation Procedures, emergency plans, equipment preventative and predictive maintenance, and a network of support staff, help ensure a rapid and effective response to issues, and maintain the high quality of the effluent and bio-solids. An Integrated Quality Management System emphasizing environmental, and health and safety objectives is also in the early implementation stages across Toronto Water and is expected to further standardize facility operations and improve facility performance.

4 CAPITAL PROJECTS

Under Toronto Water's capital program, the NTTP commenced or continued with the capital works projects and studies listed in Table 4 in 2025.

Table 4: Capital Projects

Project Name	Project Description	Project Stage (Dec 31, 2025)	Estimated Completion
TNT Server Room	Construction of a new server room.	Complete	Completed in 2025

5 MAINTENANCE

Staff from the NTTP performed a variety of scheduled, preventative, predictive and reactive maintenance on a diverse spectrum of equipment. Equipment availability and reliability ensures operational requirements are achieved.

The annual calibration and maintenance records of flow meters and on-line analysers for regulated parameters was completed in 2025 and found to be within acceptable limits. A summary of effluent monitoring equipment calibration and maintenance performed in 2025 is included in Table 5.

Table 5: Summary of Regulated Monitoring Equipment Calibration and Maintenance

Calibration and/or Maintenance Record	Completion Date
Final Effluent pH and Temperature Meter - Calibration	Daily
Final Effluent Flow Meter - TNT-DCL-FIT-0002 - Calibration	August 18, 2025
Final Effluent ORP Sensor – TNT-DCL-AIT-0002 – Calibration	August 18, 2025
Residual Sulphite Meter - TNT-DCL-AIT-0001 - Calibration	June 9, 2025
Total Residual Chlorine Benchtop Analyzer - HACH DR3900 - Calibration	December 8, 2025
Chlorine Contact Tank 1 ORP Sensor – TNT-DIS-AIT-0101 - Calibration	August 18, 2025
Chlorine Contact Tank 2 ORP Sensor – TNT-DIS-AIT-0201 - Calibration	August 18, 2025
Influent Autosampler – TNT-PLT-SP-0001 - Verification	Jan 17, Apr 17, Jul 18, Oct 23
Final Effluent Autosampler – TNT-FT-SP-0003 – Verification	Jan 17, Apr 17, Jul 18, Oct 23

In 2025, there was a total of 3,317 work orders completed; refer to Appendix F for a summary of maintenance activities as per Conditions 11(4)(e) of the ECA. None of the maintenance activities undertaken at the plant fell under Limited Operational Flexibility.

6 UTILITIES

A summary of monthly utility consumption for the previous three years at the NTTP is provided in Figure 1. Table 6 below summarizes the total cost and average unit cost for water, and hydro. Total annual consumption for potable water and hydro was 64,181 m^3 and 3.41 M kWh, respectively.

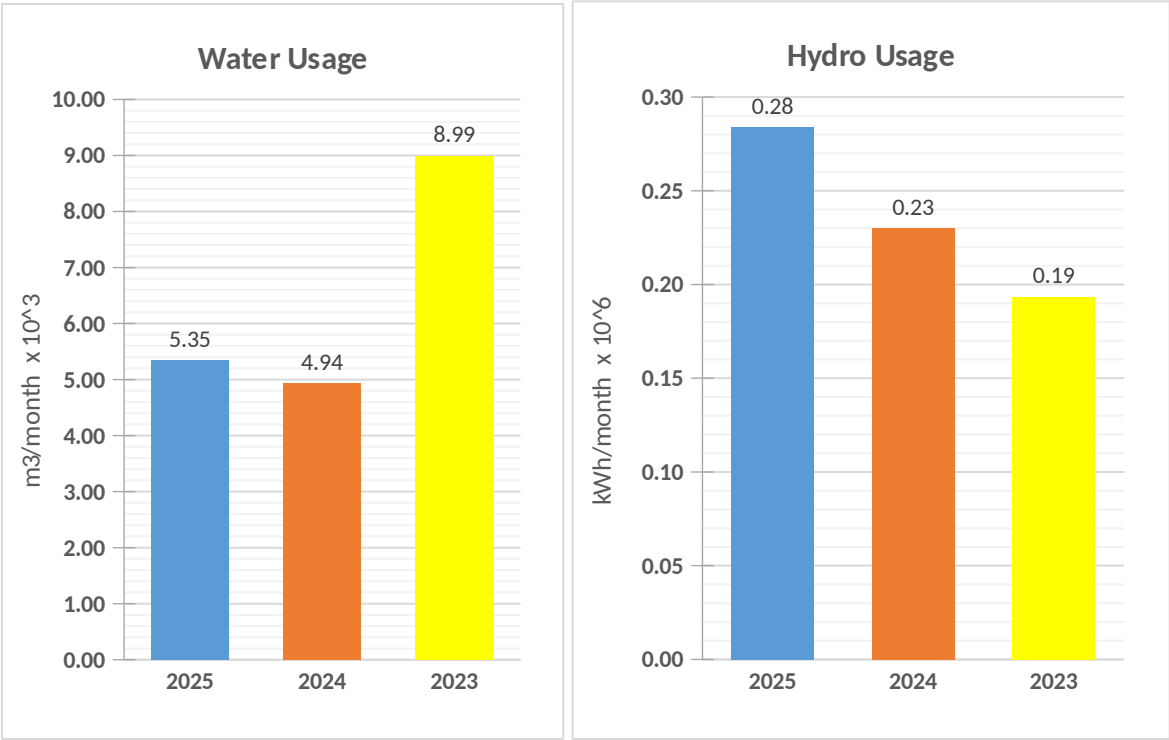

Figure 1: Monthly Utility Consumption (Water, Hydro)

