ARNPRIOR
105 Elgin St. West
Arnprior, ON K7S 0A8
tel 613 623 4231
fax 613 623 8091
arnprior@arnprior.ca
www.arnprior.ca

Town of Arnprior 2025 – Water Pollution Control Centre Summary Report

January 22, 2026

Please find below, a discussion of the operational undertakings of the Town of Arnprior's Water Pollution Control Centre (WPCC) for the 2025 calendar year. This report also includes a summary of all relevant sampling collected during 2025. This report is provided to meet the Town's requirements to report annually on the operation of the WPCC, as per Environmental Compliance Approval Number A-500-6176111914 Version: 1.0 Issue Date: July 18, 2023 and to provide residents of the Town of Arnprior with information on an important piece of the Town's municipal infrastructure.

1.0 Preliminary Treatment

1.1 Screen Units

There are three screening units, two automatic mechanical screens and a standby manual screen. All screens have openings of 13 mm between bars and are enclosed with an odour enclosure where the air is discharged to the exterior atmosphere through a carbon filter.

The screenings are then transferred onto a conveyer that empties into a container for disposal at the Arnprior landfill.

1.2 Grit Removal

Grit removal is achieved by a pair of rectangular aerated spiral roll 90 m^3 tanks. Each tank has a grit screw conveyer which pushes settled grit into the grit hoppers. Grit is then pumped into a grit dewatering classifier unit where dense grit particles are separated from light organic solids.

2.0 Primary Treatment

2.1 Primary Sedimentation

There are four rectangular primary clarifiers at the WPCC: two with a surface overflow area of 142 m^2 and two with an overflow area of 154 m^2. All units are equipped with chain and flight sludge collection and manual scum removal.

Raw sludge is pumped from the primary clarifiers to Anaerobic Digesters using plunger type positive displacement pumps.

3.0 Secondary Treatment

3.1 Activated Sludge Treatment

The activated sludge treatment process includes two rectangular aeration tanks and three separate rectangular secondary clarifiers, each made up of two units in parallel.

The aeration tank volumes are 1,303 m^3 each, and are equipped with four inlet gates and one outlet side plate for isolation. The secondary clarifiers have a surface area of 310 m^2 each. They are equipped with longitudinal cross chain and flight collector mechanisms which collect the activated sludge into a sump where it is returned to the aeration tank.

3.2 Phosphorous Removal

The phosphorous control system consists of two 12,100 L indoor ferric chloride chemical storage tanks and two chemical feed pumps complete with calibration cylinders. The ferric chloride is added to either the aeration tank or preliminary discharge depending on operational requirements.

3.3 Chlorination System

Disinfection of the plant discharge is done through the addition of Sodium Hypochlorite (NaOCl). The NaOCl is stored in a pair of 12,100 L tanks, and a bank of three variable speed metering pumps are used to deliver the chlorine to the chlorine contact chamber.

3.4 De-chlorination System

The chlorinated water must be de-chlorinated before discharge into the Ottawa River. This is achieved through the addition of sodium bisulphite. The sodium bisulphite system is made up of one 1,336 L storage tank and a pair of feed pumps.

3.5 Sludge Dewatering

A Centrifuge capable of processing 7 L/s of sludge is used for dewatering anaerobically digested sludge. The sludge from this unit is loaded onto a small dump truck and delivered to the Arnprior landfill.

3.6 Auxiliary Power

The Arnprior WPCC is equipped with a 400 Kw diesel generator and automatic transfer switch. This generator will automatically start when a power outage occurs, and can supply power to run the entire plant.

4.0 Plant Performance Summary

Environmental Compliance Approval Number A-500-6176111914 Version: 1.0 Issue Date: July 18, 2023, section 11.4 requires the Owner shall prepare performance reports on a calendar year basis and submit to the District Manager by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:

11.4.a. a summary and interpretation of all Influent, Imported Sewage and Processed Organic Waste monitoring data, and a review of the historical trend of the sewage characteristics and flow rates;

