

2025

**G. E. Booth Water Resource
Recovery Facility annual report**



Table of contents

Executive summary	2
Glossary of terms and abbreviations	4
1. Water management in Peel Region	6
2. Introduction	8
2.1 Compliance.....	9
2.2 Monitoring	10
3. Plant process overview	11
4. Operational performance	14
4.1 Summary of influent monitoring data	14
4.2 Summary of final effluent monitoring data	16
4.3 Deviations from monitoring schedule and next reporting year schedule.....	22
4.4 Operating issues and corrective actions.....	23
4.5 Maintenance activities	26
4.5.1 Repair and maintenance	26
4.5.2 Capital expenditure information	28
4.6 Effluent quality assurance and control measures	29
4.7 Monitoring equipment calibration and maintenance	30
4.8 Efforts made to achieve design capacity and objectives.....	30
4.9 Sludge generation and disposal.....	32
4.10 Summary of complaints.....	34
4.11 Bypasses, overflows, spills and abnormal discharge events.....	35
4.11.1 Bypasses.....	35
4.11.2 Overflows	37
4.11.3 Spills.....	37
4.12 Notice of Modifications to Sewage Works.....	39
4.13 Status of the proposed works.....	39
4.14 Efforts to achieve conformance with Ministry’s treatment and collection system requirements (Procedure F-5-1).....	40
4.14.1 Effluent design objectives and effluent guidelines.....	40
4.14.2 Primary treatment capacity modifications.....	41
4.14.3 Collection system operation, maintenance and upgrades.....	41
4.14.4 Industrial wastes	42
5. Performance management programs	43
5.1 Ministry inspections	43
Appendix A - Summary of tested wastewater parameter information	44
Appendix B - Frequently asked questions	46
Other sources for more information about wastewater and related issues	50

G.E. Booth Water Resource Recovery Facility annual report

The Regional Municipality of Peel (Peel) is committed to providing a high level of service in the collection, treatment, and management of wastewater. Peel diligently monitors its sewer network and operates its treatment processes effectively to meet or surpass discharge quality criteria, to protect the environment now and into the future.

Our commitment

- Protecting and preserving the environment, including the prevention of pollution, through effective operation and management of the Wastewater Systems that incorporates quality assurance and control practices
- Acting promptly and responsibly in addressing incidents or conditions that pose a risk to the public or environment
- Collaborating with internal and external stakeholders to ensure our services consider their environmental and quality concerns

If you have any questions about this report, please contact the Wastewater Compliance team at 905-791-7800 extension 4685 or email at publicworkscustserv@peelregion.ca.

Executive summary

The G.E. Booth Water Resource Recovery Facility (WRRF) is located at 1300 Lakeshore Road East in Mississauga, on the shore of Lake Ontario. The facility is designed to treat an average flow of 518 MLD (million liters per day). The G.E. Booth WRRF is a class 4 wastewater treatment facility under [Ontario Regulation 129/04](#). This WRRF was operated under Approval number 6675-CPKHNL from January 1 to June 15, 2025, and under 2435-D8Y4KS from June 16 to December 31, 2025.

This report summarizes the monitoring results for the G.E. Booth WRRF required by the Approval and describes the operational performance to ensure production of quality effluent.

The annual average daily flow to the plant in 2025 was **428 million liters**, which is **83%** of the rated capacity specified in the Approval. Information on actions to address capacity is provided in section [4.8](#) of this report.

Throughout 2025, the G.E. Booth WRRF met the final effluent concentration limits for all the parameters with limits prescribed in the Approval except for TP and TSS. Additionally, the TSS and CBOD exceeded the limits prescribed by Wastewater Systems Effluent Regulations (WSER) under the Canadian Fisheries Act. There were also short periods of disinfection interruption in the final effluent. The requirements and results are detailed in section [4.2](#) of this report.

There were 7 bypasses in 2025 at the G.E. Booth WRRF and 7 spill events, as described in section [4.11](#).

In 2025, the G.E. Booth WRRF generated **47,481** dry tonnes of sludge cake, **45,891** dry tonnes were incinerated on site, and the remaining **1,590** dry tonnes were made into fertilizer. The results are detailed in section [4.9](#) of this report.

2025 Summary

Peel Region

Brampton, Caledon, and Mississauga

1.58 million
residents

200,000
businesses

provided with water and wastewater services

G.E. Booth Water Resource Recovery Facility



\$125 million

capital improvement
expenditure



67%

of Peel's total wastewater
treated at G.E. Booth

156

billion litres treated

Equal to volume of

171

Olympic size swimming
pools per day



4,854

samples analyzed

99%

final effluent quality limits met



99.49%

of wastewater underwent
complete treatment



29

Licensed operators
Maintain and operate
the G.E. Booth facility

Glossary of terms and abbreviations

Activated sludge: Sludge containing aerobic microorganism that help to break down organic compounds.

Final effluent: The treated wastewater that has undergone all treatment steps, including disinfection, when prescribed.

Influent: The untreated wastewater or raw sewage coming into the sewage treatment plant from the collection system.

Limit: Value prescribed in Approval for key parameters that the plant must meet in order to stay in compliance. Limits are generally more restrictive than objectives.

ML: megalitres. 1 megalitre = 1 million litres.

MLD: megalitres per day

m³: cubic meters. 1 cubic metre equals 1000 litres.

Objective: Value prescribed in Approval for key parameters that the plant is designed to meet. Consistently not meeting objectives means that the plant is not being effective and long-term remedial actions are needed. Sampling results that are over objective but under limit are considered in compliance.

Parameter: Chemical substances (such as phosphorus or oxygen), microbiological indicators (such as *E. coli*) or physical characteristics (such as pH or temperature) that are measured or sampled and analyzed in order to assess the performance of a plant. Some parameters have limits in the Approval.

Rated capacity: Average annual daily influent flow that the plant is designed to handle.

Residual: Remaining amount of a substance after treatment processes are completed.

Twinning: Constructing a parallel pipe to provide additional capacity and to allow for condition assessment and rehabilitation of the existing pipe to extend its useful life.

TOX: Fluidized bed sewage sludge incinerator unit.

Wastewater: Water that has been used and discharged by homes, businesses and industries. Everything we flush down a toilet or pour down a drain, collectively.

WRRF: Water Resource Recovery Facility. Directly contributes to a circular economy by producing clean water, nutrients, renewable energy and other valuable bio-based materials from wastewater.

WSER: Wastewater Systems Effluent Regulations

1. Water management in Peel Region

Peel owns the water and wastewater systems that serve its population. This includes water treatment, storage and distribution, and wastewater collection, pumping and treatment.

Peel has two drinking water sources: Lake Ontario and groundwater wells in Caledon. Peel retains services of the Ontario Clean Water Agency (OCWA) under a contract to operate, maintain and manage the lake-based drinking water treatment facilities and its water storage and pumping system. Peel operates the groundwater-based water treatment systems and distribution watermain networks. Similarly, on the wastewater side, OCWA is contracted to operate the large wastewater treatment plants on the shore of Lake Ontario, while Peel operates the wastewater collection system, pumping stations, and the treatment facility in the community of Inglewood, in the Town of Caledon.

This water cycle, shown in [Figure 1](#), starts when source water is pumped into our water treatment plants and undergoes treatment to meet the [Ontario Drinking Water Quality Standards](#). Treated drinking water is distributed through a network of pipes, storage facilities and pumping stations to homes and businesses. Used water goes down the drains into the wastewater collection system, where a series of pipes collect and convey wastewater to the wastewater treatment plant. Although a predominantly gravity-based network, pumping stations are needed to move wastewater from low lying areas. Wastewater undergoes multi-stage treatment to comply with the strict provincial and federal standards before release to the environment. Peel is committed to high standards of treated wastewater quality since it gets discharged into Lake Ontario, which is the source of drinking water for Peel and many neighbouring municipalities.

Figure 1. Water and Wastewater Cycle



For more information, refer to the [Error! Hyperlink reference not valid.](#) for our other wastewater systems and our [Error! Hyperlink reference not valid.](#) to learn about water treatment and distribution.

2. Introduction

Wastewater systems in Ontario are governed by the Ministry of the Environment, Conservation and Parks (the Ministry) and are also subject to federal legislation.

The purpose of a wastewater treatment system is to remove solids and nutrients to minimize impact from the effluent on the receiving waterbody. The Environmental Compliance Approval (Approval), issued under the [Environmental Protection Act](#), is a facility-specific document through which the Ministry sets discharge quality limits for that facility based on the sensitivity of the receiving waters. To comply with the Approval, Peel prepares an annual report covering the operation and overall performance of the wastewater system.

This report provides a performance summary for the period from January 1 to December 31, 2025, for the G.E. Booth Water Resource Recovery Facility (WRRF), to fulfill the annual performance reporting requirements set out in its Approval documents.



The G.E. Booth WRRF, a class 4 wastewater treatment facility under [Ontario Regulation 129/04](#), is located on the north shore of Lake Ontario in south-eastern Mississauga and operated on behalf of Peel by the Ontario Clean Water Agency (OCWA). Constructed in 1961, the original plant (formerly named Lakeview Wastewater Treatment Plant) was designed to serve a community of fewer than 100,000 residents. Over the years, the plant has gone through significant capital expansion and process changes. To recognize that the treatment of wastewater

at G.E. Booth has been producing energy and other resources, like biosolids, the facility name was also updated from Wastewater Treatment Plant (WWTP) to Water Resource Recovery Facility (WRRF) on September 24, 2024.

Today, along with the Clarkson WRRF, G.E. Booth WRRF provides wastewater treatment for a population base of over 1.58 million customers in Peel, as well as wastewater flows received from York Region and the City of Toronto. The G.E. Booth WRRF consists of conventional and biosolids treatment processes and is designed to treat (referred to as rated capacity) an average flow of 518 MLD (million liters per day).