Table 6: Average Unit and Total Utility Cost

Utility	2025	2024	2023
Water Unit Cost ($/$m^3$)	$4.94	$4.76	$4.62
Water Total Cost ($/year)	$316,996.14	$281,824.71	$498,146.28
Hydro Unit Cost ($/kWh)	$0.15	$0.15	$0.13
Hydro Total Cost ($/year)	$508,621.67	$410,695.54	$310,924.90

7 ADMINISTRATION

7.1 Operations and Maintenance Costs

The 2025 plant direct operational costs are broken down into five categories: Salaries and Benefits, Materials and Supplies, New Equipment, Services and Rents, and Inter-Divisional Charges. Materials and Supplies is further segregated into Utilities, Machine and Equipment Parts, Chemicals and Other Materials and Supplies. A breakdown of 2025, 2024 and 2023 annual operations and maintenance costs is illustrated in Figure 2. Overall, operational costs increased by 23.6 % from 2024.

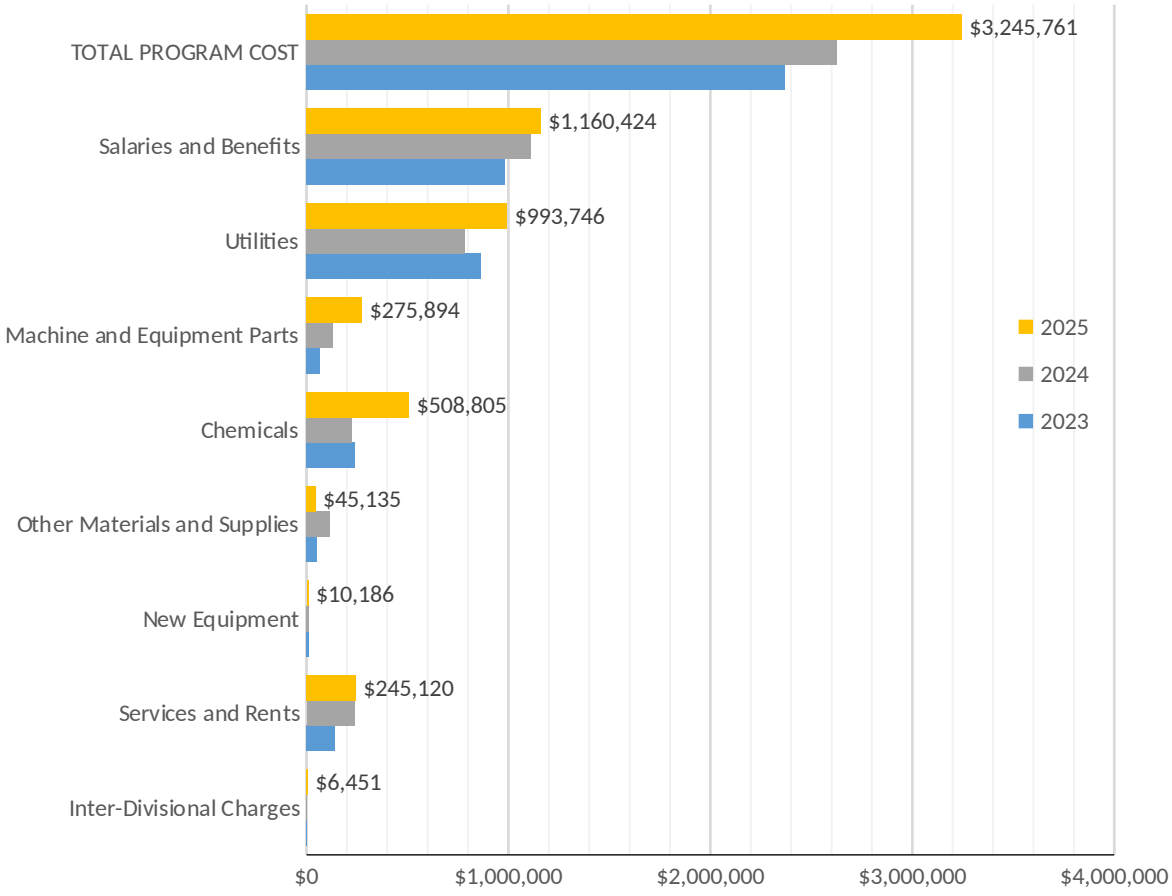

Figure 2: Operations and Maintenance Cost Breakdown

7.2 Human Resources

Plant Staffing at the NTTP in 2025 is shown in Table 7.

Table 7: Plant Staffing

Position	Number of FTE[1]
Area Supervisor, Process Operation and Maintenance	1
Electrical Instrumentation Control Technician	1
Plant Technician - Wastewater	2
Industrial Millwright	2
Wastewater Treatment Plant Worker	1
Developmental Plant Technician	2
Total FTE Positions	9

[1] FTE refers to Full Time Equivalent staff. Seasonal staff are considered 0.5 FTE staff.