Figure 1. 2025 Monthly Averages of Influent and Effluent pH

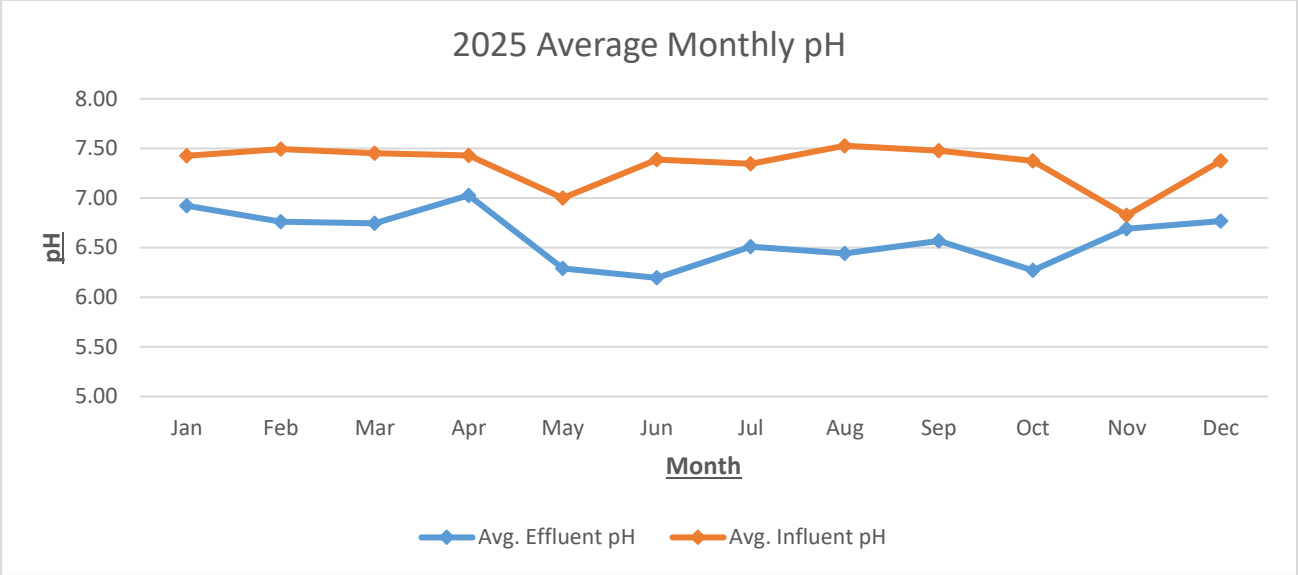

Figure 1 shows the influent and effluent pH monthly averages throughout 2025. Note the lower effluent pH during warmer months of the year.

Figure 2. 2025 Influent Averages of BOD and TSS

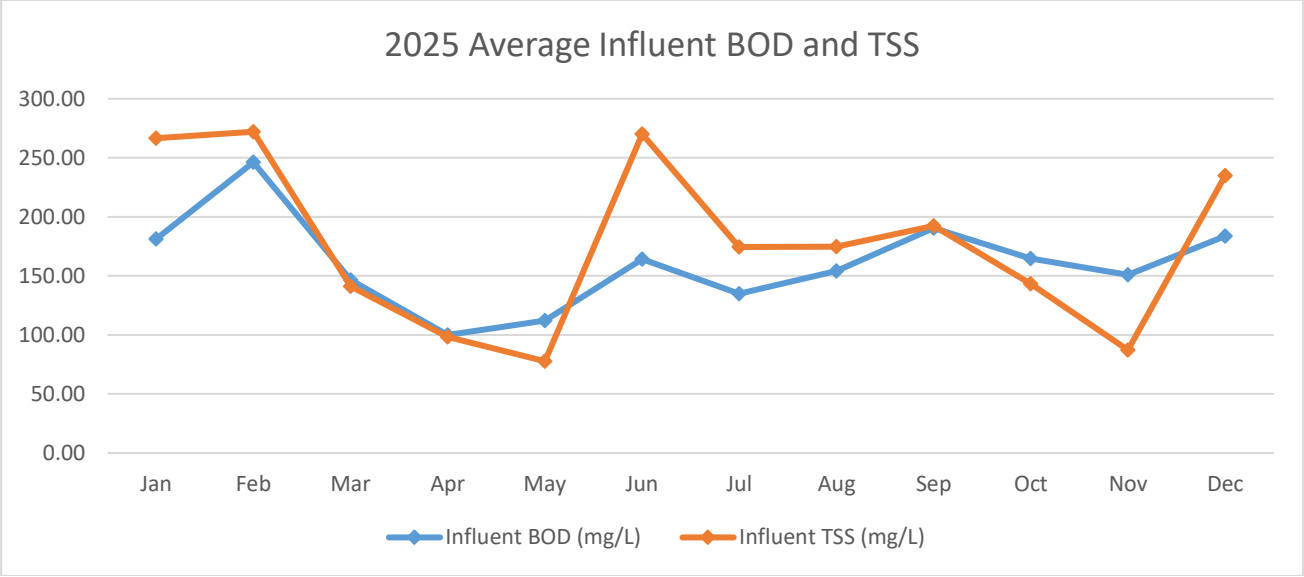

Figure 2 shows a drop in total suspended solids (TSS) in March-May due to the spring freshet where plant flows experienced increased surface water runoff from combined sewers.

