

**2023**

**G. E. Booth Wastewater Treatment  
Plant annual report**



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## G.E. Booth Wastewater Treatment Plant 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](mailto:publicworkscustserv@peelregion.ca).

## Executive summary

The G.E. Booth Wastewater Treatment Plant (WWTP) is located at 1300 Lakeshore Road East in Mississauga, on the shore of Lake Ontario. The plant is designed to treat an average flow of 518 MLD (million liters per day). The G.E. Booth WWTP is a class 4 wastewater treatment facility under [Ontario Regulation 129/04](#). This WWTP was operated under two Environmental Compliance Approvals (Approval) in 2024: from the beginning of the year under Approval number 9375-C4RKKZ, and from October 11, 2023, Approval number 6675-CPKHNL.

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

The annual average daily flow to the plant was **446 million liters**, which is **86%** of the rated capacity specified in the Approval. Information on actions to address capacity is provided in section [4.8](#) of this report.

Throughout 2023, the G.E. Booth WWTP met the effluent concentration limits for all the parameters with limits prescribed in the Approval. The requirements and results are detailed in section [4.2](#) of this report.

There were two bypasses in 2023 at the G.E. Booth WWTP and three spill events, as described in section [4.11](#).

In 2023, the G.E. Booth WWTP generated **43,050** dry tonnes of sludge cake, **42,320** dry tonnes of which was incinerated on site, with the remaining **730** dry tonnes made into fertilizer. The results are detailed in section [4.9](#) of this report.

There was an inspection of the facility in 2023 which covered the 2021 and 2022 reporting periods during which three non-compliance findings were noted. Details are summarized in section [5.1](#).

# 2023 Summary

## Peel Region

Brampton, Caledon, and Mississauga

**1.5 million**  
residents

**175,000**  
businesses

provided with water and wastewater services

## G.E. Booth Wastewater Treatment Plant



**\$74.5 million**

Capital improvement expenditure



**65%**

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

**163**

billion litres treated in 2023

Equivalent to volume of

**178**

Olympic size swimming pools



**4,956**

samples analyzed

**68.9%\***

approval effluent limits met



**1.9 GJ**

(gigajoules)

energy used per million litres of wastewater treated

**\$54**

of chemicals used per million litres of wastewater treated



**99.9%**

of wastewater underwent complete treatment

\* See Table 7

## 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

**m<sup>3</sup>:** 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.

**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.

**WWTP:** Wastewater treatment plant.

## 1. Water management in Peel Region

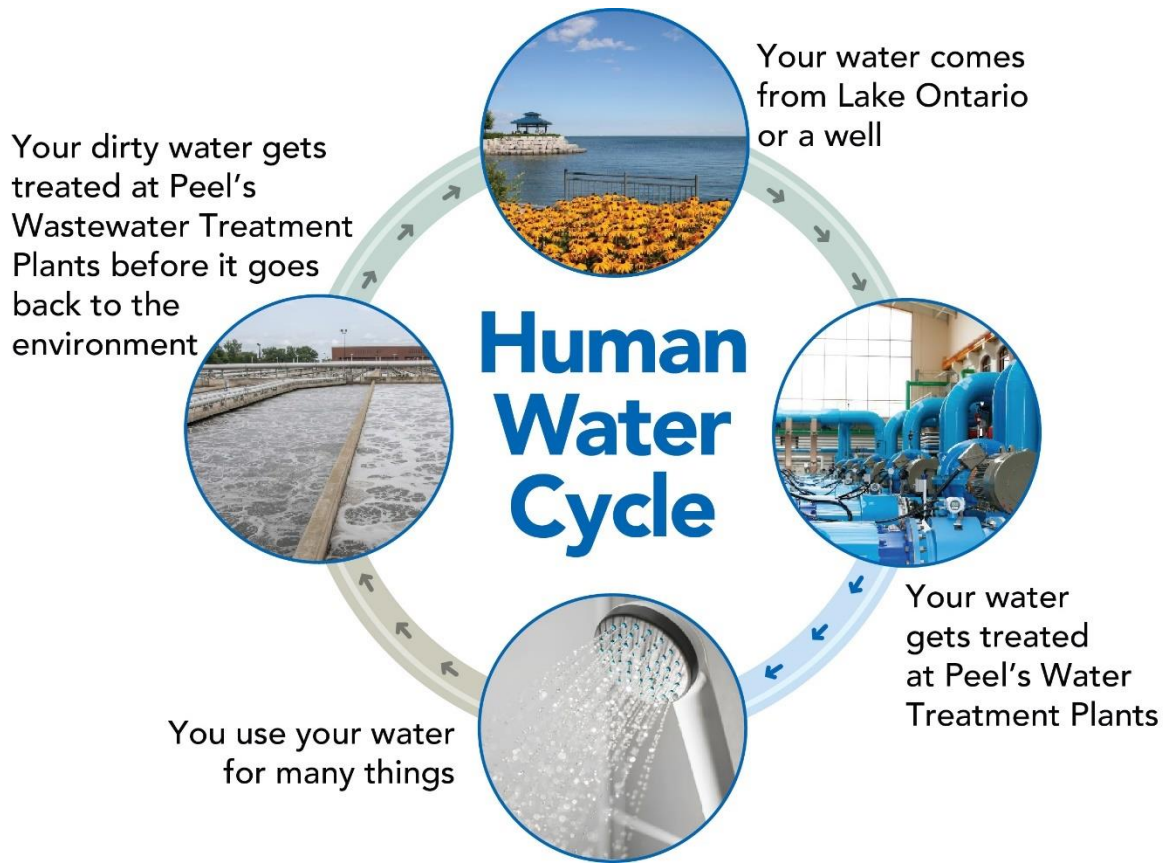
Peel owns and operates the water and wastewater systems that serve its population. This includes water treatment, storage and distribution, and wastewater collection, pumping and treatment.