7.3 Occupational Health & Safety

Continuous efforts are made to ensure a safe working environment at the NTTP. The Joint Health and Safety Committee (JHSC) assists management in resolving issues through regular meetings and monthly workplace inspections. Plant Health and Safety statistics for the NTTP are included in Figure 3.

As of December 31, 2025, there were no lost time incidents and no lost time days in 2025 due to work related injuries.

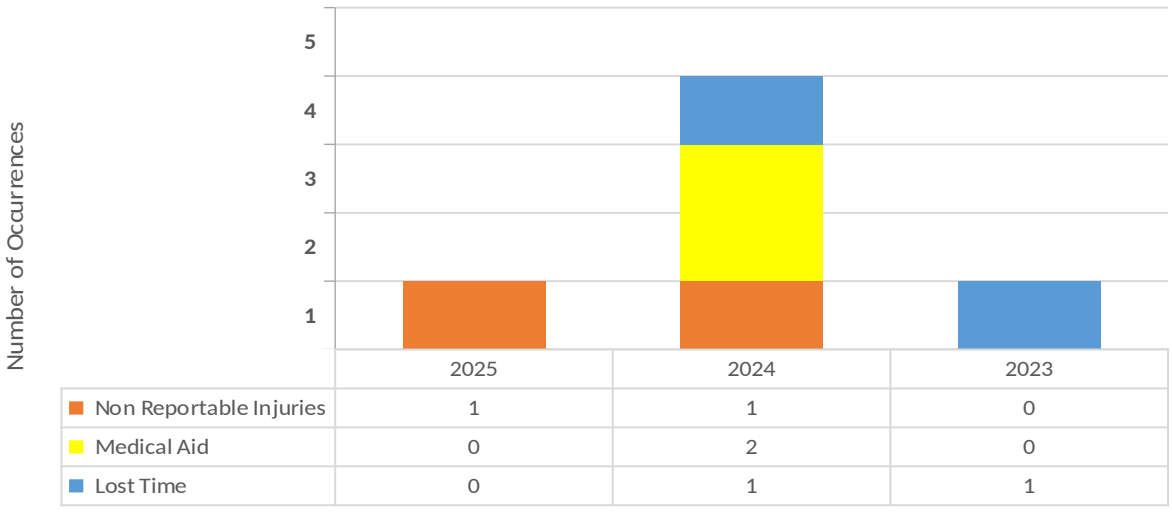

Figure 3: North Toronto Treatment Plant Health & Safety Injury Summary

7.4 Staff Training and Development

The Strategic Planning and Workforce Development unit of Toronto Water facilitates a comprehensive training program for all staff.

Training attended by NTTP operations and skilled trades staff in 2025 includes the list of courses shown in Appendix E. Some of these courses were eligible for Continuing Education Units (CEU's) as specified by the Ontario Water and Wastewater Certification Office. Additional training related to the start-up and commissioning of new equipment/systems installed as part of the capital program was provided as required.

7.5 Utility Operator Certification

Toronto Water trains and provides the required resources to ensure all operators achieve and maintain Class IV certifications. In addition, all skilled trade positions are required to achieve and maintain a Class I operator's licence. As part of this initiative, general operational/process training was delivered to prepare staff for any certification examination that they need to write. Table 8 summarizes the status of operator certification at the NTTP in 2025.

Table 8: Wastewater Treatment Certificates

Class Level	Number of Licenses
Class IV	2
Class III	1
Class II	1
Class I	2
O.I.T.	2
Total	8

7.6 MECP Correspondence

There were no orders issued by the MECP.

Table 9 summarizes the correspondence submitted to the MECP for the NTTP in 2025.

Table 9: Correspondence submitted to the MECP

Date	Type	Description	Resolution	Resolution Date
Notification on Completion of Proposed Works				
Feb 6, 2025	Notification on Completion	Statement for completion of construction of the Proposed Works for process upgrades to secondary treatment and supplementary treatment systems. This statement was certified by a Professional Engineer as per condition 3.2 under the current ECA (7459-B6QPM2).	N/A	N/A
MECP Inspection				
N/A	N/A	No inspections in 2025.	N/A	N/A

