

# **2025 Annual Report**

## **North Bay Wastewater Treatment System**

### **Description of the Works**

#### Wastewater Treatment Plant:

The original sewage plant was built in 1961-62 providing secondary treatment for 18,160 cubic meters/day. The plant was expanded in 1973 to a capacity of 36,320 cubic meters/day, and in 1984 the plant was expanded again to its present capacity of 54,500 cubic meters/day. Phosphorus removal was included in the 1984 expansion/upgrade. To protect spawning grounds, the plant operates a discontinuous chlorination program (chlorination period is May 15th to October 15th).

The North Bay Wastewater Treatment Plant is a conventional activated sludge facility, using biological oxidation, anaerobic sludge digestion than centrifugation for sludge dewatering. The plant treats urban wastewater and discharges the processed effluent water into Lake Nipissing. The solid sludge material produced through primary settlement and the biological secondary treatment process "activated sludge process", is stabilized through anaerobic digestion which reduces its organic content and renders it non-putrescible. The anaerobically digested sludge is thickened by centrifugation with polymer addition. Dewatered sludge with an approximate solid concentration of 19-24% is hauled from the Wastewater Treatment Plant and utilized at the Merrick Landfill Site as sections are closed and used as a topping material.

#### The works consist of:

##### Preliminary Treatment

- A raw sewage pumping station with two (2) debris grinders and four variable speed raw sewage pumps, two (2) rated at 80,352 m<sup>3</sup>/d against 10.6 m TDH. Two (2) upgraded variable speed raw sewage pumps each rated at 95,904 m<sup>3</sup>/d against 10.9m TDH.
- Two (2) mechanically cleaned bar screens.
- One (1) screening screw conveyor and dewatering press
- Two (2) vortex grit removal tanks with a total peak flow capacity of flow of 108,960 m<sup>3</sup>/d.
- Two (2) 2.83 m<sup>3</sup>/min. blowers and three (3) 1.42 m<sup>3</sup>/min blowers
- One (1) grit classifier and dewatering screw

### Primary Treatment

- Four (4) primary clarifiers each with a surface area of 250.25 m<sup>2</sup> providing a total surface area of 1001 m<sup>2</sup> and two (2) large primary clarifiers each with a surface area of 613.7 m<sup>2</sup> providing a total surface area of 1227 m<sup>2</sup>.
- Four (4) waste sludge pumps, two (2) with rated capacity of 18.9 L/s for clarifiers 1-4 and two (2) with rated capacity of 22.5 L/s for clarifiers 5 & 6.

### Secondary Treatment

- Three (3) aeration tanks providing a total volume of 10,150 m<sup>3</sup> with each tank equipped with fine bubble diffused aeration system, and Six (6) positive displacement lobe type blowers, each rated at 500 c.f.m. at a maximum of 14 psi.
- Four secondary clarifiers (1-4) each with volume of 1,138m<sup>3</sup> providing a total surface area of 1,478 m<sup>2</sup> and two (2) large rectangular clarifiers (5-6) each with surface area of 739 m<sup>2</sup> providing a total surface area of 1,478 m<sup>2</sup>.
- One (1) constant speed waste activated sludge (WAS) pump for secondary clarifiers #1-4 having a rated capacity of 27.6 L/s at 24.7 m TDH.
- Two (2) return activated sludge (RAS) pumps with Variable frequency drives for secondary clarifier's #1-4, each having a rated capacity of 415 L/s.
- Five (5) RAS/WAS sludge pumps for secondary clarifiers #5-6, each having a rated capacity of 76 L/s at 9.1 m TDH.
- Two (2) chemical metering pumps for chemical addition for phosphorus removal, each having a rated capacity of 6mL - 65 L/hr.
- Two industrial effluent water pumps (one duty and one standby) each rated at 3.5 L/s at 59.8 m TDH.

### Disinfection & Discharge

- A chlorine disinfection system consisting of two chlorine contact tanks, one providing a volume of 764 m<sup>3</sup> and a second chlorine contact tank providing a total volume of 784 m<sup>3</sup>.
- Two 4,280L CAPTOR storage tanks.
- A dechlorinating system consisting of two chemical metering pumps each rated at 18 - 32 liters per hour, and an ultra-low range total chlorine analyzer on the effluent outfall line.
- Approximately 322 m of 1500 mm diameter discharge/outfall pipe, discharging from an overflow chamber into Lake Nipissing.

### Sludge Processing

- A sludge digestion and storage system consisting of one (1) anaerobic digester (primary digester) providing a digestion volume of 3,434 m<sup>3</sup> and two (2) anaerobic digesters (secondary digesters), each having the

volume of 2,060 m<sup>3</sup> to provide a total digestion volume of 7,580 m<sup>3</sup>; and one (1) digested sludge holding tank having a volume of approximately 1,500 m<sup>3</sup>.