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 Region 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 treatment plants. 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 [annual wastewater reports](#) for our other wastewater systems and our [annual water quality reports](#) 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 Region 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, 2023, for the G.E. Booth Wastewater Treatment Plant (WWTP), to fulfill the annual performance reporting requirements set out in its Approval documents. From January 1 to October 11, 2023, Approval number 9375-C4RKKZ was in force. On October 11, 2023, Peel was issued a multimedia Approval, which combines conditions for sewage, air and noise (number 6675-CPKHNL).



The G.E. Booth WWTP, 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 WWTP) 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. Today, along with the Clarkson WWTP, G.E. Booth WWTP provides wastewater treatment for a population base of over 1.5 million

customers in Peel, as well as wastewater flows received from York Region and the City of Toronto. The G.E. Booth WWTP 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.

In 2023, Peel was issued its first multimedia approval for wastewater treatment, at the G.E. Booth WWTP. This Approval combines sewage, air, and noise requirements. The G.E. Booth WWTP 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.

## 2.2 Monitoring

Peel monitors the effluent quality to ensure it meets limits prescribed in the Approval. Peel has an extensive sampling and monitoring program to assess the influent wastewater, ensure effective treatment processes, and assess the quality of treated wastewater being discharged to protect Lake Ontario. 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 WWTP 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 quality prior to release. Any 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 Region flows by gravity to one of the two WWTPs on the shore of Lake Ontario, G.E. Booth and Clarkson WWTPs.

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

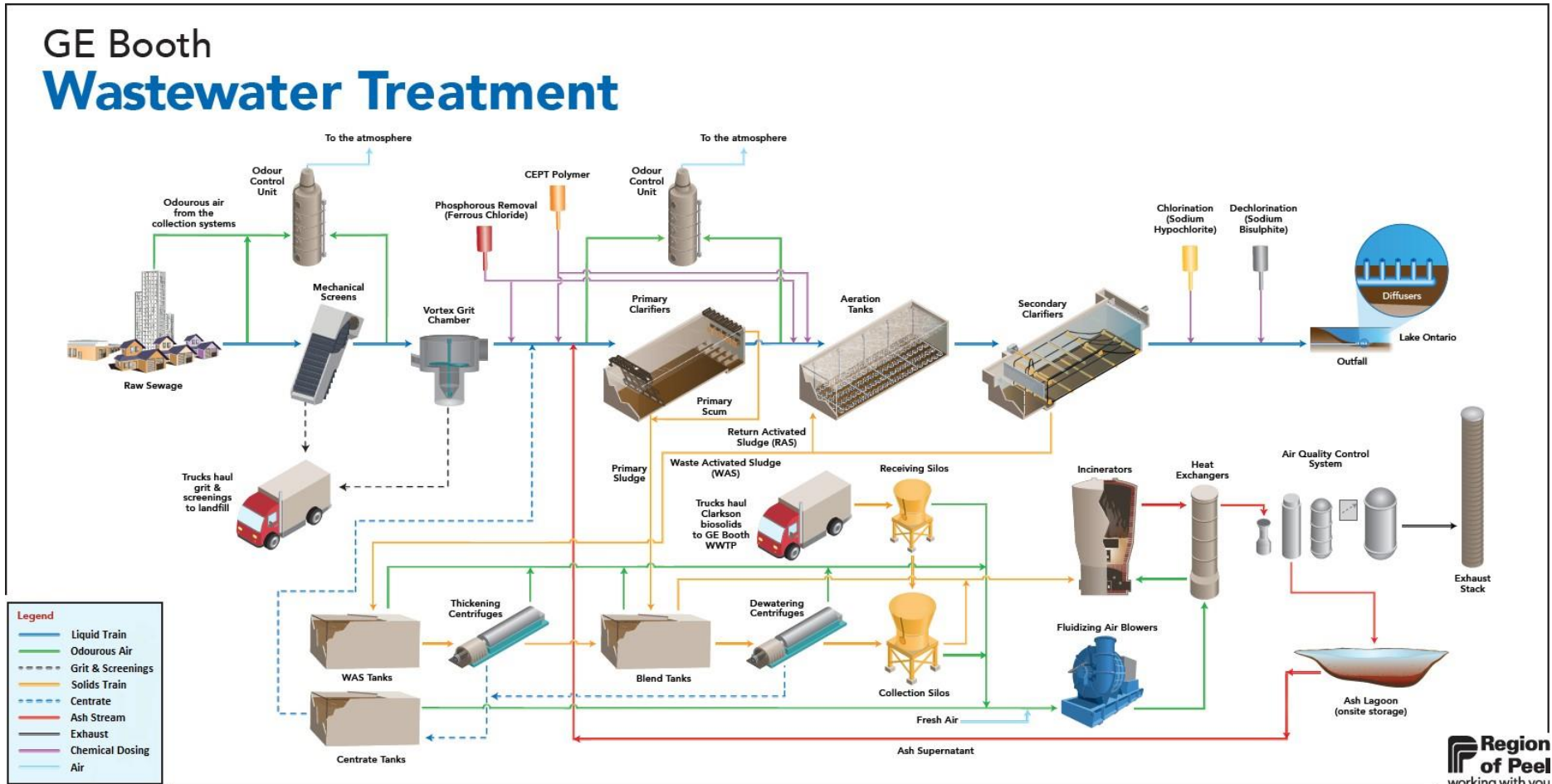
centrifuges. To aid in thickening and dewatering, a chemical compound called polymer is added. The thickened sludge output material is called sludge cake.