APPENDIX A – Plant Schematic

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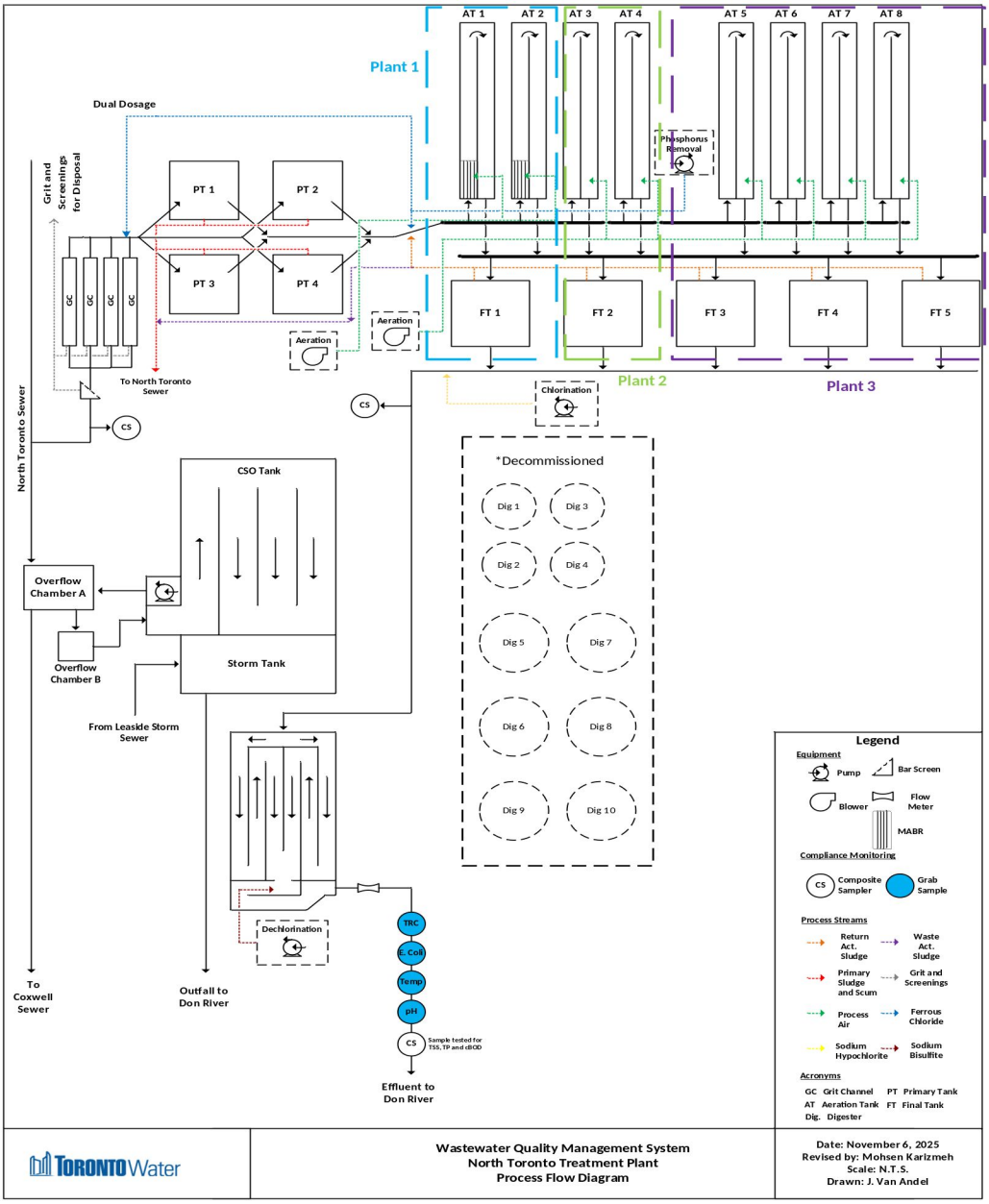