- One Bird Model 3700 dewatering centrifuge and one Andritz Model sludge dewatering centrifuge capable of dewatering sludge up to 680 kg/h of dry solids.

Back-up Power and Electrical Equipment

- Two (2) 750 kW, 347/600V diesel driven power generator. Each generator containing an attached 7,466 L double walled fuel tank provides partial emergency power to the raw sewage pumps and critical plant processes during power outages. Sized for future addition of secondary treatment equipment.
- All other controls, electrical equipment, instrumentation, piping, pumps, valves and appurtenances essential for the proper operation of the sewage works.

Registration of the Wastewater Works:

Municipal Location	City of North Bay
Works Number	110000533
Facility Classification	WWC Level II, Certificate #1447
	issued 21 September, 1990
	WWTP Level IV, Certificate #154
	issued 17 January, revised 2012
	upgraded to a class 4
Certificate of Approval	Certificate of Approval #6310-CG3NM9
Population Served	54,000 people

Wastewater Collection System Pumping Station Descriptions:

The Barber (Coreen/Wickstead) sewage lift pumping station Is a factory built wet well/dry well station without an overflow. It has two (2) 30 HP, 575 Volt, 3 Phase, Flygt submersible pumps. It is also equipped with a 125 KVA standby diesel gen set to provide emergency power. A small building on site houses the pump controls and the standby gen set.

The Booth Road sewage lift pumping station Is a wet well type of station without an overflow. It has two (2) 20 HP, 575 Volt, 3 Phase, Flygt submersible pumps. It is also equipped with a 62.5 KVA standby gen set to provide emergency power. A small building on site houses the pump controls and the standby gen set.

The Chapais Street sewage lift pumping station Is a wet well type of station with an overflow. It has two (2) 3.5 HP, 220 Volt, 3 Phase, Flygt submersible pumps. It is also equipped with a 50 KVA standby gen set to provide emergency power. The gen set is an external, fixed pad mounted, self-contained unit. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well.

The Foran sewage lift pumping station Is a wet well type of station with an overflow. It has two (2) 5 HP, 220 Volt, 3 Phase, Flygt submersible pumps. This station does not have a permanently installed standby gen set to provide emergency power. A mobile gen set must be used to provide emergency power when required. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well.

The Gertrude Road sewage lift pumping station Is a factory built 3.6m diameter by 7.7m deep wet well/dry well station. It has two (3) 12 HP Flygt submersible pumps capable of a peak flow of 76 l/s. It is also equipped with a 32.5 KVA standby gen set to provide emergency power. Site is equipped with a Kohler 80KW standby power diesel generator with sound dampening enclosure. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade well.

The Judge Street sewage lift pumping station Is a factory built wet well/dry well station without an overflow. It has two (2) 20 HP, 575 Volt, 3 Phase, Flygt pumps. It is also equipped with a 75 KVA standby gen set to provide emergency power. A small building at this site houses the pump controls and the standby gen set.

The Lakeside pumping station Is a dry well/wet well type station without an overflow. It has two (2) 3.5 HP, 220 Volt, 3 Phase, Flygt submersible pumps. This pumping station does not have a permanently installed standby gen set to provide emergency power. A mobile 32.5 KVA standby gen set stored at the public works must be transported to the site and used to provide emergency power to this station when required. There is no building at this site, only an above ground pump control panel for the pumps which are located in a sub grade dry well.

The Lake Heights sewage lift pumping station Is a wet well type station with an overflow. It has two (2) 30 HP, 575 Volt, 3 Phase, Flygt submersible pumps. It is also equipped with a 62 KVA standby gen set to provide emergency power. A small building at this site houses the pump controls and the standby gen set.

The Marsh Drive sewage lift pumping station Is a wet well type of station without an overflow. It has two (2) 35 HP, 575 Volt, 3 Phase, and Gorman Rupp above ground pumps. This pumping station is located at the Marsh Landfill site and collects the leachate and pumps it into the municipal sewage system. This station does not have a permanently installed standby gen set to provide emergency power. A mobile gen set must be transported to the site and used to provide emergency power when required. A small building at this site houses the above ground pumps with suction piping extending into the wet well and pump controls.

The Marshall Sewage lift pumping station is a wet well type station without an overflow. It has (3) dry submersible pumps, (1) 75 HP, 575 Volt, 3 Phase, Crane Deming dry pit pump and (2) 85 Hp Flygt pumps with a 240 L/s capacity respectively. The station is also equipped with a 150KW 600/347-volt standby generator to provide emergency power. The structure houses the pump controls, and the standby gen set in the above ground level of the building and the dry well pumps are in a below ground (basement) level. Access is provided via a separate external door to a staircase which leads down to a screening unit for wastewater entering the stations wet well.