About half of the sludge generated at the nearby Clarkson WWTP is stabilized and trucked to G.E. Booth WWTP for incineration.

The G.E Booth WWTP 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 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 WWTP. Table 1 summarizes monthly influent volumes and monthly average concentrations of analytical parameters for 2023. 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 daily flow (MLD) <sup>1</sup>	Average flow (MLD)	BOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)
January	1,025.0	428.6	275	274	28	4.1	268
February	1,114.5	455.9	248	261	29	3.9	234
March	1,125.0	510.5	251	234	26	3.4	243
April	999.0	497.3	249	241	27	3.9	279
May	794.0	473.6	316	269	28	4.0	264
June	941.0	452.4	335	303	30	4.2	310
July	912.9	463.7	301	271	28	4.3	298
August	639.0	431.9	302	283	29	4.3	314
September	747.0	418.0	343	304	31	4.8	310
October	592.0	402.6	308	312	32	4.7	269
November	612.0	403.4	334	311	33	4.7	280
December	669.0	408.7	266	269	33	4.3	266
Annual	N/A	445.5	295	278	29	4.2	278

<sup>1</sup> Highest daily average of the month



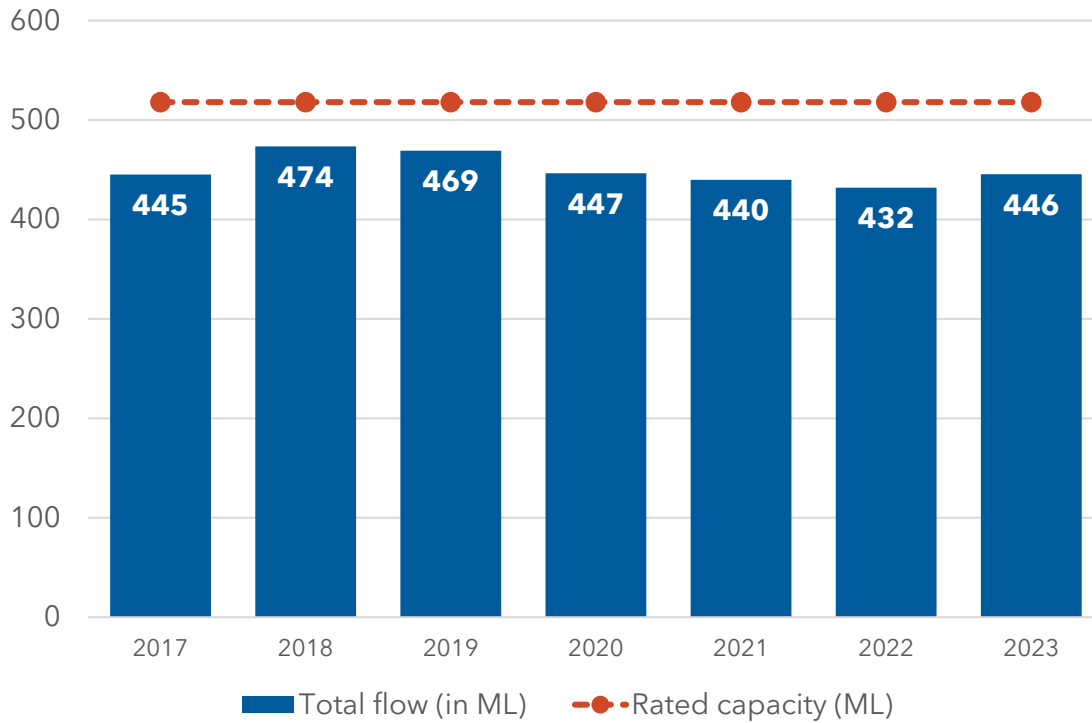
**Table 2. Historical annual average influent flow and sampling results**