11.4.b. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;

4.1 Effluent Flows and Loading

Table 4-1 below indicates the effluent criteria for average monthly flows, CBOD, Total Suspended Solids, Phosphorus and their respective loadings at the WPCC. All monthly concentrations and loadings meet the effluent objectives and limits.

Table 4-1 - Summary of WPCC 2025 Final Effluent Flows and Loading

	Daily Total (m^3/Day)	$CBOD_5$ (mg/L)	Total Suspended Solids (mg/L)	Total Phosphorus (mg/L)	$CBOD_5$ Loading (kg/Day)	Total Suspended Solids Loading (kg/Day)	Total Phosphorus Loading (kg/Day)
Objective	**N/A**	**15.0**	**15.0**	**0.75**	**142.5**	**142.5**	**9.5**
Limit	**9700**	**25.0**	**25.0**	**1.0**	**243.0**	**243.0**	**9.7**
Compliance Assessment Basis	Annual Average	Monthly Average	Monthly Average	Monthly Average	Monthly Average	Monthly Average	Monthly Average
January	4,400	4.0	9.1	0.27	14.3	40.0	1.18
February	3,709	3.2	7.2	0.30	11.1	26.8	1.09
March	7,448	3.0	11.6	0.29	29.8	85.7	2.12
April	8,480	3.0	5.2	0.13	27.1	44.1	1.10
May	5,353	4.2	3.2	0.46	16.1	17.1	2.44
June	4,643	5.5	6.9	0.27	13.9	31.9	1.25
July	4,740	3.2	7.1	0.41	19.9	33.8	1.92
August	4,491	3.0	7.0	0.49	24.7	31.5	2.18
September	4,228	3.0	6.7	0.30	13.5	28.2	1.25
October	4,080	3.4	8.7	0.29	12.2	35.3	1.18
November	4,904	3.2	9.0	0.24	14.7	44.3	1.15
December	4,385	3.2	10.2	0.29	14.9	44.7	1.28
Annual Average	5,072	3.5	7.6	0.30	17.7	38.6	1.51

4.2 Monitoring Data Interpretation

4.2.1 Five day Carbonaceous Biological Oxygen Demand (CBOD5) is sampled once per week from a composite sample. The effluent limit reporting criteria is 25 mg/L and the plant objective is 15 mg/L. The monthly average high was 5.5 mg/L in June. The CBOD5 objective loading rate is 142.5 kg/d, and in 2025 the plant maximum monthly average loading was 29.8 kg/d in March.

4.2.2 The Total Suspended Solids (TSS) in the raw and effluent wastewater is usually measured weekly from a composite sample. The effluent reporting criteria is 25 mg/L and the plant objective is 15 mg/L. The maximum monthly average in 2025 was 11.6 mg/L in March. The objective with respect to plant effluent loading of TSS is 142.5 kg/d. The WPCC had a maximum monthly average effluent loading of 85.7 kg/d in March.

4.2.3 The Total Phosphorous (TP) in the raw and effluent wastewater is sampled and tested each week from composite samples. The reporting criteria maximum is 1.0 mg/L and the plant objective is 0.75 mg/L. The maximum monthly average of TP levels in 2025 was 0.49 mg/L in August. The Total Phosphorous objective loading rate is 9.5 kg/d and in 2025 the maximum monthly average TP loading rate was 2.44 kg/d in May.

5.0 Effluent Objectives and Effluent Quality Assurance

11.4.e. a summary of any effluent quality assurance or control measures undertaken;

11.4.g a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions if any are required under the following situations:

a) when any of the design objectives is not achieved more than 50% of the time in a year, or there is an increasing trend in deterioration of Final Effluent quality;
b) when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity;

11.4.m.a summary of any deviation from the monitoring schedule and reasons for the current reporting year and a schedule for the next reporting year;

5.1 Effluent Monitoring

Table 5-1 below lists the objectives, limits and results of the final effluent monitoring parameters.