The Merlin Street sewage lift pumping station Is a wet well type of station with an overflow. It has two (2) 3.5 HP, 575 Volt, 3 Phase, Flygt submersible pumps. It is also equipped with a 35 KVA standby gen set to provide emergency power. The gen set is an external, fixed pad mounted, self-contained unit. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well.

The Northgate sewage lift pumping station Is a wet well type of station without an overflow. It has two (2) 9.4 HP, 575 Volt, 3 Phase, Flygt submersible pumps. It is also equipped with a 75 KVA standby gen set to provide emergency power. The gen set is an external, fixed pad mounted, self-contained unit. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well. An upstream manhole with inline 5HP, 575 Volt, 3phase 3-Hydro-C-1800 inline grinder before the wet well. This is to deal with large amounts of rags and other debris which was damaging pumps.

The Premier Road sewage lift pumping station Is a factory built wet well/dry well station without an overflow. It has two (2) 2 HP, 575 Volt, 3 Phase, Allis Chalmers/Smith & Lovelace pumps. It is also equipped with a 35 KVA standby gen set to provide emergency power. The gen set is an external, fixed pad mounted, self-contained unit. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well.

The Tenth Street pumping station Is a wet well type of station with an overflow. It has two (2) 5 HP, 600 Volt, 3 Phase, and Flygt submersible pump. (This station is operational in the summer months only) This station does not have a permanently installed standby gen set to provide emergency power. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well.

The Timmins/Gorman sewage lift pumping station Is a wet well type of station with an overflow. It has two (2) 7.5 HP, 230 Volt, 3 Phase, Flygt submersible pumps. This station does not have a permanently installed standby gen set to provide emergency power. A mobile gen set/thawing stored by the city must be transported to the site and used to provide emergency power when required. A very small building at this site houses the pump controls for the pumps which are in a sub grade dry well/wet well.

The Wallace Road sewage lift pumping station Is a factory built dry well/wet well station without an overflow. It has two (3) 12 HP, 575 Volt, 3 Phase, Flygt pumps giving the stations a pumping capacity of 50 L/s at 16.8 TDH. It is also equipped with an 80KW standby gen set to provide emergency power. The gen set is an external, fixed pad mounted, self-contained unit. There is no building at this site, only an above ground pump control panel for the pumps which are in a sub grade wet well.

The Waterfront Storm Water pumping station located at Community Waterfront Friends Waterfront Park in the City of North Bay, designed for peak flow of 113L/s, consisting of a 3.81m x 3.81m precast concrete structure wet well equipped with two (2) 20HP, 600 Volt, 3 Phase, Flygt Model 3153.181 LT submersible pumps, one for duty and one for standby, each pump has a rated capacity of 110 L/s at a total dynamic head of 8.2m, complete with electrical and electronic control systems, float control systems, discharge piping, valves, and all other appurtenances necessary to have a complete and operable pumping station, discharging to the proposed 1200mm diameter storm sewer via the proposed 300mm diameter storm water force main.

### **Summary & Interpretation of Sampling and Monitoring Data:**

The Certificate of Approval (ECA) #6310-CG3NM9 issued for the North Bay Wastewater Treatment Plant on August 7, 2022, requires the Owner to prepare and submit a performance report annually within (90) days following the period reported on.

The City of North Bay acts as the operating authority and operated the North Bay Wastewater Treatment Facility and the Wastewater Collection System in 2025. This Annual Wastewater System Report covers the period from 01 Jan 2025 to 31 December 2025.

## **Summary of Raw Sewage Sampling Data and Annual Flow Data**

The sewage treatment plant has the *Rated Capacity* of 54,480 m<sup>3</sup>/day with a secondary treatment Peak Flow Rate of 108,960 m<sup>3</sup>/day. In 2025 the average daily raw sewage flow was 31,998 m<sup>3</sup>/day. The annual average daily flow was within the design capacity, with the average daily flow running at 59% of the wastewater systems rated design capacity.

The annual minimum daily raw sewage flow was 23,425 m<sup>3</sup>/day and occurred in February 2025. The maximum daily raw sewage flow was 78,866 m<sup>3</sup>/day and occurred in March 2025.

The total raw sewage flow for the year was 11,679,432 m<sup>3</sup>.

### Raw Sewage Sampling Summary:

The operator collects a composite sample of raw sewage monthly sending it to Near North Laboratories in North Bay for analysis for BOD<sub>5</sub>, Total Suspended Solids, TKN and Total Phosphorus as required by the ECA. The reported analysis results are forwarded to City of North Bay staff.

The average raw sewage BOD<sub>5</sub> concentration was 89.17 mg/L.

The average raw sewage Total Suspended Solids (TSS) concentration was 83.88 mg/L.

The average raw sewage Total Phosphorus (TP) concentration was 3.53 mg/L

The average raw sewage Total Kjeldahl Nitrogen (TKN) concentration was 26.20 mg/L.