2.1 Compliance

The Approval is a facility-specific document and is the legal instrument that sets requirements for municipal system owners and operating agencies with regards to operation and management, level of treatment, monitoring and recording, routine and event reporting, and effluent quality notification. In accordance with the Approval, major changes to treatment process or equipment are communicated to the Ministry.

Peel ensures that the final effluent produced, and activities associated with wastewater treatment comply with the Approval and related legislation. Peel follows best practices in resource planning, process documentation and emergency preparedness.

The G.E. Booth WRRF demonstrates its compliance with the air aspects of this Approval through a separate reporting mechanism; therefore, air emissions are not within the scope of this annual report.

The Ministry performs periodic inspections on all wastewater systems, comprised of facility visits and review of information and data for the inspection period. Inspection scope generally covers procedural documentation review, staff competency, process operation and monitoring, and corrective actions to operational events. Peel is committed to ensuring environmental protection and compliance with legislative requirements. We maintain transparency by reporting all findings of potential non-compliance incidents and outcomes of internal assessment to the Ministry Local district office. For more information refer to section [5.1](#)

2.2 Monitoring

Peel has an extensive sampling and monitoring program to assess the influent wastewater, ensure effective treatment processes, and assess the quality of treated wastewater (final effluent) being discharged to protect Lake Ontario, and to maintain compliance with limits prescribed in the Approval. Sampling for various microbiological, chemical, and physical parameters is performed by Ministry-licensed wastewater operators at various sampling points throughout the process and submitted to an accredited laboratory for analysis.

G.E. Booth WRRF is controlled through a computerized supervisory control and data acquisition (SCADA) system that is monitored 24 hours per day, 7 days a week. Online analyzers continuously monitor the wastewater treatment processes parameters, prior to release. Significant process upset generates an alarm so staff can investigate and take appropriate actions to restore normal operational conditions. The plant is equipped with stand-by power generators to ensure critical equipment can continue to operate in the event of a power failure.

3. Plant process overview

Wastewater is collected from homes and industry through a system of underground sewer pipes known as the **collection system**. The vast majority of wastewater collected in Peel flows by gravity to one of the two wastewater treatment facilities on the shore of Lake Ontario, G.E. Booth and Clarkson WRRFs.

When untreated wastewater (influent) enters the treatment process, it goes through **preliminary treatment**, which includes **screens** to remove large objects (like personal hygiene products) and a vortex to remove small grit particles.

The wastewater then enters **primary treatment** tanks (clarifiers), where it flows slowly, allowing heavier suspended solid particles to settle at the bottom and lighter material (such as grease and scum) to float to the top. Treatment aids may be added at this stage, such as phosphorus removal chemical and polymer (helps particles in the wastewater stick together so they become heavier and settle). The floating material and settled sludge are skimmed by large moving collectors and then pumped to the solids handling process. The remaining water flows to aeration tanks for secondary treatment.

Secondary treatment occurs in two stages to convert organic solids that remain floating to settleable material. The first stage happens in large **aeration tanks** where air is bubbled up via diffusers to provide oxygen so that the microorganisms in the wastewater will break down the nutrients and organic matter. The second stage happens in **secondary clarifiers**, where the microorganisms settle to the bottom. The sludge from the bottom is collected and pumped to the **solids handling process** for treatment and a portion of the sludge is returned to the aeration tanks to supplement the microorganism population.

Treated wastewater (effluent) is **disinfected** using liquid chlorine (sodium hypochlorite) to reduce pathogen content to acceptable levels. Chlorine needs time to exert its disinfection action. This contact time occurs while the effluent travels through the 1.4 km long outfall pipe. Any trace chlorine remaining in the effluent is removed using a dechlorination agent (sodium bisulphite) added near the end of the outfall pipe, prior to release of the final effluent (disinfected effluent) to Lake Ontario. Final effluent quality is tested to confirm compliance with the limits set out in the Approval.

Sludge collected from the primary and secondary treatment processes is sent to the **solids handling process** where it is thickened and dewatered in a series of

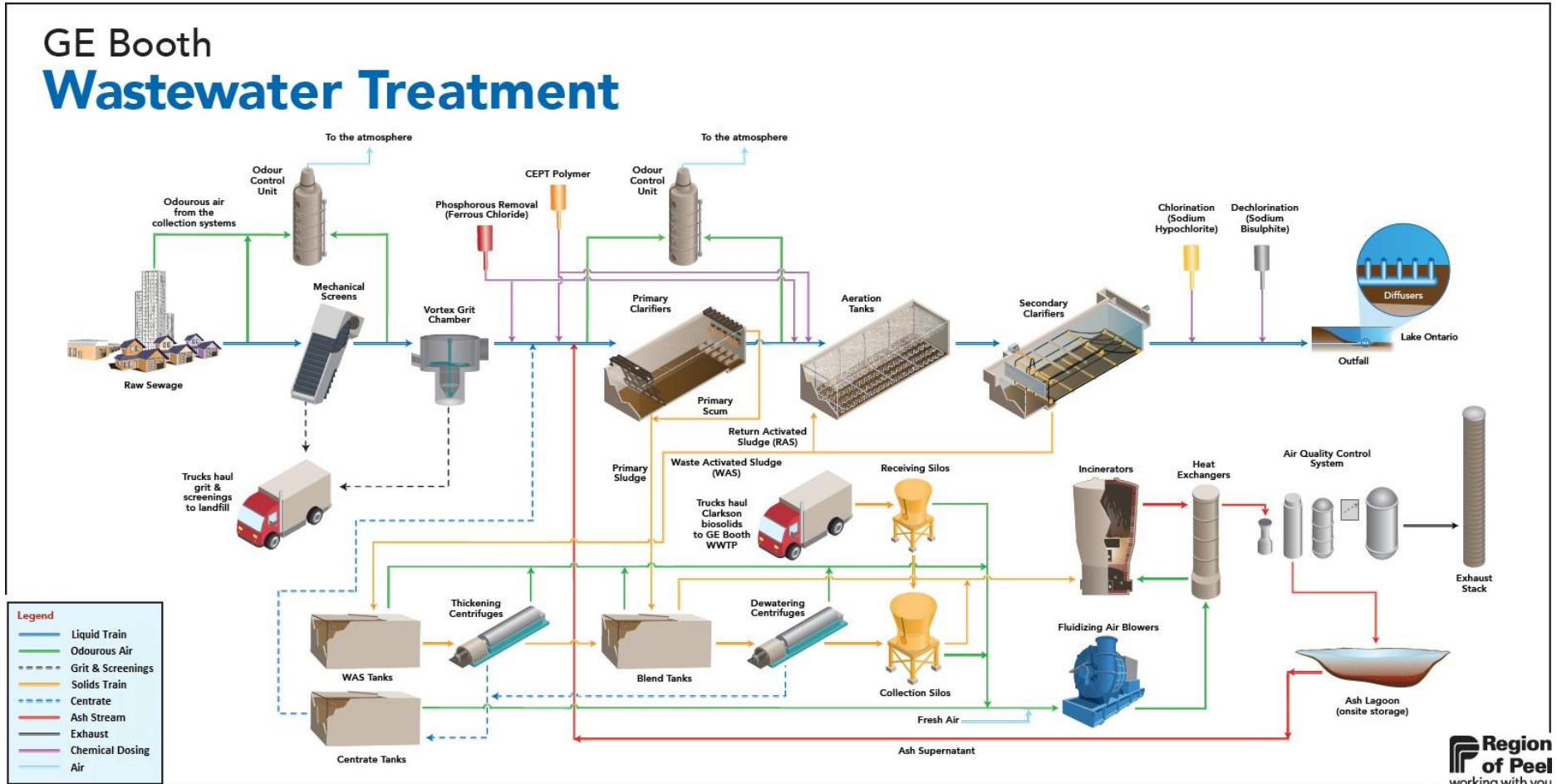
centrifuges. To aid in thickening and dewatering, a chemical compound called polymer is added. The thickened sludge output material is called sludge cake.

About 42% of the dewatered sludge cake generated at the nearby Clarkson WRRF is trucked to G.E. Booth WRRF for incineration.

The G.E Booth WRRF has four **incineration** units, each of which incinerates an average of 50 dry tonnes of sludge cake per day, when in operation. The incineration process reduces the sludge cake to ash. Ash slurry is pumped to ash lagoons for onsite storage. Each incinerator unit (TOX) is equipped with an air pollution control system that includes a quencher, a wet scrubber and a mercury scrubber to remove pollutants before releasing exhaust gas to the atmosphere. The air being released is monitored through a continuous emission monitoring system and source testing program as required by the Approval. The monitoring program results, and an annual summary are provided to the Ministry.

[Figure 2](#) illustrates the wastewater treatment process described above.

Figure 2. G.E. Booth wastewater treatment process



4. Operational performance

4.1 Summary of influent monitoring data

This section summarizes the influent characteristics for G.E. Booth WRRF. [Table 1](#) summarizes monthly influent volumes and monthly average concentrations of analytical parameters for 2025. For a description of what each test parameter means, see [Appendix A](#) - Summary of tested wastewater parameter information.

Table 1. Influent flow and monthly average sampling results

Month	Maximum flow (MLD) ¹	Average flow (MLD)	BOD ₅ (mg/L)	CBOD ₅ (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)
January	579.0	393.3	308	292	36	4.2	250
February	509.3	380.3	331	316	37	4.6	320
March	869.6	487.5	258	237	29	3.1	222
April	1536.7	477.9	275	248	29	3.5	267
May	937.0	457.1	359	281	30	3.7	289
June	752.0	438.6	372	331	32	4.6	250
July	704.0	443.9	360	317	31	4.3	243
August	774.0	423.4	391	320	30	4.3	209
September	1029.4	424.8	347	314	30	4.2	236
October	612.2	410.1	346	329	32	4.4	188
November	604.8	392.9	401	350	34	4.6	187
December	901.4	399.7	343	325	35	4.7	138
Annual	NA	427.8	340	305	32	4.2	232

Many factors affect changes in volume of wastewater flow to treatment plants. These include precipitation (through inflow and infiltration of storm water into the wastewater collection system), existing ground moisture saturation, residential water usage practices, and industry activity. [Table 2](#) provides a summary of flows and contaminant loading since 2019. The concentrations are impacted by flows, as increased flows dilute contaminants. When analysing trends, it is important to look at long term values for both flows and contaminant loading.