Year	Flow (MLD)	BOD <sub>5</sub> (mg/L)	CBOD <sub>5</sub> (mg/L)	TKN (mg/L)	TP (mg/L)	TSS (mg/L)
2017	445.2	294	234	28	5.5	480
2018	473.5	289	258	28	4.5	470
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

In 2023, the annual average flow was 446 MLD, representing 86% of the annual rated capacity. Flows to the plant peaked in 2018, at 474 ML or 92% of capacity, with a net decrease of 6% between then and 2023. [Figure 3](#) illustrates historical flow trends for 2017 to 2023. 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 2017. 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.

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

**Figure 3. Annual average flow 2017 to 2023**



## 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 3](#) and [Figure 4](#). For a description of test parameters, see [Appendix A](#) - Summary of tested wastewater parameter information. The effluent concentration limits for all required parameters were met throughout the reporting year. The objective for Total suspended solids was exceeded in February and November. 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 (done with chlorine) and subsequent removal of the chlorine residual prior to releasing the effluent 1.4 km offshore in Lake Ontario, accomplished by adding sodium bisulphite. The presence of 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.

Bisulphite residual could not be measured for several periods throughout 2023 due to challenges with different system components, such as the dosing equipment, analyzers, and pumps. Refer to section [4.4](#) for more information. Dosing of both chlorine and sodium bisulphite continued within the full-scale effluent stream throughout. This method for demonstrating compliance was recognized by the Ministry in the new Approval issued in October 2023.

Table 3. Final effluent monthly average flow and sampling results

Month	Daily flow (MLD)	CBOD <sub>5</sub> (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) <sup>2</sup>	Bisulphite residual <sup>3</sup> (mg/L)
Objective	N/A	15	15	0.7	N/A	Jun to Sep 6.0, Nov to Apr 17.0, May and Oct 8.0	6.5 to 8.5	150	Detectable
Limit	518	25	25	0.8	394	Jun to Sep 8.0, Nov to Apr 34.0, May and Oct 16.0	6.0 to 9.5	200	Detectable
Compliance assessment basis <sup>4</sup>	Annual average	Annual average	Annual average	Monthly average	Monthly average	Monthly average	Single sample	Monthly geometric mean density	Monthly average <sup>5</sup>
January	428.6	3.4	7.0	0.4	157	0.5	7.1	3	-
February	455.9	7.5	20.4	0.4	181	0.8	7.0	5	-
March	510.5	5.4	12.5	0.2	121	0.5	7.1	5	-
April	497.3	4.4	10.1	0.3	146	0.3	7.1	14	0.07
May	473.6	3.2	5.3	0.4	189	0.3	7.0	17	0.14
June	452.4	3.0	5.5	0.4	166	0.7	6.9	5	-
July	463.7	2.9	4.5	0.4	174	0.5	7.0	19	-
August	431.9	2.6	4.1	0.4	176	0.2	7.0	10	0.09
September	418.0	3.4	7.2	0.4	178	0.7	7.0	21	0.07
October	402.6	4.6	12.6	0.6	250	0.4	6.9	10	-
November	403.4	4.8	18.6	0.6	232	0.2	6.9	14	-
December	408.7	2.6	7.4	0.3	135	0.2	6.9	10	-
Annual average	445.6	4.0	9.5	0.4	178	0.4	7.0	N/A	N/A