*See the accompanying North Bay WWTP 2025 Monthly Data Summary for complete raw wastewater flow and analyses data.*

### **Treated Sewage Sampling Summary**

The annual average treated sewage effluent CBOD<sub>5</sub> was 5.25 mg/L.

The annual average treated sewage effluent Total Suspended Solids (TSS) was 4.71 mg/L.

The annual average treated sewage effluent Total Phosphorus (TP) was 0.72 mg/L.

The average monthly geometric mean of treated sewage effluent E. coli during the period of chlorination was 28.00 CFU/100mL.

The Ann. Avg. treated sewage effluent Total Chlorine residual during the period of chlorination was 0.46 mg/L.

The Ann. Avg. treated sewage effluent Total Chlorine residual after dechlorination was 0.02 mg/L.

The annual average treated sewage effluent pH was 6.82.

The annual average sewage effluent temperature was 13.9 degrees C.

#### **Effluent Chlorination and E Coli Levels:**

The sewage treatment plant effluent is chlorinated using chlorine gas during the disinfection period of May 15 to October 15. In 2025 a total of 6,466.08 kg of chlorine was used. The average dosage of Cl<sub>2</sub> applied in 2025 was 1.48 mg/L. The average chlorine residual in the effluent was 0.46 mg/L before dechlorination. The minimum and maximum E Coli levels measured in the effluent during the period of chlorination were respectively 5 CFU/100ml and 730 CFU/100ml. The annual average for monthly geometric means for E Coli level in the effluent for 2025 was 28.00 CFU/100ml. The Monthly Geometric Mean Density Objectives of 150 counts/100 mL for E.coli *Effluent Limits* set in the ECA was achieved for all chlorination season of 2025.

#### **Effluent Total Phosphorus Levels:**

After primary treatment is completed the sewage ferric sulfate (iron salts) is added at the beginning of the secondary treatment process to reduce the Total Phosphorus level. The monthly averages for Total Phosphorus in the effluent ranged from 0.24 mg/L to 1.35 mg/L. The annual average Total Phosphorus level measured of the effluent was 0.72 mg/L. Therefore, the *Annual Average Effluent Objective of 0.8 mg/L* set in the ECA was achieved in 2025.

See the accompanying North Bay 2025 Summary of Sewage Effluent Sampling Data and Annual Flow Data for complete wastewater effluent flow and analyses data.

ECA Effluent Compliance Limits and Operational Objectives

Please see table below which shows the ECA effluent compliance limits, operational objectives and North Bay Wastewater Treatment Plant Effluent results for 2025.

<b>Effluent Parameter</b>	<b>Annual Average</b>	<b>Concentration</b>	
	(mg/L unless otherwise indicated)		
	<b>Compliance Limit</b>	<b>Operational Objective</b>	<b>2025 Results</b>
CBOD5	25	15	5.25
Total Suspended Solids (TSS)	25	15	4.71
Total Phosphorus (TP)	1	0.8	0.72
Total Ammonia Nitrogen	N/A	N/A	17.04
E. Coli * <sup>1</sup>	200 counts/100ml	150 counts/100ml	28.00
	(monthly Geometric Mean Density)	(Monthly Geometric Mean Density)	
Total Chlorine Residual* <sup>1</sup>	N/A	N/A	0.46
Total Chlorine Residual After Dechlorination	0.02	0.00	<0.02
pH	6.0-9.5	6.5-8.5	6.82
Temperature	N/A	N/A	13.9

\*<sup>1</sup> During the disinfection period between May 15 to October 15, every year. The plant utilizes an online ultra low range Total Chlorine Analyzer; this monitor’s chlorine residuals continuously. With this analyzer the limit of 0.02mg/L is over a moving 2-hour average, the maximum single read limit is 0.1mg/L.

Weekly samples are taken immediately to Near North Laboratories in North Bay for analysis. Should the samples not be processed for analysis immediately, they are refrigerated at 4° C until analysed in the laboratory.

The ECA Annual Average Concentration Effluent Limits of 25.0 mg/L for CBOD<sub>5</sub> , 25.0 mg/L for Suspended Solids, 1.0 mg/L for Total Phosphorus were all met. Therefore, the plant was in compliance with the ECA. The ECA effluent limits for pH being maintained between pH 6.0 to 9.5, inclusive at all times was met for 2025. Total Chlorine Residuals in final effluent were monitored by the ultra low range chlorine Analyzer after dechlorination. The

chlorine residuals ranged from 0.00 to 2.20 mg/L; the plant was in compliance majority of the year with exception of a few days in the chlorination season which we were over our 2-hour moving average limit of 0.02mg/L and one event where maximum concentration reached over the limit of 0.1mg/L on May 14, 2025.