APPENDIX B – Influent and Effluent 2025 Performance Chart

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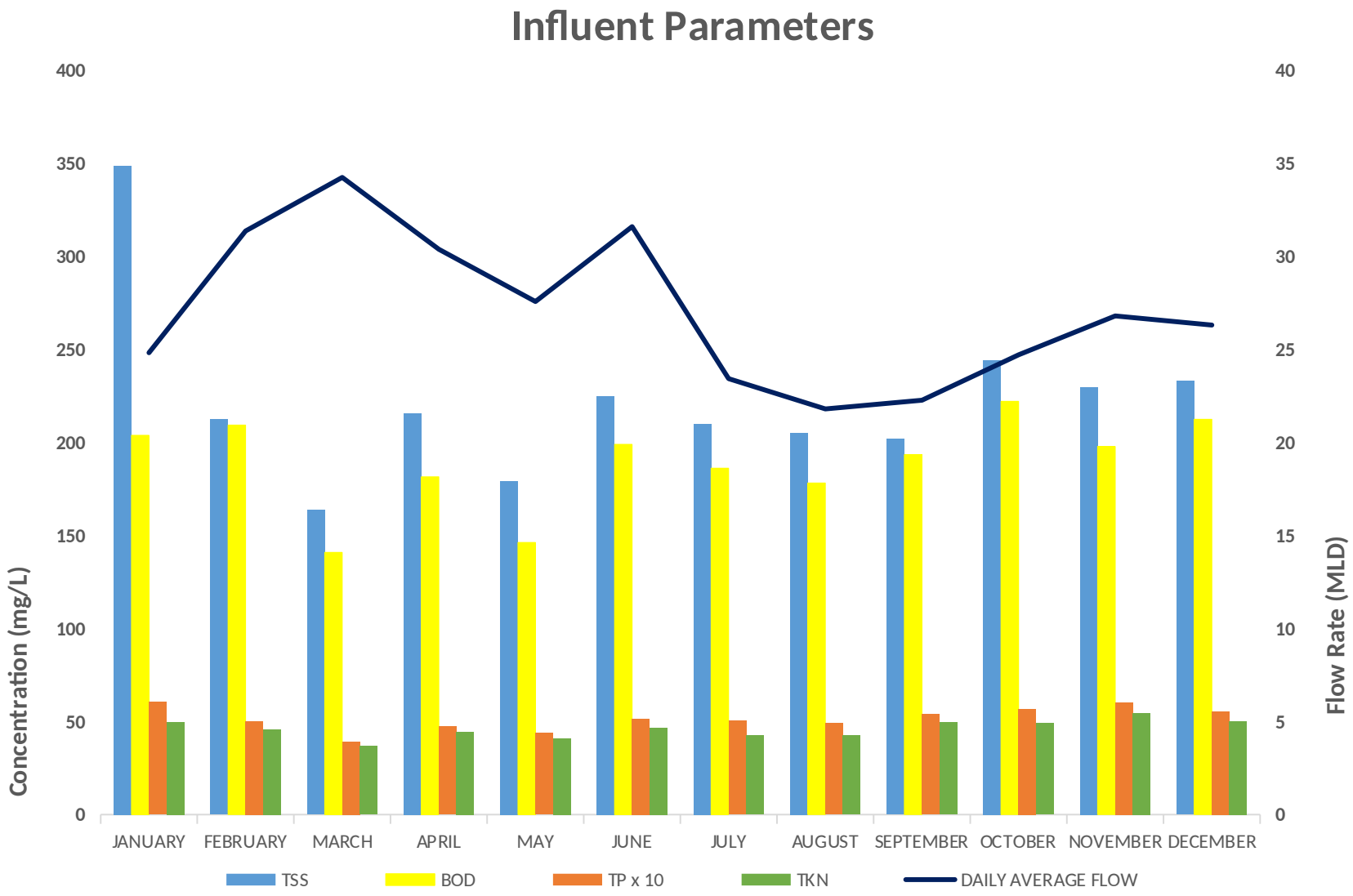
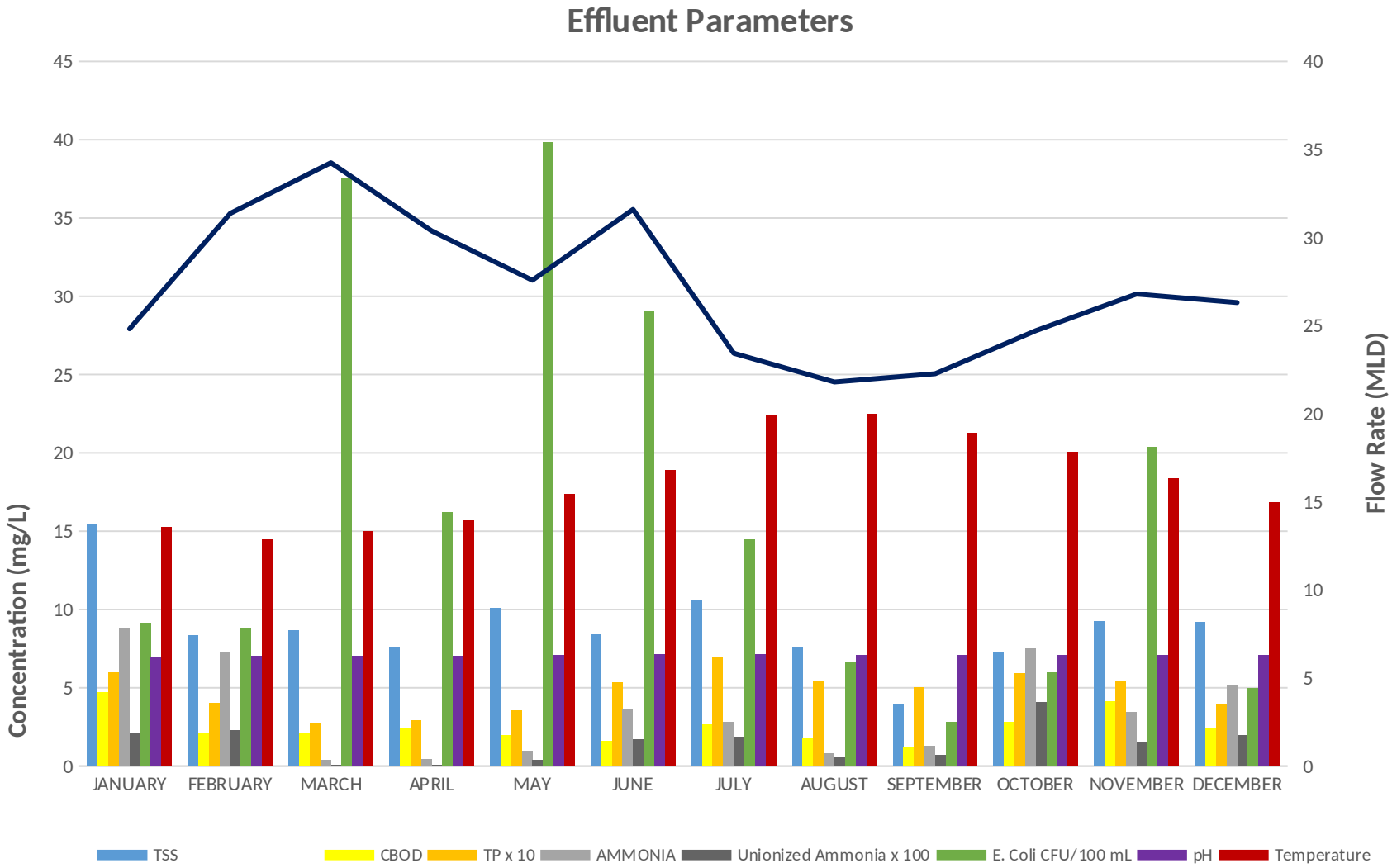