¹ Highest daily flow of the month

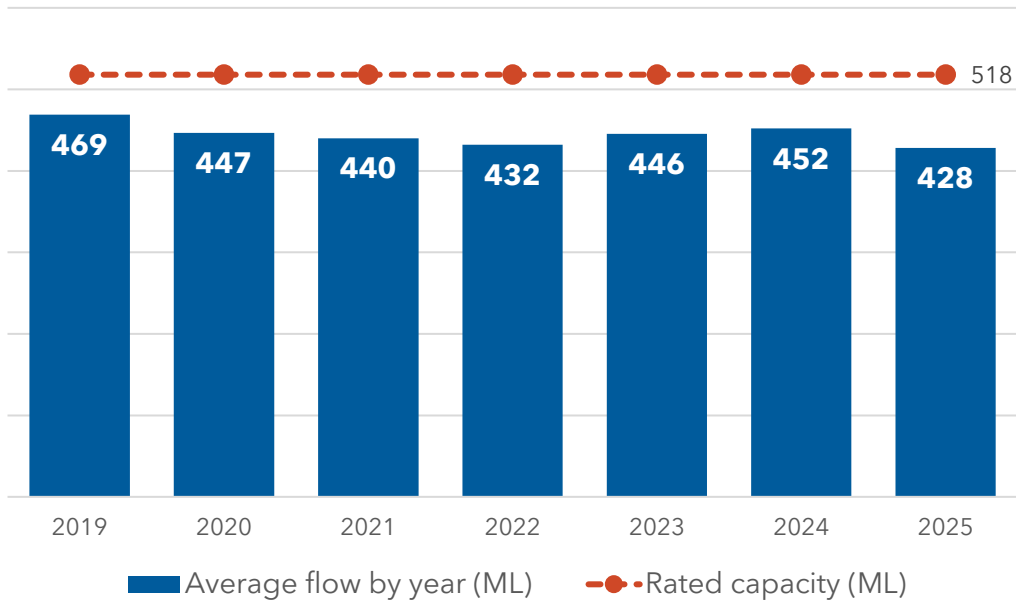
Table 2. Historical annual average influent flow and sampling results

Year	Flow (MLD)	BOD ₅ (mg/L)	CBOD ₅ (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)
2019	469.1	273	261	28	4.8	364
2020	446.5	294	277	30	5.1	352
2021	439.9	325	309	30	5.3	360
2022	432.0	351	325	30	4.9	333
2023	445.5	295	278	29	4.2	278
2024	452.1	307	289	32	4.2	279
2025	427.8	340	305	32	4.2	232

In 2025, the annual average flow was 428 MLD, representing 83% of the annual rated capacity. Flows to the plant peaked in 2019, at 469 ML or 91% of capacity, with a net decrease of approximately 9% between then and 2025. The reduction in annual average flow is primarily attributed to the closure of west to east connection on March 12, 2025, resulting in redistribution of flow to Clarkson WRRF. [Figure 3](#) illustrates historical flow trends for 2019 to 2025.

For discussion of efforts to address design capacity, see section [4.8](#)

Figure 3. Annual average flow 2019 to 2025



4.2 Summary of final effluent monitoring data

A summary of final effluent test results and the Approval objectives (targets) and limits (requirements) are shown in [Table 4](#). For a description of test parameters, see [Appendix A](#) - Summary of tested wastewater parameter information.

The final effluent concentration ECA limits for all required parameters were met in 2025 except for Total suspended solids (TSS) and Total Phosphorus (TP). TSS exceeded the annual average limit of 25 mg/L specified in the ECA, with an annual average concentration of 28.63 mg/L for the calendar year.

TSS also did not meet the monthly average WSER limit of 25 mg/L in February, March, November, and December. Additionally, CBOD also did not meet the monthly average WSER limit of 25mg/L in February.

February - Winter Constraints and Primary Event

In February, treatment performance was impacted by reduced process capacity due to ongoing capital work, maintenance, and corrective activities. Ferrous chloride dosing issues in plant 2 impaired solids settleability, and primary clarifiers 12 and 13 were taken out of service due to scum accumulation, reducing clarification capacity.

These conditions, combined with cold temperatures, led to the following final effluent quality results:

- TSS: 103.86 mg/L
- CBOD: 30 mg/L
- TP: 1.48 mg/L
- TP loading: 563 kg/day (limit: 394 kg/day)

This event was the primary contributor to the annual TSS exceedance.

March - Recovery Period

The elevated TSS values in March occurred during recovery from the February process disruption. Several days of high influent flows associated with snowmelt and extreme precipitation prolonged recovery and contributed to the elevated monthly average.

April to October - Stable Operations

Following March, the plant demonstrated improved and stable performance for most of the year as treatment processes stabilized and solids inventories were reduced.

November - Maintenance-Related Impacts

In November, performance was affected by capital work and maintenance activities, along with seasonal fluctuating temperatures. Multiple incineration units were unavailable with TOX 3 offline for long-term capital refurbishments, TOX 4 out of service for capital work and major maintenance, and a temporary outage of TOX 1, limiting solids handling capacity.

This led to impact to final effluent quality with following results:

- TSS: 41.90 mg/L
- TP: 0.9 mg/L

December - Continued Recovery

December results indicated continued recovery; however, older sludge conditions and reduced clarification capacity due to primary clarifiers 5 and 11 remaining out of service caused brief TSS spikes resulting in a monthly average of 34.23 mg/L. Overall performance improved significantly from November.

Overall Summary

The 2025 annual average TSS exceedance was mainly driven by the February events, which occurred under exceptional operational and seasonal conditions. The November and December exceedances were brief and associated with maintenance-related capacity limitations and seasonal factors. The plant recovered after each event and continues to show improved and stable performance.

The total phosphorus (TP) levels measured above the monthly objective during May, June and December specified in the ECA. A summary of the monthly average sampling results compared to Approval objective and limits for TSS and TP are shown in [Figure 4](#) and [Figure 5](#) respectively. These occurrences were closely monitored, and actions were taken to address them. Refer to section [4.4](#) for more information on the causes and corrective actions.

Monitoring the disinfection process

The Approval requires disinfection of the effluent (adding chlorine) and subsequent removal of the chlorine residual (adding sodium bisulphite) prior to releasing the effluent 1.4 km offshore in Lake Ontario. The presence of sodium bisulphite residual in the final effluent demonstrates the absence of chlorine residual. It is not practical to sample at the end of the long outfall; therefore, a small portion of the effluent is directed through a 1.4 km coiled pipe in the facility to simulate conditions in the outfall, with sampling points at the end for monitoring. The simulator takes a sample of the chlorinated effluent water and adds sodium bisulphite (dechlorination agent) in proportion to simulate conditions within the outfall, then another sample at a point representative of the final effluent.

Sodium bisulphite residual could not be measured throughout 2025 due to low levels of the bisulphite residuals that could not be captured by the analyzer. Refer to section [4.4](#) for more information. Adequate dosing of chlorine and sodium bisulphite continued within the full-scale effluent stream throughout using consultant dosing chart. This method for demonstrating compliance was recognized by the Ministry in the Approval.

There were brief interruptions in disinfection of the final effluent as summarized in [Table 3](#) below.

Table 3: Disinfection interruption events

Date	Ministry Reference Number	Causes	Corrective actions
January 15	1-G3C3VX	Gap in disinfection and dechlorination process monitoring and a brief interruption of disinfection due to partial power loss and failed power transfer to the disinfection building.	Power was manually restored, disinfection equipment returned to service, and follow-up actions initiated to improve data capture and power response procedures.
October 1	1-PKUZZ4	Diaphragm failure of sodium bisulphite (SBS) pump 2, resulting in no SBS flow to outfall for approximately 30 minutes.	SBS pump 3 was started to restore dechlorination, and follow-up actions initiated to improve system reliability, alarms, and standby pump readiness.
October 2	1-PKYELK	SBS pump 3 was turned off for maintenance testing of SBS pump 1 while no standby pump was available. Pump 1 did not establish flow immediately, resulting in no SBS flow to outfall for around 10 minutes.	SBS pump 1 was returned to service to restore dechlorination, and follow-up actions initiated to improve system reliability and alarm response.

Table 4. Final effluent monthly average flow and sampling results

Month	Daily flow (MLD)	CBOD ₅ (mg/L)	TSS (mg/L)	TP (mg/L)	TP loading (kg/day)	Total ammonia nitrogen (mg/L)	pH (pH units)	<i>E. coli</i> (CFU/100mL) ²	Bisulphite residual ³ (mg/L)
Objective	N/A	15	15	0.7	N/A	6.0 (Jun to Sep) 17.0 (Nov to Apr) 8.0 (May and Oct)	6.5 to 8.5	150	Detectable
Limit	518	25	25	0.8	394	8.0 (Jun to Sep) 34.0 (Nov to Apr) 16.0 (May and Oct)	6.0 to 9.5	200	Detectable
Compliance calculator ⁴	Annual average	Annual average	Annual average	Monthly average	Monthly average	Monthly average	Single sample	Geometric mean monthly	Monthly average ⁵
January	393.3	6.9	23.4	0.46	181	0.9	7.0	8	-
February	380.3	29.7	103.9	1.48	563	4.9	7.2	29	-
March	487.5	12.7	43.5	0.61	295	3.0	7.2	5	-
April	477.9	8.7	19.8	0.55	261	2.6	7.2	6	-
May	457.1	6.4	16.8	0.76	349	2.6	6.9	9	-
June	438.6	6.6	23.0	0.75	331	4.5	6.9	5	-
July	443.9	4.6	11.4	0.50	221	2.7	6.8	9	-
August	423.4	3.4	11.2	0.52	221	3.4	6.8	10	-
September	424.8	3.9	10.4	0.48	204	3.7	6.9	11	-
October	410.1	3.6	10.8	0.54	222	2.6	6.8	4	-
November	392.9	10.7	41.9	0.90	352	1.7	6.9	7	-
December	399.7	8.7	34.2	0.76	302	1.0	6.8	11	-
Annual average	427.8	8.7	28.6	0.69	293	2.8	6.9	N/A	N/A

² CFU/100mL = Colony forming units per 100 millilitres

³ Approval includes residual chlorine objective of non-detectable and limit of 0.02 mg/L. If bisulphite residual is used as a surrogate to total residual chlorine, then detected levels of bisulphite residual in the sample shall be deemed to confirm absence or equivalent to 0.0 mg/L concentration level of total residual chlorine.