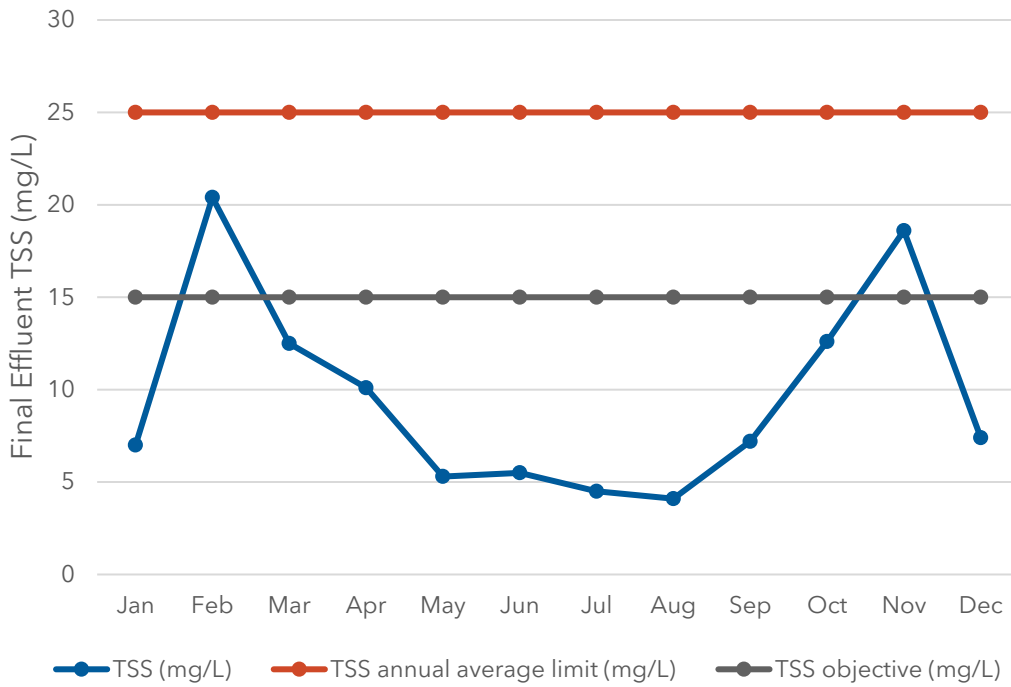
<sup>2</sup> CFU/100mL = Colony forming units per 100 millilitres

<sup>3</sup> 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.

<sup>4</sup> 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; CBOD<sub>5</sub>, 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.

<sup>5</sup> 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. Effluent total suspended solids monthly average sampling results 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. For a description of test parameters, see [Appendix A](#) - Summary of tested wastewater parameter information.

[Table 4](#), [Table 5](#), and [Table 6](#) show the sampling schedules for 2023 and 2024. There was one deviation from the 2023 schedule, related to bisulphite system malfunction, as mentioned in section [4.2](#).

For a description of test parameters, see [Appendix A](#) - Summary of tested wastewater parameter information.

**Table 4. Influent monitoring program**

Parameter	Sample type	Minimum frequency	2023 frequency	2024 frequency
BOD <sub>5</sub>	24 hours composite	Weekly	3 times per week	3 times per week
TSS	24 hours composite	Weekly	Daily	Daily
TP	24 hours composite	Weekly	Daily	Daily
TKN	24 hours composite	Weekly	Daily	Daily

**Table 5. Final effluent monitoring program**

Parameters	Sample type	Minimum frequency	2023 frequency	2024 frequency
CBOD <sub>5</sub>	24 hours composite	Weekly	Daily	Daily
TSS	24 hours composite	Weekly	Daily	Daily
TP	24 hours composite	Weekly	Daily	Daily
Total ammonia nitrogen	24 hours composite	Weekly	Daily	Daily
TKN	24 hours composite	Weekly	Daily	Daily
Nitrate as nitrogen	24 hours composite	Weekly	Daily	Daily
Nitrite as nitrogen	24 hours 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 <sup>6</sup>	Grab or probe or analyzer	Weekly	Daily	Daily
Temperature <sup>6</sup>	Grab or probe or analyzer	Weekly	Daily	Daily
Un-ionized ammonia <sup>7</sup>	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 6. Sludge cake monitoring program**

Parameters	Sample type	Minimum frequency	2023 frequency	2024 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 <sup>8</sup>	Grab	Annually	Quarterly	Quarterly

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

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

<sup>8</sup> Arsenic, cadmium, cobalt, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc

Parameters	Sample type	Minimum frequency	2023 frequency	2024 frequency
Potassium	Grab	Annually	Quarterly	Quarterly

#### 4.4 Operating issues and corrective actions

The G.E. Booth WWTP operates year-round, 24 hours a day. Occasional operating issues are encountered. [Table 7](#) 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 7. Summary of operating issues and actions taken**

Issue	Date	Causes	Corrective actions
Effluent TSS monthly average concentration above the annual average objective	February	High flow rate due to precipitation	A portion of flow was directed to bypass secondary treatment process on February 9 and 10 to minimize the impacts on effluent quality
	November	Only two incinerators were online from August 29 to November 15, which resulted in solids accumulation in the treatment system and solids loss from secondary clarifiers	Exportation of cake to third party processors was implemented to aid in removing solids inventory from the system
Effluent pH value lower than the objective range	August 3	Equipment issue	The pH meter was calibrated
	January to April 24, June and July, August 8 to 30, September 23 to 30, October to December	<ul style="list-style-type: none"> <li>Malfunctions of simulator components (on-line analyzers, bisulphite dilution skid and sample pump);</li> <li>Malfunctions of chemical pump to the outfall;</li> <li>Low levels of sodium bisulphite residual that could not be captured by the analyzer, resulting in inability to</li> </ul>	<ul style="list-style-type: none"> <li>Repaired analyzers, sample pump, dilution skid and chemical pump;</li> <li>Operations used dosing chart provided by engineering consultant to ensure dosing proper amount of sodium bisulphite to outfall in the interim;</li> <li>Investigating trial of an alternative residual analyzer</li> </ul>



		determine residual	
Daily plant flow exceeded rated capacity	Multiple dates from January to July	Seasonal snow thaw and heavy precipitation	<ul style="list-style-type: none"> <li>• Monitored plant processes;</li> <li>• Bypassed secondary treatment in one part of the plant on February 9 and 10, and March 25 and 26</li> </ul>