APPENDIX B – Influent and Effluent 2025 Performance Chart



APPENDIX C – Historical Performance Data

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	Units	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Influent Parameters												
Flow	ML/day	27.1	18.3	14.7	16.0	17.5	17.4	21.5	18.8	15.7	17.6	20.0
Total Annual Flow	ML	9880	6714	5358	5838	6380	6359	7,851	6,872	5,731	6,422	7,281
Total Suspended Solids (TSS)	mg/L	222.5	275.2	334.1	226.0	240.7	356.6	258.9	321.2	276.0	286.0	268.0
Biochemical Oxygen Demand (BOD_5)	mg/L	189.1	211.1	232.9	182.7	196.3	260.7	182.5	204.4	192.0	197.0	206.0
Total Phosphorus (TP)	mg/L	5.2	5.2	5.3	4.7	4.8	5.7	4.8	5.4	5.2	5.5	5.5
Total Kjeldahl Nitrogen (TKN)	mg/L	46.0	42.4	40.1	36.7	38.1	42.9	39.1	40.1	40.5	41.1	38.8
Preliminary Treatment												
Grit and Screenings	kg/day	244.6	203.6	165.9	169.0	290.6	231.7	296.4	290.8	295	306.6	396.4
Primary Effluent												
TSS	mg/L	99.2	183.4	96.7	125.9	117.2	107.9	101.7	102.5	86.0	100.0	116.0
Carbonaceous Biochemical Oxygen Demand ($cBOD_5$)	mg/L	108.2	142.9	87.3	93.7	91.4	92.1	70.9	85.0	69.0	89.0	89.0
Secondary Treatment												
Aeration Loading	kg $CBOD_5/m^3$.day	0.29	0.26	0.13	0.15	0.16	0.16	0.15	0.16	0.11	0.15	0.17
Mixed Liquor Suspended Solids	mg/L	3378	4301	2561	2442	2258	2353	2,228	2,397	2,351	2,439	2,317
Final Effluent												
Final Effluent Daily Average Flow	ML/day	27.1	18.3	14.7	16.0	17.5	17.4	21.5	18.8	15.7	17.5	19.9
TSS	mg/L	8.9	8.3	9.1	6.7	7.5	7.0	5.8	6.6	3.0	3.0	3.6
TSS Loading Rate	kg/day	240.6	152.6	133.5	108.0	131.6	121.4	124.4	123.2	52.7	52.3	71.2
cBOD5	mg/L	2.5	2.0	3.2	3.1	3.2	2.8	3.6	3.1	2.0	2.0	2.2
cBOD5 Loading Rate	kg/day	67.5	37.2	47.1	49.7	56.5	48.2	78.2	57.6	26.5	31.1	42.9
TP	mg/L	0.5	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.7	0.7
TP Loading Rate	kg/day	13.0	10.6	7.7	7.9	10.1	10.6	11.9	11.0	8.5	12.1	13.4
Escherichia Coli (E. Coli)	CFU/100 mL	16	24	22	13	13	16	13	11	5	11	9
pH	-	7.1	7.0	7.5	7.2	7.0	7.2	7.1	7.1	7.3	7.1	7.4
Total Chlorine Residual	SBS (P)/mg/L	0.012	0.012	0.012	0.014	0.014	0.009	0.011	*	SBS (P)	SBS (P)	SBS (P)
Total Kjeldahl Nitrogen (TKN)	mg/L	4.9	2.1	1.9	4.4	3.3	2.8	5.6	6.7	2.1	1.7	4.0

APPENDIX C – Historical Performance Data

	Units	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
Total Ammonia Nitrogen	mg/L	3.5	1.3	1.0	3.4	2.8	2.2	5.3	6.0	1.5	0.9	3.2
Unionized Ammonia	mg/L	0.015	0.005	0.012	0.019	0.011	0.012	0.028	0.038	0.010	0.007	0.038
Nitrate +Nitrite	mg/L	13.6	16.7	19.4	14.6	15.3	15.8	11.7	10.5	15.7	13.9	11.7
Temperature	degrees Celsius	18	18	18	18	19	18	17	18	17	18	-
Solids Handling												
Sludge to Ashbridges Bay Treatment Plant (ABTP) – Flow	ML/day	0.56	0.43	0.56	0.46	0.55	0.45	0.49	0.46	0.40	0.48	0.32
Sludge to ABTP – Total Solids (TS)	%	0.68	0.73	0.55	0.94	0.89	0.91	1.00	0.92	0.97	0.96	1.60

*From January to April 2018 SBS presence was confirmed; from May to December 2018 post De-Chlorination TRC was measured

APPENDIX D – Influent and Effluent Metal Concentrations

APPENDIX D – Influent and Effluent Metal Concentrations

Influent (Daily Composite tested once/month for metals)