⁴ For different parameters, compliance is assessed based on different time periods. Total phosphorus and total ammonia nitrogen are deemed in compliance if monthly average meets the limit; CBOD₅, TSS and flow are in compliance if annual average meets limit; bisulphite residual and pH are assessed on daily results. *E. coli* is assessed using a monthly geometric average.

⁵ Continuous analyzer reading shall be recorded at least every 5 minutes. When no value is provided, the continuous analyzer was not used, and mass balance dosing was used instead. See section 4.4.

Figure 4. Final effluent total suspended solids monthly average compared to approval objective and limit

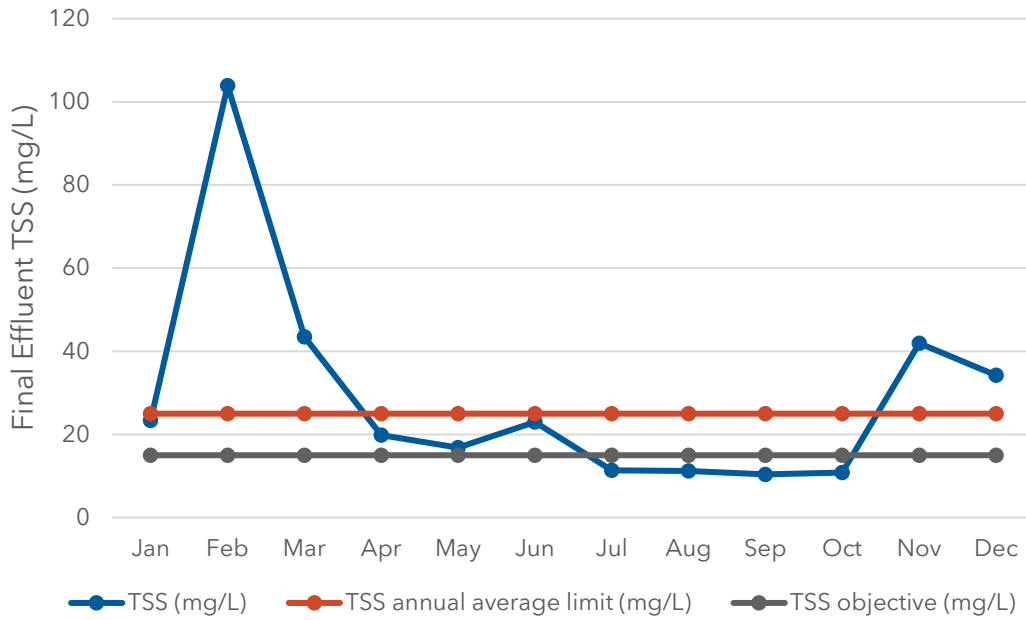
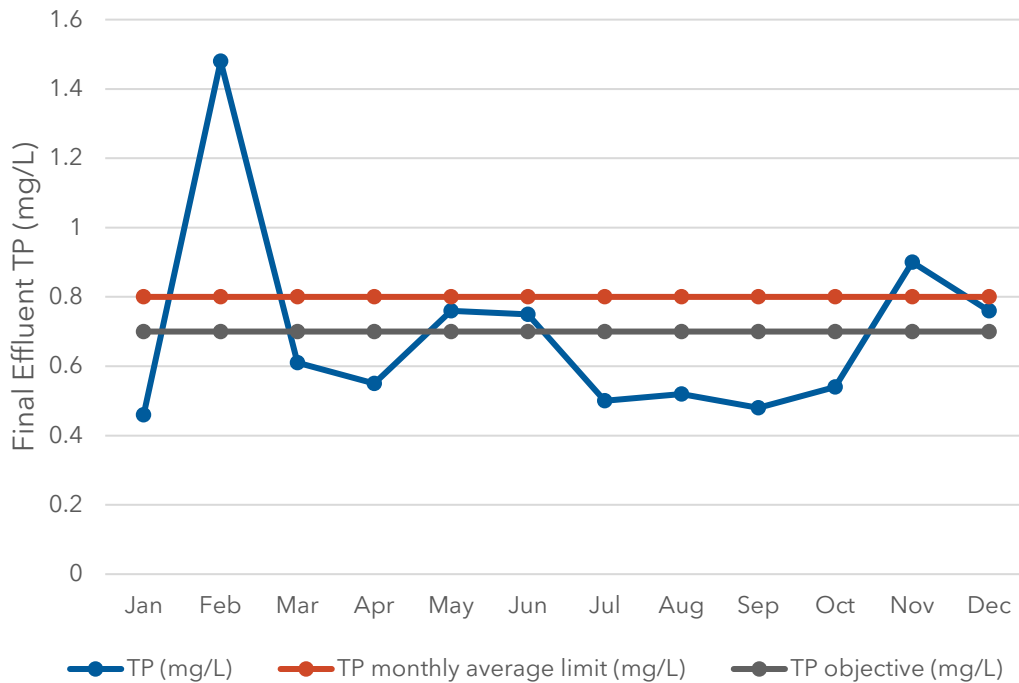


Figure 5. Final effluent total phosphorus monthly average compared to approval objective and limit



4.3 Deviations from monitoring schedule and next reporting year schedule

The wastewater influent and effluent must be sampled and tested in accordance with the requirements of the Approval. Each year, a sampling schedule is prepared to ensure all requirements are met. [Table 5](#), [Table 6](#), and [Table 7](#) show the sampling schedules for 2025 and 2026.

Table 5. Influent monitoring program

Parameter	Sample type	Minimum frequency	2025 frequency	2026 frequency
BOD ₅	24 hour composite	Weekly	3 times per week	3 times per week
TSS	24 hour composite	Weekly	Daily	Daily
TP	24 hour composite	Weekly	Daily	Daily
TKN	24 hour composite	Weekly	Daily	Daily

Table 6. Final effluent monitoring program

Parameters	Sample type	Minimum frequency	2025 frequency	2026 frequency
CBOD ₅	24 hour composite	Weekly	Daily	Daily
TSS	24 hour composite	Weekly	Daily	Daily
TP	24 hour composite	Weekly	Daily	Daily
Total ammonia nitrogen	24 hour composite	Weekly	Daily	Daily
TKN	24 hour composite	Weekly	Daily	Daily
Nitrate as nitrogen	24 hour composite	Weekly	Daily	Daily
Nitrite as nitrogen	24 hour composite	Weekly	Daily	Daily
<i>E. coli</i>	Grab	Weekly	3 times per week	3 times per week
Total residual chlorine or bisulphite residual	Grab or analyzer	Daily	Daily	Daily
pH ⁶	Grab or probe or analyzer	Weekly	Daily	Daily
Temperature ⁶	Grab or probe or analyzer	Weekly	Daily	Daily

⁶ pH and temperature of the final effluent shall be determined in the field at the time of sampling for total ammonia nitrogen.

Parameters	Sample type	Minimum frequency	2025 frequency	2026 frequency
Un-ionized ammonia ⁷	As calculated	Weekly	3 times per week	3 times per week
Dissolved oxygen	Grab or analyzer	Weekly	2 times per week	2 times per week

Table 7. Sludge cake monitoring program

Parameters	Sample type	Minimum frequency	2025 frequency	2026 frequency
Total solids	Grab	Annually	Quarterly	Quarterly
Total ammonia nitrogen	Grab	Annually	Quarterly	Quarterly
Nitrate	Grab	Annually	Quarterly	Quarterly
Total phosphorus	Grab	Annually	Quarterly	Quarterly
Metals ⁸	Grab	Annually	Quarterly	Quarterly
Potassium	Grab	Annually	Quarterly	Quarterly

4.4 Operating issues and corrective actions

The G.E. Booth WRRF operates year-round, 24 hours a day. Occasional operating issues are encountered. [Table 8](#) summarizes operating issues in the reporting period that temporarily affected the process or effluent quality and lists the corrective actions taken. This information is reported to the Ministry Inspector monthly.

Table 8. Summary of operating issues and actions taken

Issue	Date	Causes	Corrective actions
Final effluent monthly average TSS above the monthly WSER limit	February	<ul style="list-style-type: none"> Reduced treatment capacity due to capital and maintenance activities. Freezing and scum accumulation in primary clarifiers 12 and 13 required removal from service, increasing solids loading to plant 3. Extreme cold temperatures further affected nitrification and settling. Ferrous chloride dosing issues due to oversized 	<ul style="list-style-type: none"> Removed frozen scum using brine, flushing, and vacuum trucks. Increased operational checks, hosing, and documentation and implemented scheduled vacuum services. Investigated scum removal system deficiencies. Established committee to improve capital works and maintenance coordination.

⁷ The concentration of un-ionized ammonia is calculated using the total ammonia concentration, pH and temperature.