The ECA Effluent Objective concentrations of 15.0 mg/L for CBOD<sub>5</sub>, 0.8 mg/L for Total Phosphorus, 15.0 mg/L for Suspended and were achieved. The pH Objective of maintaining between 6.5 – 8.5 was achieved. We did not meet the objective of Total Chlorine Residuals being maintained at 0.00mg/L for most of the season with some exceedances.

The Monthly Geometric Mean Density of 150 counts/100 mL for E. coli Effluent Objective set in the ECA was achieved all chlorination months. The average monthly geometric mean for the sewage effluent E. Coli during the period of chlorination was 28.00 CFU/100mL.

#### Tabulation of the Volume of Sludge Generated

Sludge that settles to the bottom of the primary clarifier tanks, referred to as primary sludge is drawn from the tanks and pumped to the primary digester for reduction through the primary and secondary sludge digestion processes. The digested sludge is then processed through centrifugation to thicken the sludge to reduce water content. Thickened sludge (11 to 25% solids) is then hauled away from the wastewater facility. The sludge is hauled to Merrick Landfill site and is then mixed with sand and used as a topping material to cover closed out sections of the landfill. The sludge blended with the sand is nutrient rich and promotes vegetative growth to cover the closed-out sections of the landfill.

In 2025 the volume of primary sludge produced was 69,545 m<sup>3</sup>. The total volume of digested sludge that was processed through dewatering after the digestion process was 49,984 m<sup>3</sup>. The total weight of dewatered sludge that was hauled away from the WWTP was 3,271,760 Kg which was taken to the Merrick Landfill site to be blended with sand and used for top cover which stimulates rapid vegetation growth.

Sludge was removed on a regular basis for the sewage effluent CBOD<sub>5</sub>, Suspended Solids and total phosphorus to meet compliance criteria.

The total treated sewage effluent flow for the year 2025 was 11,679,432 m<sup>3</sup> minus 3,271,760 Kg of sludge with an approximate 13 - 36 % solids concentration which was hauled away from the facility for disposal.

*See the accompanying North Bay 2025 Summary of Sewage Sludge Volumes and Disposal Data for complete wastewater effluent flow and analyses data.*

### Summary of Effluent Quality Assurance or Control Measures Taken:

In 2025 as on-going efforts to ensure optimal operation of the treatment process and best possible effluent quality the following measures were followed:

- Routine data reviews to identify trends or developing process problems.
- In-house sampling in addition to regulatory sampling required by the ECA.
- Routine maintenance on all equipment
- Process changes to optimize treatment effectiveness.
- On-going training of operators
- Upgrading equipment where needed to increase effectiveness of plant.

### Operational Problems and Corrective Actions

- Each year we have periodic issues with a sludge mat developing on the secondary clarifiers #5 & #6. This is believed to be a result of swings in temperature and F/M ratios. To mitigate this issue, we have reduced our biology concentrations which we carry in the plant and have an operator cleaning up any sludge accumulation daily when there is an occurrence.
- Adding chlorine gas and Ferric Sulfate created low pH issues during the months between June – October. Both chemicals are acids and drop our pH naturally due to low alkalinity in the sewage. We have also discovered we need to reduce dissolved oxygen concentration and SRT to avoid ammonia break down, this uses alkalinity and contributes to lowering our pH. We were able to manage the pH for this time frame through operational set points.
  - For the most part we lowered the ferric and chlorine dosing when possible, we also worked on dissolved oxygen controls to mitigate over aeration.
- Setting up the de-chlorination system with using the new Ultra Low Total Chlorine Analyzer had given us some challenges with finding the right dosing points to keep our residuals within compliance. There were some periodic issues throughout the season with set point and equipment issues causing adverse residuals. Overall, the new system was successful and has improved the process of de-chlorination.
- Digester #2 is set up as the temporary primary digester. This system has not alarming or SCADA controls and the recirculation sludge pump failed and stopped heating sludge up. The digester lost temperature and went sour, sodium bicarbonate needed to be added until the digester pH and temperature stabilized.

### **Summary of Plant Sewage By-passes or Abnormal Discharge Events**

There was one secondary bypass that occurred from the North Bay Wastewater Treatment Plant during the 2025 reporting period. A secondary by-pass would be initiated by operations staff to avoid losing the biomass due to solids being flushed out of the aeration tanks and secondary clarifiers during high flow conditions. The events would be reported to the Ministry of the Environment

as required and samples would be collected for analysis thorough out the events.