Parameter Units	Arsenic mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Copper mg/L	Iron mg/L	Lead mg/L	Manganese mg/L	Mercury mg/L	Nickel mg/L	Zinc mg/L
January	*0.005	*0.002	*0.002	*0.002	0.103	1.34	*0.0025	0.0536	*0.00005	*0.0025	0.138
February	*0.005	*0.002	*0.002	*0.002	0.0916	0.957	*0.0025	0.0452	*0.00005	*0.0025	0.127
March	*0.005	*0.002	*0.002	*0.002	0.0762	0.845	*0.0025	0.0423	*0.00005	*0.0025	0.0989
April	*0.005	*0.002	*0.002	*0.002	0.0851	0.794	*0.0025	0.042	*0.00005	*0.0025	0.103
May	*0.005	*0.002	*0.002	*0.002	0.0822	0.726	*0.0025	0.0388	*0.00005	*0.0025	0.102
June	*0.005	*0.002	*0.002	*0.002	0.103	0.767	*0.0025	0.0412	0.000102	*0.0025	0.127
July	*0.005	*0.002	*0.002	*0.002	0.0981	0.632	*0.0025	0.0341	*0.00005	*0.0025	0.127
August	*0.005	*0.002	*0.002	*0.002	0.11	0.844	*0.0025	0.0399	*0.00005	*0.0025	0.128
September	*0.005	*0.002	*0.002	*0.002	0.0999	0.654	*0.0025	0.0382	*0.00005	*0.0025	0.115
October	*0.005	*0.002	*0.002	*0.002	0.106	0.843	0.0064	0.0418	*0.00005	*0.0025	0.127
November	*0.005	*0.002	*0.002	*0.002	0.0924	0.778	*0.0025	0.0454	0.000115	*0.0025	0.113
December	*0.005	*0.002	*0.002	*0.002	0.106	0.797	*0.0025	0.0439	*0.00005	*0.0025	0.137
Annual Average	**0.005**	**0.002**	**0.002**	**0.002**	**0.096**	**0.831**	**0.00283**	**0.0422**	**0.00006**	**0.0025**	**0.120**

Values in red with an asterisk prefix are half the Method Detection Limit (MDL)

APPENDIX D – Influent and Effluent Metal Concentrations

Final Effluent (Daily Composite tested once/month for metals)

Parameter Units	Arsenic mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Copper mg/L	Iron mg/L	Lead mg/L	Manganese mg/L	Mercury mg/L	Nickel mg/L	Zinc mg/L
January	*0.005	*0.002	*0.002	*0.002	0.023	2.71	*0.0025	0.133	*0.00005	0.00539	0.0592
February	*0.005	*0.002	*0.002	*0.002	0.0106	0.698	*0.0025	0.0577	*0.00005	*0.0025	0.0264
March	*0.005	*0.002	*0.002	*0.002	0.0107	0.835	*0.0025	0.0488	*0.00005	*0.0025	0.0222
April	*0.005	*0.002	*0.002	*0.002	0.0118	0.629	*0.0025	0.0568	*0.00005	*0.0025	0.0686
May	*0.005	*0.002	*0.002	*0.002	0.0138	0.977	*0.0025	0.0677	*0.00005	*0.0025	0.0269
June	*0.005	*0.002	*0.002	*0.002	0.0136	0.445	*0.0025	0.032	*0.00005	*0.0025	0.0293
July	*0.005	*0.002	*0.002	*0.002	0.0191	0.548	*0.0025	0.0223	*0.00005	*0.0025	0.0423
August	*0.005	*0.002	*0.002	*0.002	0.0199	0.525	*0.0025	0.0264	*0.00005	*0.0025	0.0304
September	*0.005	*0.002	*0.002	*0.002	0.017	0.309	*0.0025	0.0219	*0.00005	*0.0025	0.0242
October	*0.005	*0.002	*0.002	*0.002	0.0171	0.399	*0.0025	0.0219	*0.00005	*0.0025	0.0248
November	*0.005	*0.002	*0.002	*0.002	0.0219	0.545	*0.0025	0.0198	*0.00005	*0.0025	0.0253
December	*0.005	*0.002	*0.002	*0.002	0.0175	0.597	*0.0025	0.0476	*0.00005	*0.0025	0.0326
Annual Average	**0.005**	**0.002**	**0.002**	**0.002**	**0.0163**	**0.768**	**0.0025**	**0.0463**	**0.00005**	**0.00274**	**0.0344**

Values in red with an asterisk prefix are half the Method Detection Limit (MDL)

APPENDIX E – Staff Training Courses

Training attended by NTTP operations and skilled trades staff in 2025 includes the list of courses below.