⁸ Arsenic, cadmium, cobalt, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc

Issue	Date	Causes	Corrective actions
		ferrous chloride dosing system at plant 2 impacted sludge settleability.	
	March	<ul style="list-style-type: none"> • Ongoing recovery from February process disruption. • Continued capacity constraints from capital and maintenance work. • High flows from snowmelt and precipitation. • Persistent ferrous chloride dosing issues affecting settleability. 	<ul style="list-style-type: none"> • Maintained scheduled and ad-hoc scum vacuum services. • Enhanced scum removal system inspections with management oversight. Continued routine spraying and monitoring. • Procured properly sized dosing valve for installation.
	November	<ul style="list-style-type: none"> • Reduced treatment capacity due to capital and maintenance work. • TOX 3 and TOX 4 offline; temporary outage of TOX 1 further limited capacity. • Rapid weather temperature changes. 	<ul style="list-style-type: none"> • Initiated cake export to reduce solids inventory. • Transferred breaker to restore TOX 1 operation. • Diverted Clarkson sludge to reduce loading. • Expedited TOX 4 repairs.
	December	<ul style="list-style-type: none"> • High sludge age carried over from November, resulting in intermittent poor settling and sludge carryover. • Continued capacity constraints with TOX 3 and primary clarifiers offline. Brief TSS spikes elevated monthly average. 	<ul style="list-style-type: none"> • Continued cake export while TOX 4 offline. • Temporarily bypassed secondary effluent to protect biomass. • Ongoing sludge inventory reduction and process stabilization.
Final effluent annual average TSS above the ECA limit	N/A	Elevated TSS concentrations were observed in February, March, November and December. The February exceedance represented an atypical operating period and was the primary contributor to the annual average exceedance.	Following March, the plant recovered and stabilized for much of the year following corrective actions taken after February process disruption as outlined above.
Final effluent monthly average TP	February	Secondary impact of the February process disruption and reduced treatment	Corrective actions in response to the February process disruption (as outlined under TSS

Issue	Date	Causes	Corrective actions
above the ECA limit		capacity, as described under the TSS exceedance.	exceedance), including optimization of chemical dosing and enhanced phosphorus monitoring.
	November	Reduced treatment capacity due to capital and maintenance activities.	Monitored and adjusted plant process including phosphorus removal chemical dosage
Final effluent monthly average TP loading above the ECA limit	February	Secondary impact of the February process disruption and reduced treatment capacity, as described under the TSS exceedance	Corrective actions in response to the February process disruption (as outlined under TSS exceedance), including optimization of chemical dosing and enhanced phosphorus monitoring
Final effluent monthly average TP concentration above the ECA objective	May, June, December	Plant capacity constraints due to capital projects/ major maintenance/corrective maintenance activities; Temporary limitations with solids management	<ul style="list-style-type: none"> • Closely monitored plant process and adjusted phosphorous removal chemical dosage • Cake exportation was implemented as required
Final effluent monthly average CBOD above the monthly WSER limit	February	Secondary impact of the February process disruption and reduced treatment capacity, as described under the TSS exceedance.	Corrective actions in response to the February process disruption (as outlined under TSS exceedance).
High Flows	Multiple dates from January to December	Seasonal snow melt and heavy precipitation	<ul style="list-style-type: none"> • Monitored and adjusted plant processes • Bypassed the secondary treatment process to minimize the impacts on effluent quality
Bisulphite simulator system malfunction	January to December	Low levels of sodium bisulphite residual that could not be captured by the analyzer, resulting in inability to determine residual	<ul style="list-style-type: none"> • Used a dosing chart provided by engineering consultant to ensure adequate dosing of sodium bisulphite to outfall • Investigating trial of an alternative residual analyzer

4.5 Maintenance activities

4.5.1 Repair and maintenance

To keep the G.E. Booth WRRF in good operating order, major plant components must be inspected and maintained on a regular basis. [Table 9](#) provides a summary of planned and emergency repairs and maintenance activities carried out during the reporting period.

Table 9. Summary of repairs and maintenance activities

Plant process	Maintenance activity
Preliminary treatment	<ul style="list-style-type: none"> • Replaced headworks conveyors/classifiers and associated components • Overhauled headworks travelling screen system • Replaced two grit vortex tank coatings • Repaired and replaced headworks screen and grinder/compactor components
Primary treatment	<ul style="list-style-type: none"> • Overhauled and retrofitted primary clarifiers • Scheduled routine vacuuming of scum from primary clarifiers 12 and 13 • Repaired primary collectors, bridges and associated components
Secondary treatment	<ul style="list-style-type: none"> • Installed two step feed gates in one aeration tank • Procured one aeration tank airline couplings • Procured final tank collectors and associated components • Procured return activated sludge (RAS) pumps and associated components • Replaced one aeration tank diffusers • Replaced RAS flow meters
Solids handling	<ul style="list-style-type: none"> • Replaced three silo rakes • Refurbished supernatant pump • Repaired and refurbished incinerators and associated/ancillary components • Cleaned out two ash tanks • Procured one new Schwing screw feeder housing • Refurbished and overhauled thickening centrifuges • Procured screw feeder housing body for one schwing pump • Replaced drain lines for TOX 1 and TOX 2 flooring

Plant process	Maintenance activity
Other works	<ul style="list-style-type: none">• Repaired biosolids crane motor and associated components• Removed obsolete thermal conditioning facility infrastructure• Replaced battery packs/banks for site switchgears• Improved lighting in biosolids receiving and solids handling buildings• Retrofitted and modified ferrous chloride supply line• Upgraded BAS Siemens system for biosolids• Replaced automatic transfer switch in disinfection building and TOX building

4.5.2 Capital expenditure information

Peel staff determine priorities to eliminate unnecessary capital spending while maintaining infrastructure. [Table 10](#) shows a summary of the major capital expenditures at G.E. Booth WRRF in the previous year.

Table 10. Summary of capital costs

Activity	2025 Expenditures
Condition assessment and studies	\$ 10,248,357
Equipment repair and replacement, conventional plant	\$ 79,031,168
Equipment repair and replacement, biosolids processes	\$ 10,210,899
Odour mitigation	\$ 25,730,199
Total	\$ 125,220,623



Figure 6. Aerial view of G.E. Booth WRRF under construction

4.6 Effluent quality assurance and control measures

Sampling data

- Licensed operators perform **in-house testing** of multiple parameters for process control
- Primary treatment efficiency **sampling program**
- Samples are analyzed by an **accredited laboratory**
- All **process data** is captured electronically
- **SCADA real-time data** capture and monitoring, data historian, and reporting tools for the collection and analysis of data

Operational control

- **Operational facility sheets** capture data that can be used to determine, trend and diagnose problems
- **Calibration of critical equipment** is performed with required frequency
- **Equipment redundancy** to increase equipment availability and effective response to failures and unplanned emergencies
- Ability to **co-thicken waste** activated sludge in primaries or centrifuge increases operational flexibility
- Multiple **SCADA** stations throughout the facility ensures operators have ready access to real-time conditions and control of plant equipment
- Internal **standard operating procedures** complement operations and maintenance manuals
- **Document control system** for proper and effective record-keeping
- **Wastewater contingency plan** to address emergency situations in the interest of meeting final effluent limits and prevent impacts to the environment

Preventive maintenance

- **Reliability centered maintenance program** reduces emergency repairs, shifting toward proactive control
- Inventory of equipment is captured in a **computerized maintenance management system**, improving the ability to manage assets
- A major **maintenance program** focuses on replacing or refurbishing aging assets

Competent staff

- **Operator licences** (issued under O. Reg. 129/04) are verified monthly
- **Comprehensive operator training** includes classroom, online and hands on training
- **Overall Responsible Operator** readily available to provide direction during operational challenges and emergency situations
- **Compliance and process staff** for system oversight
- **Process and energy optimization staff** for managing cost efficiency, energy savings and environmental stewardship

Management oversight

- **Regular process and compliance meetings** between Peel Region, the owner, and OCWA, the operating authority
- **Weekly operations staff meetings** provide training and discussion on topics including health and safety, compliance, and operational and maintenance activities

4.7 Monitoring equipment calibration and maintenance

Equipment used to monitor wastewater influent and effluent flows must be checked and maintained to ensure it is reading accurately. This is achieved through annual calibration and maintenance of flow meters, completed by a third-party vendor. For 2025, final effluent flow meters were found to be within acceptable limits.

4.8 Efforts made to achieve design capacity and objectives

In 2025, the annual average flow was 427.8 MLD, representing 83% of the annual rated capacity of 518 MLD. Flows to the plant peaked in 2019 at 91% of the capacity.

Peel recognizes that the plant capacity is approaching 90% of design, which increases the possibility of bypass occurrences and potential impacts to effluent quality during high flows. Several projects are underway to restore, maintain and increase plant design capacity. These projects are described below.

Wastewater collection system

To address high flows to G.E. Booth WRRF, a project underway to divert flows from east to west (away from G.E. Booth WRRF and towards Clarkson WRRF). The project is expected to be completed and flow diversion operational in 2028. The preliminary flow diversion strategy under this project is to re-direct approximately 70 MLD of wastewater. More information on this project is available on Peel's [construction website](#). Information on current environmental assessments in Peel are available [online](#).

Peel continues working to reduce inflow and infiltration in the collection system that contributes to peak flows during high flow events (see section 4.14 for more detail). Peel has also constructed an offline storage facility on the East Trunk Sewer to reduce wet weather flow peaks and the associated secondary bypasses. It is expected to be brought into service in 2026.

Capital projects at the G.E. Booth WRRF

Peel has undertaken proactive long-term actions to address changes to influent characteristics since the last plant expansion. A review of influent monitoring data from the last six years shows that there has been a significant increase in influent CBOD₅ and TSS concentrations compared to the plant's original design basis (key process specifications for the 2008 plant expansion). Refer to [Figure 7](#) and [Figure 8](#). The annual values fluctuate as they are impacted by flow volumes.

A project is underway to fully replace plant 1, the oldest and smallest liquids treatment train in the facility. The new plant 1 is currently under construction with structural and most architectural work completed. Once operational, the new treatment train will accommodate the increased influent loading (loading of nutrients in influent that must be treated).

Peel completed Environmental Assessments (EA) for the wastewater treatment facilities to provide additional treatment capacity and meet master plan flow projections to 2041.