There were eight spills, and no bypasses at the lift stations and collection system in 2025:

1. On March 19, 2025 there was a sewage spill at the dead end of 2<sup>nd</sup> Ave. E. There was a sewer main blockage on this sewer main at Worthington St. E, which caused the main to surcharge and spill approximately 1000L out of the manhole into the bush line. The blockage was caused by grease and rags fully blocking sewer, spilling sewage in the bush line and walkway. Staff used the flusher to clear the blockage and stop the spill. Chlorine pucks deployed in sewage stream and flusher used to clean up and standing sewage puddles, washed down area of walkway and cleaned up pools. Dumped sewage back into the sewer main down stream. Reported spill to SAC and District Manager as required in report REF#1-KIU2OF
2. On August 11, 2025 there was a sewage spill on to the ground from a manhole at the Patton St. dumping station. While a septic truck was offloading there truck the sewer blocked and overflowed the manhole on to the ground with approximately 200L of sewage. Sewage did not escape into surface water and was chlorinated and cleaned up with city flusher. Reported spill to SAC and District Manager as required in report REF#1-PB67F9
3. On August 12, 2025 there was a sewage spill on to the ground from a manhole at the Patton St. dumping station. While a septic truck was offloading there truck the sewer blocked and overflowed the manhole on to the ground with approximately 300L of sewage. Sewage did not escape into surface water and was chlorinated and cleaned up with city flusher. Reported spill to SAC and District Manager as required in report REF#1-PBD9DC
4. On October 22, 2025 there was a sewage spill reported at 1410 Chapais St.. This leak was located in close proximity to the sewage lift station and was pooling in low laying area. Crew excavated the area and removed sewage and contaminated soils, then repaired the damage pipe responsible for sewage spill. Reported spill to SAC and District Manager as required in report REF#1-PO4W90
5. On October 31, 2025 there was a sewage spill on to the ground from a manhole at the Patton St. dumping station. While a septic truck was offloading there truck the sewer blocked and overflowed the manhole on to the ground with approximately 500L of sewage. Sewage did not escape into surface water and was chlorinated and cleaned up with city flusher. Reported spill to SAC and District Manager as required in report REF#1-PQ3LKD

6. On November 2, 2025, there was a sewage spill at 950 McKeown Ave. This was caused by a blockage in the sewer main caused by grease from upstream restaurants. The sewer main surcharged causing approximately 2500L of sewage to overflow out of a manhole on the road. Staff cleared blockage with flusher truck and cleaned main downstream, standing sewage and catch basins chlorinated and cleaned up with flusher. The spill was reported to SAC in the report Reference #1-PQ7EAN
7. On November 9, 2025 there was a sewage spill at 1429 McKeown Ave. The main was fully blocked with grease, rubber gloves and paper towel. This caused sewage to leak out of the manhole and flow into a ditch where it froze. Blockage was cleared with the flusher truck down at the end of Mary St. The spill was reported to SAC in the report Reference #1-PREASN
8. On November 17, 2025 there was a sewage spill at 1412 McKeown Ave. The main was fully blocked with grease, rubber gloves and paper towel. This caused approximately 50L of sewage to leak out of the manhole and flow into a catch basin, a sock boom was deployed in the near by catch basin. Blockage was cleared with the flusher truck down at the end of Mary St. The spill was reported to SAC in the report Reference #1-PSN97S

There were eight abnormal discharge events which had taken place in 2025:

- On May 14, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.028mg/L. This was due to the start up of our new dichlorination system and experiencing program issues. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual. This event was reported to SAC and the MECP district manager as required in report Ref#1-0975HN.
- On May 14, 2025 a total chlorine residual exceeded the maximum concentration limit of 0.10 mg/L with the max value of 2.20mg/L. This was due to the chlorine controller failing in the fully open position causing an overdosing of chlorine. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual and use the rotameter to does chlorine for failed valve. This event was reported to SAC and the MECP district manager as required in report Ref#1-0975HN.
- On May 17, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.0201mg/L. This was caused to a PLC programming issue which was capping the Captor pumps, this did not allow pumps to dose enough to stay in compliance with chlorine residuals. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual and SCADA tech. fixed programming issue. This event

was reported to SAC and the MECP district manager as required in report Ref#1-09X4F9.

- On June 19, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.0285mg/L. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual. This event was reported to SAC and the MECP district manager as required in report Ref#1-OLTQWQ.
- On August 8, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.0203mg/L. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual. This event was reported to SAC and the MECP district manager as required in report Ref#1-PANA3O.
- On August 25, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.053mg/L. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual. This event was reported to SAC and the MECP district manager as required in report Ref#1-PEREHN.
- On September 14, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.034mg/L. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual. This event was reported to SAC and the MECP district manager as required in report Ref#1-PHVRMO.
- On September 15, 2025 a total chlorine residual moving average exceeded the maximum concentration limit of 0.02 mg/L with the max value of 0.047mg/L. The operators implemented corrective measures and increased the dosing of Captor to reduce chlorine residual. This event was reported to SAC and the MECP district manager as required in report Ref#1-PHWYLJ.

### **Flow Measurement & Annual Calibration**

The annual calibrations of the raw sewage flow meters and all others in the facility were completed in November 2025.