Table 5-1 - 2025 Final Effluent Sampling Results

	Total Ammonia Nitrogen (mg/L)	Total Residual Chlorine (mg/L)	E.Coli (CFU/100ml)	pH	Temperature (°C)	Un-Ionized Ammonia (Note #2)	Lethality Test
Objective	**10.0 (May-Oct) 15.0 (Nov-Apr)**	**Non-Detect**	**100**	**6.5 - 8.5**	**N/A**	**N/A**	**Note #1**
Limit	**Note #1**	**N/A**	**200**	**6.0 - 9.5**	**N/A**	**N/A**	**Pass/ Fail**
Compliance Assessment Basis	Monthly Average	Min/Max	Monthly Geometric Mean Density	Min/Max	Monthly Average	Monthly Average	Single Sample
January	11.4	0.01/0.04	7.1	6.6/7.3	11	0.0244	Pass
February	18.5	0.01/0.03	4.2	6.6/6.9	11	0.0275	Pass
March	7.6	0.00/0.03	15.4	6.3/7.1	12	0.0128	Pass
April	4.8	0.00/0.05	34.5	6.5/7.4	13	0.0139	Pass
May	1.3	0.01/0.05	44.0	6.0/6.7	18	0.0013	Pass
June	4.0	0.00/0.03	16.7	6.0/6.5	21	0.0260	Pass
July	2.7	0.00/0.04	36.1	6.0/7.5	23	0.0127	Pass
August	2.4	0.00/0.03	94.2	6.0/7.3	24	0.0119	Pass
September	8.5	0.00/0.06	9.3	6.1/7.0	22	0.0302	Pass
October	0.4	0.00/0.05	7.0	5.9/6.9	20	0.0055	Pass
November	1.3	0.00/0.02	4.1	6.0/7.2	16	0.0030	Pass
December	4.5	0.00/0.03	10.8	6.1/7.5	13	0.0348	Pass
Note #1- Non-acutely Lethal to Rainbow Trout and Daphnia Magna							
Note #2- Un-ionized Ammonia calculated using pH and temperature at time of sampling for Total Ammonia Nitrogen							

5.1.1 Total Ammonia Nitrogen has an objective of 10.0 mg/L throughout the months of May to October and 15.0 mg/L throughout the months of November to April. The effluent limit is to be non-acutely lethal to rainbow trout and daphnia magna year-round on a monthly test. The maximum tested concentration was 25.8 mg/L in the month of February. All lethality tests throughout the year passed.

5.1.2 Total Residual Chlorine objective is to be non-detectable. A residual was detected in all months but at no time in the year did the value exceed 0.06 mg/L.

5.1.3 E.coli is measured in the unit of CFU/100mL as a monthly geometric mean density and the objective is 100 CFU/100mL. This objective was met in all months with the highest monthly geometric mean being 94 CFU/100mL in August. The limit for E.coli is 200 CFU/100mL.

5.1.4 pH is the negative log of the concentration of hydrogen. The objective for pH is 6.5 – 8.5 at all times. Exceedances noted are based on daily sampling. Soda ash is dosed in the aeration effluent channels to raise the pH and at all times except for October 4th (measured pH of 5.88), the effluent pH was within the limit of 6.0 – 9.5. The WPCC effluent pH is sometimes too low because the raw sewage does not contain sufficient alkalinity to fully nitrify the incoming nitrogen.

There were no deviations from the monitoring schedule for the current reporting year.

6.0 Bypass, Overflow and Spills Summary

11.4.j. a summary of all Bypasses, Overflows, other situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;

11.4.l. a summary of efforts made to achieve conformance with Procedure F-5-1 including but not limited to projects undertaken and completed in the sanitary sewer system that result in overall Bypass/Overflow elimination including expenditures and proposed projects to eliminate Bypass/Overflows with estimated budget forecast for the year following that for which the report is submitted;

- On March 16th, 222.68m^3 of partially treated wastewater bypassed secondary treatment at the WPCC due to heavy precipitation. The effluent still received disinfection before going to the Ottawa River.
- On April 3rd, 158.55m^3 of partially treated wastewater bypassed secondary treatment at the WPCC due to heavy precipitation. The effluent still received disinfection before going to the Ottawa River.
- On August 26th, 12.5m^3 of raw sewage overflowed Lift Station #2 (McNabb St.) due to a break in the forcemain that was repaired that same day.
- On October 4th, an effluent pH of 5.88 was measured below our limit of 6. Soda ash was added to aeration tank effluent. Estimated volume of low pH spill was 3500m^3.

  Required samples were collected for all events and lab results were received. All events were reported to the MECP and the local health unit.

2026 planned capital works include the Upsizing of Sanitary Trunk Sewer on Daniel Street and Albert Street and Sewer Separation on Albert Street which will see the reconstruction and upsizing of aging sanitary sewers on both streets resulting in a tighter sewer systems with significantly less inflow and infiltration, thereby reducing sewage flows to the WPCC and reducing the likelihood of overflows to the natural environment. The budgeted cost of this project is just over $5.9 million.