Figure 7. Influent BOD₅ and CBOD₅

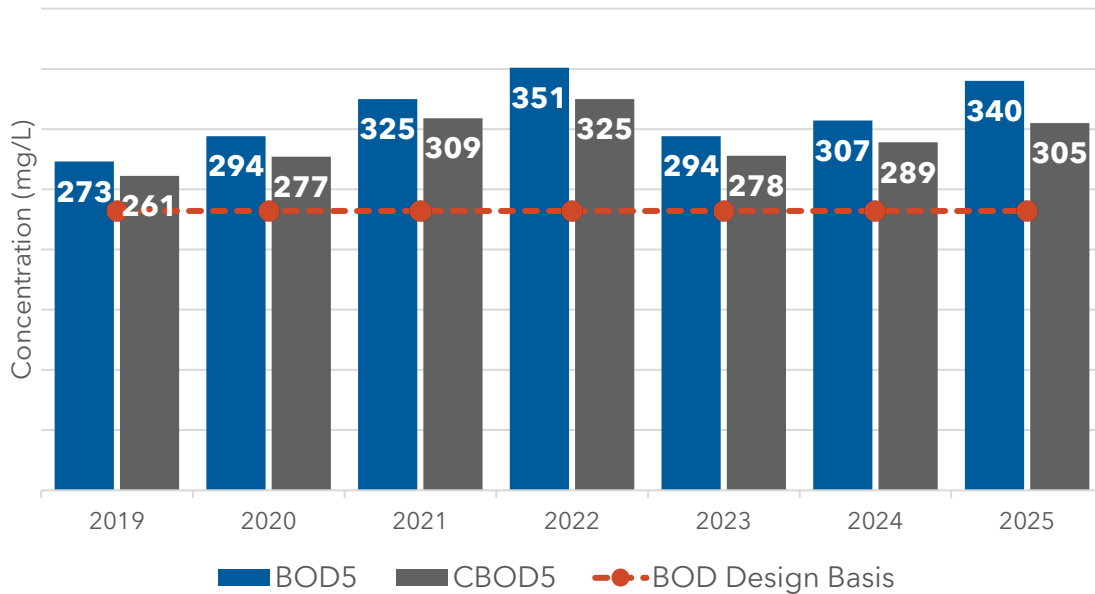
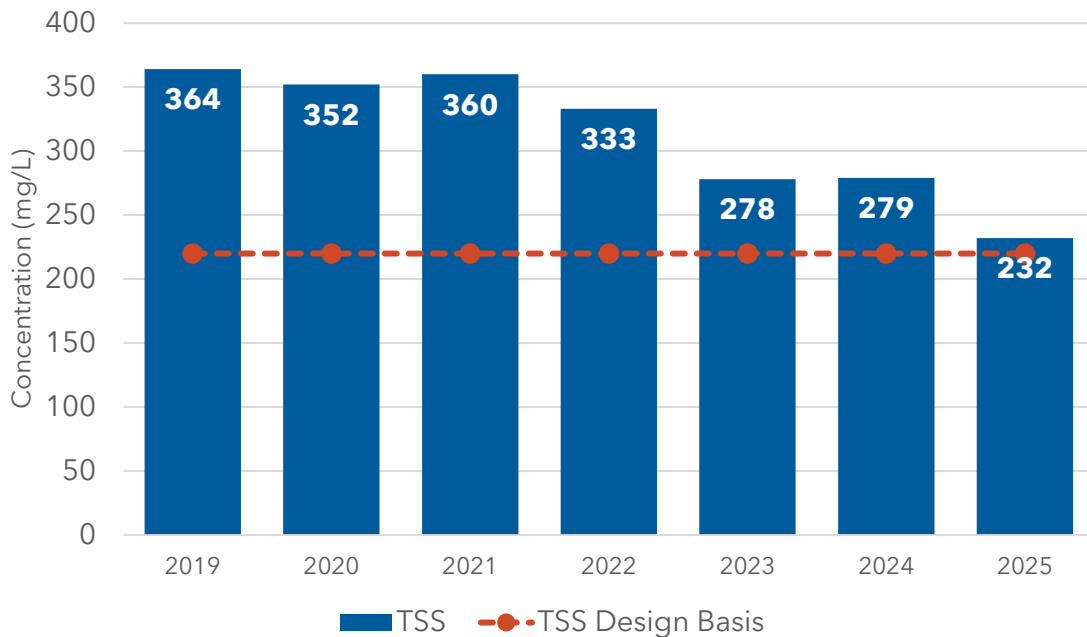


Figure 8. Influent total suspended solids (TSS)



4.9 Sludge generation and disposal

The treatment process removes solids from the wastewater stream in the form of sludge, which is processed on site, as described in section 3. Table 11 shows the total monthly and annual sludge volumes generated at the G.E. Booth WRRF.

In 2025, an annual total 50,032 dry tonnes of sludge cake were incinerated, which included 47,481 dry tonnes generated at G.E. Booth WRRF and 4,141 dry tonnes generated and delivered from Clarkson WRRF. This represents a 6% increase in total cake incinerated compared to the previous year. This year, 0.9%, was exported to Lystek International (191 Eco Pk Wy, Dundalk, ON N0C 1B0) and 2.5% was exported to Walker’s N-Viro (3865 Thorold Townline Rd, Niagara Falls, ON) for processing into fertilizer, rather than being incinerated. Exportation of cake is an alternative process option to help manage incinerator capacity when incinerators undergo maintenance and are temporarily taken out of service. Refer to the [Clarkson WRRF annual report](#) for more information.

It is difficult to predict the change in sludge production for the following year as there has not been a clear trend in the last several years. Based on a predicted population increase of 1%, and no significant expected changes to flows or processing, no significant changes in sludge generation are expected for the next year.

Table 11. Summary of sludge volume generated in different processes and its disposal

Month	Sludge cake processed into fertilizer (dry tonnes)	G.E. Booth sludge cake incinerated (dry tonnes)	Clarkson sludge cake incinerated (dry tonnes)	Total sludge cake incinerated (dry tonnes)	G.E. Booth sludge cake generated (dry tonnes)
January	0	3,777	490	4,267	3,777
February	75	2,940	291	3,231	3,015
March	86	4,001	662	4,663	4,087
April	37	3,836	583	4,420	3,873
May	108	3,765	358	4,123	3,873
June	226	3,460	145	3,605	3,686
July	0	4,019	440	4,459	4,019
August	145	3,660	361	4,021	3,805
September	355	3,527	0	3,527	3,882
October	69	4,539	440	4,979	4,608
November	339	3,202	0	3,202	3,540
December	152	5,164	371	5,535	5,316
Daily average	4	126	11	137	130
Annual total	1590	45,891	4,141	50,032	47,481

Annual percentage	3.35%	96.65%	N/A	N/A	N/A
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4.10 Summary of complaints

The Approval requires that Peel log, investigate and resolve resident complaints. Peel attempts to contact all customers and satisfactorily address their concerns and enquiries. A database is used to record details including information collected from the customer on the nature of the enquiry and action taken by Peel. The summary of complaints received in 2025 are show in [Table 12](#).

Peel takes proactive action to reduce sewage odour at the source. Peel is working on odour mitigation upgrades, expected to be completed in the next 3 to 6 years. These include building new odour control structures over the most odour-producing processes and open tank to manage smells during regular operation and maintenance. Operations staff proactively take mitigative measures during activities that are likely to generate additional odours, such as dewatering of tanks for maintenance.

Table 12. Summary of complaints and actions taken

Date of complaint	Description	Action taken in response
July 19	Report of strong sewage odours on July 19 and periodically throughout the summer	Plant performance and air quality data for July 19 were reviewed and confirmed to be within normal operating ranges. The resident was informed about the facility's ongoing odour reduction program, and the local collection system was assessed to identify any potential contributing sources
September 16, 17	Report of strong sewage odours near the lake shore recurring outdoor odours throughout the previous month, believed to be originating from the facility.	Residents were informed of the ongoing odour reduction program and advised that one odour control unit was temporarily shut down for maintenance on September 16 and restarted on September 17, which may have contributed to the odour. Dry weather conditions were also identified as a potential factor

Date of complaint	Description	Action taken in response
September 22	Report of sewage odours over the weekend of September 22, potentially associated with plant operations and maintenance activities	The complaint was investigated, and potential sources identified included the ferric sulfate trial and ongoing maintenance on primary clarifier 9 and TOX 2. The facility was transitioning to a ferric sulfate and ferric chloride blend, and maintenance activities were completed to restore normal operations and reduce odour potential.
December 1	Report of severe odours on November 25 and 27 and noted ongoing odour concerns during the summer. November 25 and 27 odours were likely related to increased solids inventory due to biosolids processing limitations with only two TOX unit in operation at the time	The site was inspected on December 1, with no abnormal odours detected. The resident was informed of ongoing maintenance and odour mitigation efforts. Biosolids processing capacity was restored, including expediting the return of third TOX unit to reduce solids inventory and odour potential

4.11 Bypasses, overflows, spills and abnormal discharge events

Occasional weather events such as heavy rainfall and seasonal snow melt can result in flow rates that are higher than those for which the plant was designed and burden the treatment process. These challenges, as well as the need for planned maintenance and construction activities, may result in a discharge to the environment of a portion of wastewater that has not undergone all treatment processes, outside of normal operating conditions, in what is referred to as a bypass event.

4.11.1 Bypasses

A bypass is an intentional diversion of excess wastewater around one or more wastewater treatment process(es). The bypassed portion of wastewater undergoes part of the treatment process followed by disinfection and gets re-combined with the fully treated flow prior to release into Lake Ontario at the

approved discharge location and sampling point. Final effluent is sampled and tested during bypass events to assess its quality.

Occasionally, a planned bypass is necessary to repair an essential part of the treatment process or during construction. In those cases, Peel submits a request to the federal and provincial governments to perform the bypass, including a plan to minimize its impact.