Technical and Health and Safety Training:

- Chemical Safety and Accessing Safety Data Sheets
- Cold And Winter Hazards Safety Talk
- Confined Space Entry and Rescue - 2 Day
- Corporate Security - Surviving an Active Attacker
- CSA Z462 24 Workplace Electrical Safety
- Effluent Disinfection
- Emergency Plan Awareness Safety Talk
- Equipment Safety Inspect It Before You Use It
- Eyewash Station and Emergency Shower
- Fire Safety at Work
- Hand Tools
- Head Protection Hard Hats/Safety Shoes/Flash Uniform
- Health and Safety Aspects of Contracts for Services
- Joint Health and Safety Committee (JHSC) Certification Training
- MMR – Self-Contained Breathing Apparatus
- ORO Training
- Preventing Back Injuries
- Safe Drinking Water Act and Applicable Drinking Water Regulations
- Slips, Trips and Falls
- Standard First Aid Level 'C' CPR & AED - 2 Day (Fast Rescue)
- Transportation Of Dangerous Goods
- Vision Zero-Safety Guide for School Children & Parents
- Wastewater Digester Operation & Control
- What to Do if a Vehicle Breaks Down
- Winter Driving Safety
- Working At Heights Refresher
- Workplace Violence
- Workplace Violence Legislation & Policy Review

Other Training:

- Business Email Compromise
- Email Account Compromise
- Malicious Digital QR Codes
- Ransomware
- Real or Not Real? How Deep is the Fake?
- Risky USB
- Securing the Home Office
- Senior Leadership Email Impersonation

APPENDIX F – Maintenance Activities

The following maintenance activities on major structures and equipment at NTTP were completed in 2025:

Monthly Activities

- Clean drop shaft influent screens
- Clean primary wet well level transmitter
- Inspect and lubricate bar screen screw conveyor bearings
- Inspect and lubricate bar screen motor bearings, wiper pivot shaft, and pin rack
- Inspect RAS and WAS pump gland packing water seal
- Lubricate bridge rotating collector
- Lubricate WAS and RAS pump coupling, bearing and motor bearing
- Maintain aeration blower valves
- Replace suspended solid transmitter pump tubing
- Test combustible gas detectors and alarms
- Test Standby WAS and RAS pumps

Quarterly Activities

- Calibrate the CI/ORP analyzer sample probe
- Exercise furnace oil manual valves
- Exercise the hot water primary loop manual valves
- Inspect and exercise manual sodium hypochlorite valve
- Inspect and exercise the manual sodium bisulphite valves
- Inspect final clarifiers motor bearing
- Inspect Furnace oil feed pump, motor bearings, and surface
- Inspect roof air handler unit fan and motor bearings, damper links, filters, drive belts, shelves and structure
- Inspect sludge pump and sludge pump motor bearings
- Inspect MABR blower
- Inspect ferrous chloride piping
- Lubricate the drainage pump shaft and motor bearings
- Test sump pit submersible pump
- Test the sump pump float switch
- Test and check the UPS for RPU
- Verification and testing of autosamplers
- Verify the operation of Low Water Level cut out trip circuit

Semi-annual Activities

- Clean and test wet well low/high level float
- Clean chemical dosing pump diaphragm and valves
- Inspect and calibrate aeration dissolved oxygen analyzer transmitters
- Inspect and calibrate aeration flow transmitters
- Inspect and clean primary wet well
- Inspect and lubricate ferrous chloride feed pump
- Inspect and pressure match aeration pressure transmitters
- Inspect, clean, and lubricate belt driven roof exhaust fan bearings
- Lubricate bar screen channel inlet and discharge sluice gate stem
- Lubricate circular collector torque switch articulated arm
- Lubricate WAS pump
- Test sodium bisulphite/hypochlorite tank spill containment limit switch
- Inspect and maintain server room fan, A/C unit, condensing unit

Annual Activities

- Calibrate dissolved oxygen sensor
- Calibrate hypochlorite and sulphite analyzers
- Calibrate flow transmitter
- Check oil level of sludge pump gearbox and macerator gearbox
- Clean air handling unit heating coil
- Clean and maintain aeration tank 9” membrane diffusers
- Clean heating coil on stand alone hot water driven heater
- Drain, clean, and inspect chlorine contact tank
- Exercise and check final clarifiers distribution channel gate valves
- Exercise and inspect secondary gate valves
- Exercise drainage pump system isolation valves
- Exercise sludge isolation, suction, discharge, bypass, and drain valves
- Functional test of circular collector shutdown torque switch
- Functional test of the HVAC unit high supply air temperature shutdown and alarm circuit
- Inspect and clean heater fan motor, sheaves and belts
- Inspect and lubricate rollup door
- Inspect boiler recirculation pumps mechanical seals
- Inspect bridge rotating collector
- Inspect final clarifiers motor sheave/drive belts
- Inspect motor/pump shaft sheave
- Inspect screw conveyor trough liner thickness and change gear box oil
- Inspect WAS and RAS pump/motor drive belts

- Inspect, change grease, and lubricate bearings on primary heating system recirculating pump drive coupling
- Load and performance test on boiler after annual maintenance outage
- Lubricate hot water boiler primary loop gate valves
- Lubricate primary tank inlet sluice gate valve stem and scum outlet sluice gate valve stem
- Lubricate roof air handler fan bearings
- Lubricate sluice gate and check oil of actuator
- Maintain aeration tank actuated air valve
- Maintain secondary clarifier RAS suction pipe actuated knife gate valve
- Perform megger test of the RAS/WAS pump and drainage pump motor winding insulation
- Test and inspect backflow preventers
- Wet well level transmitter functional test

Major Repairs

- Rebuilt sludge return pump #7 and fixed impeller
- Changed out primary sludge pump #2
- Repaired effluent water pumps – replaced flooded motors and control panel equipment
- Installed new sodium bisulphite analyzer
- Replaced primary sludge pump grinder
- Reassembled RAS pump #6