7.0 Operating Problems

11.4.c. a summary of all operating issues encountered and corrective actions taken;

11.4.k. a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a report on status of implementation of all modification;

A proactive approach is being utilized, contracting licensed plumbers, electricians and millwrights to make improvements throughout the facilities.

In response to the low pH spill on October 4th, The Town of Arnprior is working with Stantec and the MECP to formalize a method of pH control. Currently, the addition of soda ash is not formally recognized in the ECA as a method of pH control. Stantec and the Town of Arnprior are exploring options to formalize this method and implement process controls to mitigate low pH issues.

8.0 Plant Maintenance

11.4.d. a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;

Both a monthly and a weekly maintenance schedule are printed out and the maintenance personnel initial the schedule as tasks are completed. If any major repairs are required, the operator communicates these to the ORO supervisor who then contacts the appropriate licensed contractor.

A summary of major repairs or maintenance carried out in 2025 is as follows:

- Annual certification of laboratory instruments
- Annual certification of backflow preventers
- Annual certification of flow meters
- Various health and safety supplies purchased
- Purchase of spare sludge pump packing
- Installation of davit bases for tank entry
- Purchase of HACH chemical reagents
- Spare hypo mixer installed
- Many ESA defects identified and corrected by licensed electricians
- Extension for manual bar screen manufactured and installed
- New digester sludge recirculation pump ordered
- Effluent weirs on Final Clarifier #3 replaced
- Dewatering centrifuge sent for rebuild (rental unit used in interim)
- Odor control unit media replaced
- Capital project to replace several old PLC’s completed

9.0 Sludge Processing

11.4.h. a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed.

Combined primary and secondary waste activated sludge is collected from all four primary settling tanks and pumped into the anaerobic digesters. From the digesters, sludge is pumped into holding tanks, it is then conditioned and processed in the centrifuge. Sludge is dewatered to approximately 22% and loaded onto a truck to be transferred to the Arnprior landfill.

A total of approximately 220,925 kg dry weight of sludge was transported to the Arnprior Waste Disposal Site. Sludge production in 2026 is expected to be higher than 2025 due to population increases. Table 9-1 below provides a summary of the 2025 centrifuge operation and sludge management totals.

Table 9-1 - Centrifuge Operation and Summary of Sludge Totals

Month	Sludge To Storage m^3	Sludge To Centrifuge m^3	% Solids Avg.	Dry Solids (kg)
January	288	665	2.66	17,659
February	370	624	2.30	14,359
March	356	916	2.16	19,761
April	711	667	2.45	16,363
May	375	756	4.18	31,601
June	716	1,489	1.37	20,398
July	299	1,011	2.74	27,687
August	359	573	2.41	13,788
September	397	689	2.69	18,531
October	482	717	2.06	14,794
November	366	268	3.20	8,560
December	541	1,025	1.70	17,425
Avg	438	783	2.49	18,410
Max	716	1,489	4.18	31,601
Min	288	268	1.37	8,560
Total	5,260	9,399		220,925

10.0 Monitoring Equipment Calibration

11.4.f. a summary of the calibration and maintenance carried out on all Influent, Imported Sewage and Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;

All flow meters were calibrated by an outside contractor and passed calibration. The benchtop analyzers are certified annually to ensure accuracy.

11.0 Complaints

11.4.i. a summary of any complaints received, and any steps taken to address the complaints;

There was a complaint of a loud siren being heard from the Headworks Building. This redundant nuisance alarm was disconnected as the gas sensors in the building are connected to the SCADA and verbatim system, alerting the on-call operator of any atmospheric hazards.

An odor complaint from a nearby resident was brought to the Town's attention. The resident was informed that the WPCC odor control unit was due to have its media replaced. The media has since been replaced with reduced on-site odor noticed from staff.

12.0 Conclusion

The Arnprior WPCC met all MECP sewage effluent limits throughout the reporting period with the noted exception of the low pH on October 4th. The objective for pH is between 6.5 and 8.5. Due to the nitrification process, the effluent can be less than 6.5 at times.

The objective for total chorine residual was not met but at no time did the value exceed 0.06 mg/l. Also to be noted, the sampling location is not representative of the point of discharge in the Ottawa River. The objective being, non-detectable for total chorine residual.

For inquiries regarding this report, please contact Ben Ritchie at 623-4231 Ext. 1834 or britchie@arnprior.ca.

Completed by Ben Ritchie
Waterworks Supervisor
Town of Arnprior