While not desirable, emergency bypasses may be necessary during high flow events to prevent spills and flooding at the WRRF and backups within the sewer system that can cause basement flooding and spills to the environment. Bypasses are also essential to protect the plant core biological treatment process (microorganisms that treat the sewage) from being washed out, which would prevent the plant from functioning properly and potentially causing long-term treatment impacts until the biological community is re-established.

Most bypasses in Peel are *secondary bypasses*, whereby the diverted wastewater receives primary treatment, bypasses secondary treatment, and receives a high degree of disinfection.

There were seven secondary bypasses in 2025. All bypass events were reported to Peel Environmental Control, the Ministry's Spills Action Centre (SAC), the Medical Officer of Health, and recorded in a database. A summary is provided in [Table 13](#).

Table 13. Summary of bypasses

Date	Location	Type	Volume (ML)	Disinfected	Reason	Ministry SAC reference number
March 5 to 6	Plant 3	Secondary	14	Yes	Heavy precipitation and snow melt	1-IBUUPX
March 10 to 11	Plant 3	Secondary	14	Yes	Snow melt	1-INQWHK
March 15 to 18	Plant 3	Secondary	147	Yes	Heavy precipitation and snow melt	1-J101DC
April 2 to 4	Plant 3	Secondary	452	Yes	Heavy precipitation and snow melt	1-N6ZZJI
September 23 to 24	Plant 3	Secondary	8	Yes	Heavy precipitation	1-PJG5O0
November 17	Plant 3	Secondary	3	Yes	Other	1-PSN7R2
November 28 to 29	Plant 3	Secondary	87	Yes	Heavy precipitation and snow melt	1-PYPOCL

4.11.2 Overflows

An overflow is a controlled discharge of wastewater to the environment from a designed location at the plant other than the approved final effluent outfall.

There were no overflow events in 2025.

4.11.3 Spills

A spill is an unplanned discharge to the environment from any location that is not specifically designed for this purpose. All spills are reported to Ministry Spills Action Centre (SAC). **There were seven spill events** in 2025. A summary is provided in [Table 14](#).

Table 14. Summary of spill events

Date	Ministry SAC reference number	Description	Action taken in response
January 17	1-G7398T	Spill of liquid ash due to a corroded coupling on an ash line within the north ash lagoon containment area, resulting in a small release onto a utility road and concrete pad.	The source was identified and isolated, and repairs to the corroded coupling will be completed.
June 23	1-OMMDUE	Release of primary effluent water due to leakage past the plant 3 secondary bypass weir gate seal, allowing water to enter the combined bypass channel.	The bypass channel was isolated, water was pumped down, and the gate continues to be monitored with precautionary measures in place.
August 13	1-PBPSE3	Spill of hydraulic oil due to a damaged hydraulic filter on a truck during cake offloading, resulting in release onto the concrete offloading area.	The driver isolated the hydraulic system, cleaned the spill using absorbents, and disposed of the material off-site.
August 27	1-PFG3CM	Spill of ferric sulfate due to residual material leaking from a hose after offloading, resulting in release onto a cemented area with no environmental pathway.	The spill was immediately contained and cleaned using absorbents, and follow-up discussions were initiated with the chemical supplier.
September 5	1-PGR7Y0	Spill of ferric sulphate during chemical delivery due to residual material discharging from the truck hose onto pavement and adjacent grass.	The spill was contained and cleaned using absorbents, affected soil was removed, and discussions were initiated with the supplier regarding proper spill response procedures.
October 27	1-PPL0F9	Spill of Fe-Chloro sulphate during chemical offloading due to a corroded hose fitting, resulting in release within the containment area and minor spray outside.	The driver isolated the spill, the fitting was replaced with a corrosion-resistant connection, and contractor delivery practices were reviewed.
December 16	1-PXCCXN	Spill of return activated sludge due to loss of flow modulation during temporary SCADA configuration while replacing a	Pumps were returned to auto control to restore flow modulation and stop the spill, SCADA monitoring was

Date	Ministry SAC reference number	Description	Action taken in response
		faulty UPS battery, resulting in overflow from the plant 2 splitter box onto adjacent walkways. All volume remained contained within the treatment process.	increased, and the faulty input-output card configuration was corrected.

A similar operational occurrence to the spill on December 16 was observed on July 15 during temporary SCADA configuration to accommodate maintenance work. It was assessed non-reportable at the time, as the spill remained within the treatment process and was fully contained on site.

4.12 Notice of Modifications to Sewage Works

The Approval allows for certain pre-authorized modifications to be made to the facility. The Ministry requires each modification to be documented on a *Notice of Modification to Sewage Works* form, which is retained and made available to the Ministry during inspections.

There was no *Notice of Modification to Sewage Works* documented during 2025.

Repair and maintenance activities are exempt from the documentation requirements and may be performed as needed to maintain the WRRF in good working condition. These were summarized in section [4.5](#).

4.13 Status of the proposed works

Peel undertakes construction projects to upgrade or enhance the treatment process to meet demands related to industrial and commercial growth in Peel that may alter incoming wastewater volume or loading, and to integrate new technologies. Proposed future construction plans are submitted to the Ministry for engineering review. Approved installations and modifications are listed in the *Proposed Works* section of the Approval. [Table 15](#) summarizes status of proposed works under the Approvals.

Table 15. Status of proposed works

ECA	Proposed	Status update	Expected
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	work		completion
6675-CPKHNL	New plant 1	Work is complete on the primary sludge and scum removal mechanisms. Work on the remaining mechanical and electrical scope is ongoing.	Summer 2027
	Plant 2 primary treatment systems	One of the two new plant 2 primary treatment systems has been completed and was commissioned in early 2025. Remaining work is ongoing with structural modifications started in late 2025.	Fall 2026
2435-D8Y4KS	Plant 2 and 3 Blower replacements and Plant 3 odour management	Work started in spring 2025. Retrofits to Primary Clarifier 11, including replacement of the sludge and scum removal mechanisms will be completed by mid-2026. Retrofits to Primary Clarifiers 9 and 10 will follow. Replacement of Plant 2 and Plant 3 blowers is planned, with units to be taken one at a time for each plant. The first blower is scheduled to be taken offline in 2026.	Fall 2030

4.14 Efforts to achieve conformance with Ministry’s treatment and collection system requirements (Procedure F-5-1)

As Peel’s population continues to grow, volumes of wastewater are expected to continue to increase. In addition, flows rise during wet weather and snow melt events due to infiltration of water into the collection system. Climate change causes an increase in the frequency and severity of these wet weather events. Increased flows influence treatment effectiveness. Another influence is industrial discharges into the collection system. Peel’s Water and Wastewater 10-Year Plan includes ongoing capital improvements to the treatment plants and collection system to improve flow management to protect neighbourhoods from flooding, maintain treatment capacity, and meet all regulatory limits for treated effluent. Peel has several avenues by which it is working to address these challenges to the wastewater system, as described in section 4.8 as well as below.

4.14.1 Effluent design objectives and effluent guidelines

Despite the plant being near the hydraulic rated capacity for several years, the plant meets the Approval limits most of the time.

4.14.2 Primary treatment capacity modifications

There were no additional modifications in 2025.

4.14.3 Collection system operation, maintenance and upgrades

Peel has undertaken proactive long-term actions in the collection system to meet future needs.

Peel owns, maintains, and operates an extensive trunk sewer network with pipes ranging from 750mm to 3,150mm in diameter. Understanding the performance of the existing wastewater system is a crucial step in the Peel's efforts to maintain system capacity and plan for future growth. Peel performs annual condition assessments on portions of its trunk sewer network to evaluate system performance and guide long term planning. These assessments inform the rehabilitation program, supported by a 10-year capital budget of \$420 million.

In 2025, several significant wastewater condition assessment and rehabilitation initiatives were advanced, including the following:

- Completed condition assessments of key trunk sewers such as the East Brampton trunk sewer, the Levi Creek trunk sewers, the Brampton-Bolton trunk sewer, and the Albion-Vaughn trunk sewer. The results of these assessments led to new renewal projects, including the Spring Creek trunk sewer rehabilitation.
- Use of drones and 3-dimensional scanning technology to capture detailed imagery of maintenance holes and trunk sewers
- Initiated a program to protect maintenance holes located in erosion-prone floodplains. This program identified several high-risk maintenance holes, including one failed structure near the Credit River in Mississauga, that was abandoned in the summer.

These projects aim to maintain service levels, improve system resiliency and longevity, and reduce site specific infiltration, such as leaking pipe joints. The East trunk sewer and Energy Dissipation Chamber Rehabilitation project was awarded combined federal and provincial funding and achieved final commissioning in late 2025.

The recent twinning of the East Brampton and West sanitary trunk sewers added capacity and facilitated the condition assessment and rehabilitation of the existing trunk sewer to extend its useful life. Following the condition assessment of the existing East Brampton sanitary trunk sewer, Peel began detailed design work and rehabilitation work is currently underway using a phased approach.

Peel is also proposing additional collection system initiatives to facilitate diversion and storage to alleviate extraneous flows related to inflow and infiltration. More details can be found in the Sanitary Sewage Collection System annual report at peelregion.ca/wastewater/#reports.

4.14.4 Industrial wastes

Peel also protects the wastewater collection system from industry impacts. Peel Region's [Wastewater Bylaw \(53-2010\)](#) sets concentration limits for discharges to the sanitary sewer, which subsequently protects the wastewater treatment plants from industry impacts, and provides information on agreements and spills to the environment. The bylaw applies to the industrial, commercial, and institutional (ICI) sectors as well as residences and establishes penalties for offences of up to \$100,000 for businesses.

All ICI facilities are inspected by Peel staff at a minimum once every 2 years, resulting in thousands of inspections being completed annually. The inspections are used to assess the discharges from the facility and its compliance with the bylaw as well as the effect on the wastewater collection and treatment systems. Upon discovery of a spill into the sanitary sewer, or notification from an industry of a release, affected treatment plants (Clarkson or G.E. Booth WRRFs) are notified so staff can implement protective actions. For more information about the bylaw enforcement, please visit our website at [Wastewater Bylaw](#).