## 4.5 Maintenance activities

### 4.5.1 Repair and maintenance

To keep the G.E. Booth WWTP in good operating order, major plant components must be inspected and maintained on a regular basis. [Table 8](#) provides a summary of planned and emergency repairs and maintenance activities carried out during the reporting period.

**Table 8. Summary of repairs and maintenance activities**

Plant process	Maintenance activity
Preliminary treatment	<ul style="list-style-type: none"> <li>• Replaced conveyor and classifier distribution system associated components in headworks</li> <li>• Overhauled two fine screens and grit vortexes</li> <li>• Replaced odour control media in headworks</li> </ul>
Primary treatment	<ul style="list-style-type: none"> <li>• Replaced two raw sludge pumps</li> <li>• Repaired one primary bridge and repaired or replaced associated equipment</li> <li>• Replaced odour control media in plant 2</li> <li>• Overhauled two primary tanks</li> </ul>
Secondary treatment	<ul style="list-style-type: none"> <li>• Replaced secondary bypass gate in plant 2</li> <li>• Replaced two scum pumps</li> <li>• Improved efficiency of aeration tanks in plant 2 by replacing or removing associated equipment</li> <li>• Repaired a final tank scum and sludge collector</li> <li>• Replaced diffusers in two aeration tanks</li> <li>• Replaced four waste activated sludge pumps</li> <li>• Overhauled two aeration blowers</li> </ul>
Solids handling	<ul style="list-style-type: none"> <li>• Replaced total hydrocarbon analyzers for the continuous emission monitoring system for two of the incinerator units</li> <li>• Repaired several cake pumps and associated components</li> <li>• Repaired incinerators and ancillary systems</li> <li>• Overhauled two dewatering centrifuges and one thickening centrifuge</li> <li>• Upgraded biosolids dewatering polymer system</li> <li>• Installed two new ash pumps</li> </ul>

Plant process	Maintenance activity
Other works	<ul style="list-style-type: none"><li>• Replaced two sump pump pit systems in the thermal conditioning facility and incinerator building</li><li>• Replaced potable water piping line and associated components</li><li>• Repaired natural gas line</li><li>• Replaced existing electrical wiring for two secondary clarifier collectors</li></ul>

### 4.5.2 Operating resources

The Approval requires Peel to ensure that the plant and all equipment used to achieve compliance are properly operated and maintained. This includes providing adequate funding. Peel funds operational activities and process chemicals to maintain daily operation, as well as capital activities to ensure future system performance.

In 2023, \$8.7 million was spent on process chemicals at G.E. Booth WWTP, such as sodium hypochlorite, polymer, sodium bisulphite, and phosphorus removal chemical (see introduction and [Appendix A](#) - Summary of tested wastewater parameter information for description of use of each of these process chemicals), with an overall cost of \$54 per million litres of wastewater treated. This is a 27% increase over the previous year. The increase is due in small part to an increase in volume of certain chemicals used and in large part due to cost increases.

Water and wastewater treatment are among the highest energy users in Peel Region. In 2023, 1.9 gigajoules of energy were used per million litres treated. Energy rates vary slightly from year to year; in 2023, the rate was comparable to the average over the past 5 years.

Energy usage and performance of energy intensive equipment is monitored, and Peel continues to research ways to optimize and reduce energy use through energy-saving opportunities during design of capital improvement and construction projects.

### 4.5.3 Capital expenditure information

Peel staff determine priorities to eliminate unnecessary capital spending while maintaining infrastructure. [Table 9](#) shows a summary of the major capital expenditures at G.E. Booth WWTP in the previous year.

**Table 9. Summary of capital costs**

Activity	2023 Expenditures
Condition assessment and studies	\$ 740,805
Equipment repair and replacement, conventional plant	\$ 53,081,474
Equipment repair and replacement, biosolids processes	\$ 6,823,430
Odour mitigation	\$ 13,826,708
<b>Total</b>	<b>\$ 74,472,417</b>

## 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 the owner and the operating authority
- **Monthly 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 2023, final effluent flow meters were found to be within acceptable limits.