### **Documentation and Reporting**

An emergency SOP manual with procedures to deal with emergencies and complaints is kept updated and is stored for easy reference at the North Bay Wastewater Treatment Plant; along with SDS data sheets for the treatment chemicals. The Certificate of approval ECA for the facility is posted at the facility along with copies of the Facility Classification certificate. A copy of the wastewater treatment plant manual with process descriptions, procedures, 2025 WWTP Annual Report

checklists, treatment calculations and pertinent information for the operation of the facility is readily available for reference for the operators.

Plant logbooks, daily and monthly data record sheets are completed and retained as required by the ECA. Process treatment records and lab analysis report data are entered into a spreadsheet. The annual report will be filed with the MECP as required by the ECA.

### **Facility Maintenance**

Certified electricians, SCADA technician, mechanics and operators, who operate the treatment facility and conduct maintenance of the appurtenances of the wastewater treatment system.

### **Summary of 2025 Major Maintenance Activities , Capital Upgrades or Equipment Replacement at the Facility:**

- Swabbed and Flushed sewer lines from Marsh Lift Station
- Contractor on site welding many of the air sparge connection to main headed in outer channel around the aeration tank. This caused a loss of air pressure causing more blowers to run.
- Replaced all actuators on Digester #3 mixing system, built and installed new control panel.
- Installed engineered doghouse over main gas vent on digester #3 as required by TSSA
- Replaced all pips supports on Digester #3 gas train as required by TSSA.
- Contractor removed asbestos capsulation on piping in digester #3 pump gallery to allow for actuator installation.
- Rebuilt the Bird Centrifuge with contractor due to failure to process sludge.
- Rebuilt multiple New Return pumps.
- Rebuilt two air blowers at the head end for the Grit removal system.
- Cleaning of accumulated grit in bottom of aeration cells, all air stones were cleaned while tanks were empty. Repaired broken stones.
- Engineering and tender was completed for the rebuilding of Secondary Clarifiers # 1 & #2.
- Rebuilt one of the two polymer dosing pumps on centrifuge system.
- Rebuilt both pumps from Tenth St. Lift Station.
- Rebuilt 2 pumps from Ferguson Storm water lift station.
- Rebuilt a pump and replaced check valve and isolation valve at Lake Heights Rd. Lift Station.

- Repaired Primary Clarifier #5 after chain breaks causing repair to chain and filghts.
- Annual Maintenance to the Chlorine Gas system.
- Annual maintenance completed on methane gas train from gas contractor.
- Installed fiber and upgraded many of the sites with cell modem communications improving our communication issues.
- Inspection of lift station from Xylem.
- Bought maintenance part to begin inventory of repair parts for all equipment at the WWTP.
- Replaced 360m of 450mm sanitary sewer on McKeown St. between McNamara St. and Cartier St.
- Replaced 194m of 600mm storm sewer on McKeown St.
- Replaced 165m of 600mm storm sewer on Commerce Cr.
- Replaced 157m of 483mm x 762mm Elliptical Concrete storm sewer on Commerce Cr.
- Replace 19 Storm Catch Basins 200mm outlets on Commerce Cr. and Wallace Rd.

### **Summary of Complaints Received and Steps Taken to Address Them:**

There was no odour complaint brought to our attention in 2025.

Report prepared by

Jonathan Dewey, C-tech.

Operations Supervisor Water & Wastewater Facilities

Completed: March 9, 2025

**MONTHLY PROCESS DATA**

Facility: North Bay Wastewater Treatment Plant  
 Classification: Class 4 Treatment, Class 2 Wastewater Collection  
 Water Receiver: Lake Nipissing

Period: January 1, 2025 to December 31, 2025  
 Population Served: 54,000  
 Total Design Capacity (m3/d): 54,540

	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Summary
<b>Raw Sewage</b>													
<b>Volume (m3/d)</b>													
<i>Avg</i>	28,902	24,370	39,656	45,182	35,545	38,699	33,904	27,401	25,963	26,602	31,246	29,096	<b>31,998.44</b>
<i>Max</i>	41,378	25,704	78,866	63,200	51,518	68,364	44,363	34,392	29,654	30,707	35,452	38,183	<b>78,866.00</b>
<i>Min</i>	24,597	23,425	23,659	38,171	30,488	27,388	28,362	25,748	24,610	24,040	27,268	26,039	<b>23,425.00</b>
<i>Sum</i>	895,969	682,361	1,229,333	1,355,487	1,101,891	1,070,965	1,051,027	849,431	778,902	824,672	937,398	901,996	<b>11,679,432.0</b>
<b>Peak Flow (M3/d)</b>													
<i>Max</i>	81,299	77,462	107,377	134,797	86,024	139,709	69,575	98,312	76,250	75,612	72,200	67,112	<b>139,709.0</b>
<b>BOD5</b>													
<i>Avg</i>	45.0	122.0	107.0	45.0	52.0	59.0	167.0	103.0	95.0	160.0	57.0	58.0	<b>89.17</b>
<b>Total Phosphorus (mg/L)</b>													
<i>Avg</i>	2.44	3.22	3.42	2.28	1.73	3.75	5.16	5.85	3.60	5.34	3.14	2.42	<b>3.53</b>
<b>TKN (mg/L)</b>													
<i>Avg</i>	23.40	39.40	42.10	12.40	19.00	14.10	32.30	18.70	22.10	45.40	23.80	21.70	<b>26.20</b>
<b>Suspended Solids (mg/L)</b>													
<i>Avg</i>	44.0	86.3	37.5	68.0	33.0	81.0	92.2	75.4	137.0	236.0	59.0	57.1	<b>83.88</b>