5. Performance management programs

5.1 Ministry inspections

Wastewater system inspections are performed periodically by the Ministry to ensure systems are operating as required and complying with the terms and conditions of their Approvals. Performance data is reviewed against the compliance objectives and limits. The inspections also verify that Peel meets sampling, testing and treatment standards and staff competency requirements. Additional inspections can be triggered through a variety of factors such as frequency of events or inconsistent system performance (e.g., increased number of spills or reportable incidents), in response to a complaint or concern, or as part of a follow-up from prior non-compliances.

There was no Ministry inspection of the G.E. Booth WRRF in 2025.

Peel and OCWA conduct regular internal compliance checks to confirm that operational performance meets all regulatory requirements. Any self-declared findings that indicate potential non-compliance are reported to the Ministry through courtesy notification.

Appendix A - Summary of tested wastewater parameter information

Dissolved oxygen (DO): Amount of oxygen dissolved in water. It is essential for the survival of aquatic plants and animals. In the wastewater treatment process, DO is required by the microorganisms to break down the organic material present. A lower DO value suggests a greater amount of organic matter present in the sample.

Total biochemical oxygen demand (BOD₅): Amount of DO used by microorganisms to break down organic material present in a wastewater sample, measured as DO decrease over a 5-day period. A higher BOD₅ value means greater amount of organic matter present in the sample, which can cause deplete DO in receiving waters.

Carbonaceous biochemical oxygen demand (CBOD₅): Amount of DO needed by microorganisms to break down carbonaceous (carbon rich) organic material present in a wastewater sample over a 5-day period.

Alkalinity: Water's resistance to the effect of acids added to water.

Total phosphorous (TP): An essential nutrient used by microorganisms for growth. TP comes from a variety of sources including fertilizers, detergents, domestic wastewater, and wastewater from industrial processes. Excess phosphorus in waterbodies can promote algae blooms.

Total suspended solids (TSS): Suspended particles (organic and inorganic material) present in the water sample. TSS can include sediment, sand, silt, plankton, and algae. High concentration of TSS can interfere with the disinfection process and can also lower the quality of the receiving waterbody.

Total Kjeldahl nitrogen (TKN): Sum of ammonia nitrogen and the amount of nitrogen present in organic form. High TKN can be toxic to aquatic life.

Total ammonia nitrogen: The amount of ammonia in wastewater. Sources of ammonia include domestic, industrial, or agricultural pollution, primarily from fertilizers, animal and plant decomposition, and animal waste.

Nitrite, nitrate: An intermediate nitrogen species in the cycle of nitrogen removal from wastewater.

pH: A measure of the alkalinity or acidity in wastewater, which can indicate chemical or industrial pollution.

Temperature: Temperature of the wastewater sample measured at the time of collection. Higher wastewater temperatures allow for more efficient treatment at biological treatment plants.

Sodium hypochlorite: Liquid chlorine used for disinfection of treated wastewater. To minimize chlorine effects on the receiving waters, the effluent is dechlorinated before being released into Lake Ontario.

Sodium bisulphite: Used to neutralize the chlorine present in final effluent after disinfection. This is done to minimize chlorine effects on the receiving waters.

E. coli: An indicator of fecal contamination in effluent. Most species of this bacteria are harmless to humans; however, some strains can be pathogenic (cause disease)

Appendix B - Frequently asked questions

Where does water go after it is used?

After you use water to wash dishes and clothes, brush your teeth, shower or flush the toilet, the used water (wastewater) that goes down your drains flows through a series of underground sewer pipes to the wastewater treatment plants.

The wastewater is treated to remove contaminants and kill disease-causing microorganisms before being discharged into the environment. Peel owns two water resource recovery facilities (WRRF): G.E. Booth WRRF and Clarkson WRRF, both discharging into Lake Ontario, and the Inglewood wastewater treatment plant, discharging into the Credit River. These three plants serve the cities of Mississauga and Brampton and the Town of Caledon.

View [Peel Region's wastewater video](#) for more information on how wastewater is treated.

Why am I experiencing a sewage odour outside my house?

The sewage odor outside your house could be from a variety of sources. It could be that the sewer is backed up close to your property. If your property is located close to a lake, algal blooms also cause odours. Other sources of odour might include scheduled treatment plant maintenance coupled with prevailing winds, nearby farming activities, or odours from waste management facilities or industries.

If you are noticing odours near your property, please call Peel Region at 905-791-7800.

Why am I experiencing a sewage odour inside my house?

If you notice an odour of sewage coming from a drain in your house, it is recommended to pour a cupful of bleach into the drain, let it sit for 10 to 15 minutes and then rinse it down with plenty of water. If this does not resolve the odour problem, please call Peel Region at 905-791-7800 for further investigation.

What is the difference between a storm sewer and sanitary

sewer?

Wastewater that goes down drains inside homes and buildings enters the sanitary sewer system, which sends it to a wastewater treatment facility for treatment before it is released to the environment. Sanitary sewer systems in Mississauga, Brampton and Caledon are maintained by Peel.

Rainwater and melting snow are called storm water. Stormwater enters storm grates on the road and enters the storm sewer pipes that run beneath the roadways. These pipes discharge the storm water to local waterways, like streams, creeks, and lakes. The majority of storm sewer is maintained by the local municipality - the cities of Brampton and Mississauga and the Town of Caledon. Peel maintains storm sewers on regional roads.

Refer to the [Peel website](#) for more information about wastewater and storm water.

What happens to industrial wastewater?

Some companies treat their own wastewater and release it directly into the environment or into Peel's sanitary sewer (wastewater collection system). Wastewater released into the sanitary sewer joins all other wastewater collected (from households and building drains) and flows to one of the wastewater treatment plants. Industrial wastewater can be hazardous or contain substances that may damage sewer infrastructure or upset the treatment process. Therefore, all wastewater released and all businesses that release it into Peel sewers must comply with Peel's [Wastewater Bylaw](#). To ensure compliance, industrial facilities are examined by inspectors from Peel's Environmental Control department. Thousands of inspections are completed each year.

What must not be disposed down the toilet or poured down the drain?

It is important to understand that what goes down the drain or the toilet may have negative impacts on the wastewater system and the environment. Fats, oils, and grease should never be poured down the drain because these materials are known to cling to pipe walls. Over time, their accumulation can build up to such high levels that the sewer can become blocked. Another reason to avoid disposing fats, oils, and grease into drains or toilets is that they are not effectively

broken down during the wastewater treatment process. Instead, Peel recommends that edible household fats, oils and grease (FOG) should be collected and properly disposed as [per the FOG disposal at home instructions](#). To learn more about Peel's [community recycling centres' web page](#).

It is also important not to dispose items down the toilet that could get stuck in or damage the sewer systems. Sticks, rags, paper towels, personal hygiene products, diapers, disposable wipes, household hazardous waste and pharmaceuticals should not be disposed by simply flushing down the toilet. Any unused or expired pharmaceuticals can be returned to your local pharmacy. For more information on how to properly dispose of items that damage the wastewater refer to [idontflush.ca](#).

What causes a sanitary sewer backup?

Most sewer backups occur when sewer pipes get blocked. Sewer pipes can become clogged with excess fats, oils, greases, food wastes, coffee grounds, hair, toilet paper, soap residue, or inappropriate materials being flushed down the toilet or drain. Even sanitary wipes that are labelled "flushable" will in fact clog pipes, sewers, and screens at the treatment plants. To help reduce sanitary sewer blockages and prevent backups, it is recommended to properly dispose of these items and other materials that can harden or settle within the sewer pipes.

Sanitary sewer backups can also occur when tree roots grow into or through sewer lines. These roots may be from trees that are outside your property boundaries. The only solution to this problem is to cut away the roots and then replace the pipeline.

If you notice a sewer backup in your home, call Peel Region at 905-791-7800 extension 4409, or 1-888-919-7800 for residents in Caledon. If the problem area is determined to be on private property, there is a flat fee for the service call.

More information about wastewater and storm water is available on the Peel [webpage](#).

How safe is the treated wastewater that is released into Lake Ontario?

To meet environmental compliance criteria in Ontario, all wastewater must be treated before being returned to the environment. Peels wastewater treatment

facilities, G.E. Booth, Clarkson, and Inglewood are operated and maintained under strict regulations and the effluent discharged into the environment must meet location-specific, provincial, and federal standards.

Which pipes are mine and which are Peel Region's responsibility?

See the information at [homeowner and regional responsibilities of wastewater infrastructure](#).

What is optional water and sewer line insurance program?

The pipes on the private side of the property line belong to the property owner. Sometimes these pipes may get damaged or blocked, which can result in costly plumbing bills. Peel endorses a voluntary pipe insurance program. For more information can be found on the [insurance program web page](#).

How can I find out what work is taking place in my neighbourhood?

Peel maintains an interactive mapping tool on our [website](#) where the public can see the status of current and upcoming water projects that could result in water interruption. At this site, you can sign up to receive email notices with project updates.

Similarly, we publish a summary of [water outages](#). If you are unexpectedly without water, you can check this site to learn what is happening and view the answers to frequently asked questions.

Other sources for more information about wastewater and related issues



Peel Region

10 Peel Centre Dr., Brampton ON L6T 4B9

Wastewater-related questions:

Phone: 905-791-7800 extension 4685

Website: peelregion.ca/wastewater

E-mail: Publicworkscustserv@peelregion.ca

Water and Sanitary Sewer and Septic Protection Plans:

[Peel Wastewater Bylaw](#) or [Service line warranties](#)



Government of Ontario

Ministry of the Environment, Conservation and Parks

Public Information Centre

Phone: 416-325-4000

Toll-Free: 1-800-565-4923

Website: ontario.ca/environment



Government of Canada

Environment and Climate Change Canada Inquiry Centre

Phone: 819-997-2800

Toll-Free: 1-800-668-6767

Website: ec.gc.ca

Health Canada

General Inquiries Telephone: 613-957-2991

Toll free: 1-866-225-0709

Website: canada.ca/en/health-canada