## 4.8 Efforts made to achieve design capacity and objectives

In 2023, the annual average flow was 446 MLD, representing 86% of the annual rated capacity of 518 MLD. Flows to the plant peaked in 2018 at 92% 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 WWTP, there is a project underway to divert flows from east to west (away from G.E. Booth WWTP and towards Clarkson WWTP). The project is expected to be completed and flow diversion operational in 2027. The preliminary flow diversion strategy under this project is to re-direct approximately 70 MLD. More information on this project is available on Peel's [construction website](#). Information on environmental assessments being performed by 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 information).

## Capital works projects at the G.E. Booth WWTP

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 CBOD<sub>5</sub> and TSS concentrations compared to the plant's original design basis (key process specifications for the 2008 plant expansion). Refer to [Figure 5](#) and [Figure 6](#). The annual values fluctuate as they are impacted by flow volumes.

A project is currently underway to completely replace Plant 1 (the oldest and smallest liquids treatment train in the facility). Preparatory activities such as construction of a new inlet conduit and storage complex are completed. The Plant 1 design is finished, and its construction is underway. The new treatment train will account for the increased influent loading (concentration of nutrients in influent that has to be treated). In addition, two new primary clarifiers in Plant 3 (the newest and largest treatment train) have been constructed. The primary clarifiers, which do not add overall treatment capacity, are now in service.

In October 2023, the Ministry issued to Peel a multimedia approval that combines the operating requirements conditions for sewage, air and noise. These approvals used to be separate. The multimedia approval streamlines the application process for large capital projects that need approval for sewage works as well as assets with air emissions and/or noise considerations.

In 2023, Peel completed Environmental Assessments for the wastewater treatment facilities to provide additional treatment capacity and meet master plan flow projections to 2041. The Notice of Completion for G.E. Booth WWTP was prepared in Fall 2023. Peel is waiting for final review by First Nations before issuing the Notice of Completion and submission for final public review.

Figure 5. Influent BOD<sub>5</sub> and CBOD<sub>5</sub>

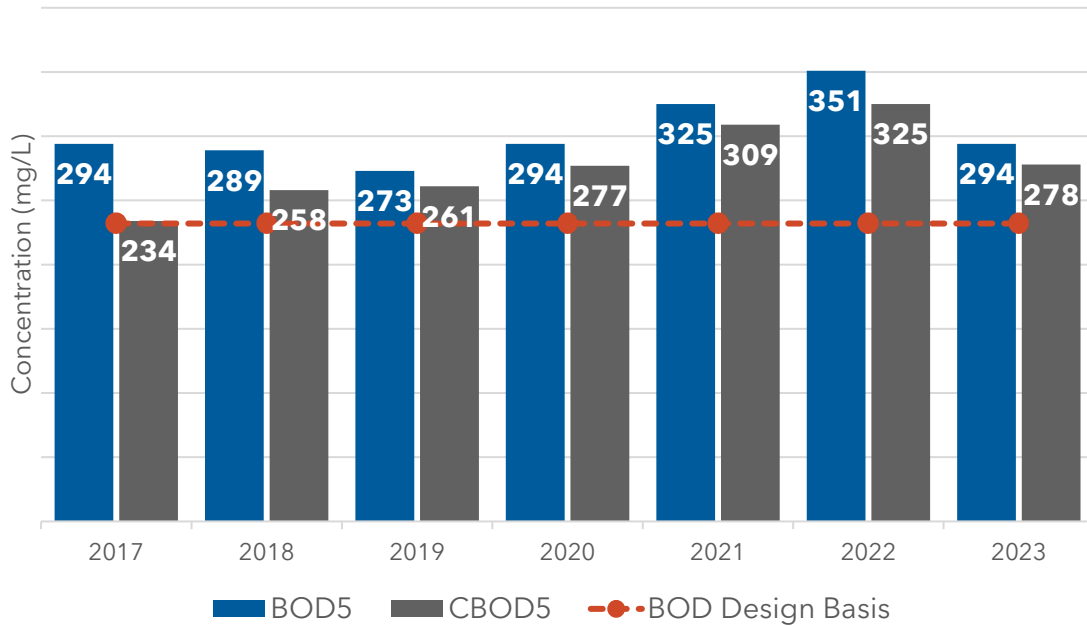
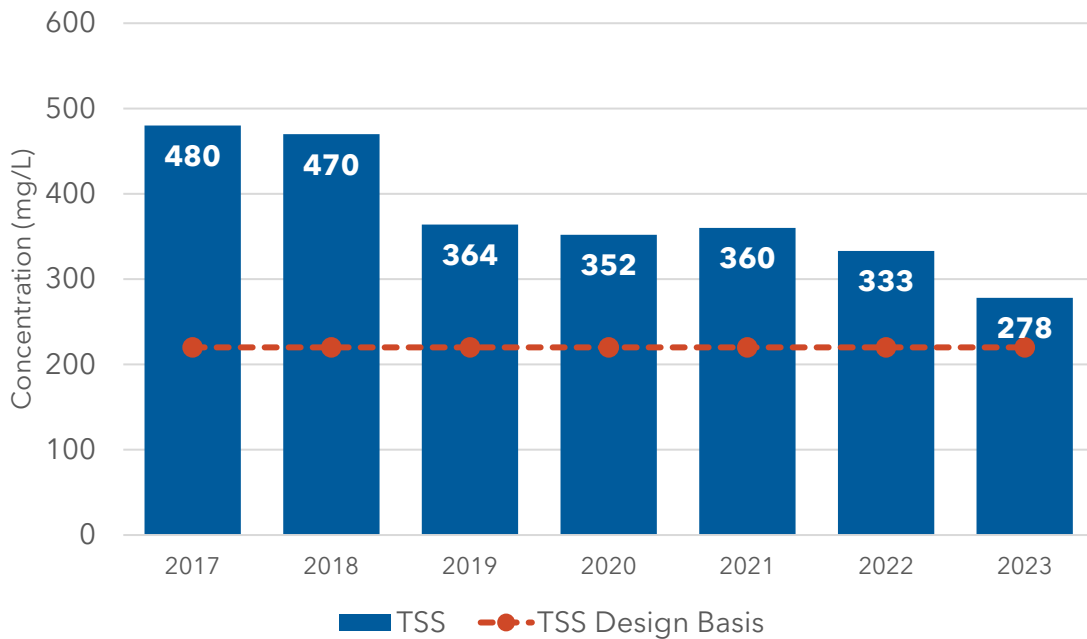