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<b>Final Effluent</b>													
<b>Temp Grab (°C)</b>													
<i>Avg</i>	10.4	9.0	9.8	11.3	13.3	15.9	17.8	18.5	18.6	16.6	14.0	11.1	13.9
<i>Max</i>	12.3	10.3	12.5	15.5	17.3	18.6	20.3	20.1	20.3	19.5	16.8	14.4	20.3
<i>Min</i>	9.3	7.1	8.2	8.6	9.3	14.3	15.8	11.5	17.4	14.5	12.4	8.8	7.1
<b>NH3: Ammonia as N (mg/L)</b>													
<i>Avg</i>	21.98	28.95	18.18	13.92	19.30	19.62	14.32	5.53	10.47	17.05	17.18	18.96	17.04
<b>CBOD5 (mg/L)</b>													
<i>Avg</i>	5.00	4.25	6.00	3.60	4.00	7.50	4.80	6.00	7.75	7.00	4.00	3.60	5.25
<b>PH</b>													
<i>Avg</i>	6.98	6.96	6.81	6.84	6.92	6.69	6.95	6.63	6.51	6.83	6.75	6.97	6.82
<i>Max</i>	7.12	7.18	7.03	7.02	7.14	6.99	7.32	6.95	6.79	7.08	7.31	7.15	7.32
<i>Min</i>	6.54	6.78	6.59	6.69	6.74	6.45	6.70	6.32	6.29	6.43	6.49	6.82	6.29
<b>Total Phosphorus (mg/L)</b>													
<i>Avg</i>	0.84	0.85	0.41	0.53	0.88	0.71	0.57	1.27	0.84	0.73	0.50	0.65	0.72
<b>TKN (mg/L)</b>													
<i>Avg</i>	26.13	34.25	23.90	14.44	20.13	24.00	15.14	7.35	10.97	17.00	19.45	19.82	19.17
<b>Suspended Solids (mg/L)</b>													
<i>Avg</i>	4.00	5.83	7.23	6.26	5.75	2.28	3.40	4.68	4.33	4.06	3.40	5.30	4.71
<b>E-coli (cfu/100 mL)</b>													
<i>Geo Mean</i>					63.25	43.31	30.30	7.07	5.95	18.17			28.00
<i>Max</i>					80.0	110.0	730.0	20.0	10.0	30.0			730.0
<i>Min</i>					50.0	20.0	5.0	5.0	5.0	10.0			5.0
<b>Chlorine used (kg)</b>													
<i>Sum</i>					450.04	805.20	986.74	2013.15	1611.54	599.42			6,466.08
<b>Chlorine Dosage (mg/L)</b>													
<i>Avg</i>					0.87	0.79	0.96	2.38	2.07	1.59			1.48
<b>Total Chlorine Res. (mg/L)</b>													
<i>Avg</i>					0.51	0.50	0.39	0.37	0.49	0.66			0.46
<b>Max Total Chlorine Res. After Dechlor (mg/L)</b>													
													2.20

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<b>Sludge/Biosolids Handling</b>													
<b>Volume to Primary Digester (m3)</b>													
<i>Sum</i>	4,552	7,734	5,451	4,360	6,679	7,006	6,280	5,267	4,271	6,863	4,771	6,311	<b>69,545.0</b>
<b>Sludge (Liquid) Volume Processed (m3)</b>													
<i>Sum</i>	3,316	4,897	4,616	3,204	3,517	4,742	5,857	3,946	4,059	4,901	3,335	3,594	<b>49,984.0</b>
<b>Sludge (Thickened) Volume Hauled x 1,000Kg</b>													
<i>Sum</i>	288.35	338.64	299.81	178.44	205.59	294.12	436.17	243.16	212.47	342.60	211.69	220.72	<b>3,271.76</b>
<i>loads</i>	18.0	21.0	18.0	11.0	13.0	18.0	26.0	16.0	13.0	21.0	14.0	14.0	