Figure 6. Influent TSS



#### 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 10 shows the total monthly and annual sludge volumes generated at the G.E. Booth WWTP.

In 2023, an annual total 46,824 dry tonnes of sludge cake were incinerated, which included 42,320 dry tonnes generated at G.E. Booth WWTP and 4,504 dry tonnes generated and delivered from Clarkson WWTP. This represents an 11% increase in total cake incinerated compared to the previous year. This year a small portion of sludge cake, less than 1%, was exported for processing into fertilizer rather than being incinerated. Exportation of cake is a new option to help manage incinerator capacity issues when incinerators undergo maintenance. Refer to the [Clarkson WWTP 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 10. 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 cake generated (dry tonnes)
January	0	3,808	478	4,286	3,808
February	0	3,948	354	4,303	3,948
March	0	3,788	695	4,483	3,788
April	0	3,052	719	3,771	3,052
May	8	3,561	366	3,928	3,569
June	15	3,534	646	4,180	3,548
July	156	3,270	65	3,336	3,426
August	31	3,305	440	3,745	3,336
September	187	2,986	10	2,997	3,173
October	200	3,138	0	3,138	3,339
November	133	3,766	217	3,983	3,899
December	0	4,164	513	4,676	4,164
Daily average	2	116	12	128	118
<b>Annual total</b>	<b>730</b>	<b>42,320</b>	<b>4,504</b>	<b>46,824</b>	<b>43,050</b>
<b>Annual percentage</b>	<b>0.8%</b>	<b>44.8%</b>	<b>4.8%</b>	<b>49.6%</b>	<b>N/A</b>



#### 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. Four complaints were received in 2023 (see [Table 11](#)). In the last five years, Peel has received an average of five complaints per year.

Peel takes proactive action to reduce sewage odour at the source. In 2023, an interim odour mitigation measure was in place with covers installed over the weirs on Plant 1 primary tanks. The covers capture odorous air from the weirs, where the effluent is agitated thus releasing odours, and convey the captured air for treatment through odour control units. In addition, operations staff proactively take mitigative measures during activities that are likely to generate additional odours, such as dewatering of tanks for maintenance.

**Table 11. Summary of complaints and actions taken**

Date of complaint	Description of complaint	Action taken in response
July 10	Odour for one week	Call was misdirected to wastewater collection system operations. The complaint was reported to the Ministry by Peel and improvements in the complaint handling process have since been implemented.
July 13	Sewage odour	There was no maintenance activity or upset at the plant. Upon investigation, odour seems most likely due to recent rain and humid conditions.
August 16 August 29	Sewage odour	Several tanks, including a primary tank and a screen at headworks were undergoing maintenance the week of the complaint. Staff were taking actions to minimize odours, including using an odour suppressant in the tanks, removing remaining liquid from tanks, and making sure odour control equipment was operational.

#### 4.11 Bypasses, overflows, spills and abnormal discharge events

Occasional weather events such as heavy rainfall and spring 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 WWTP 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 two secondary bypasses in 2023.** Of all the wastewater processed at G.E. Booth WWTP in 2023, 99.9% underwent the full treatment process with 0.01% undergoing partial treatment during the two bypass events. All 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 12](#).

**Table 12. Summary of bypasses**

Date	Location	Type	Volume (ML)	Disinfected	Reason	SAC reference number
Feb 9 to 10	Plant 3	Secondary	161	Yes	Heavy flows	1-2HSDZ5
Mar 25 to 26	Plant 3	Secondary	165	Yes	Heavy flows	1-33NRPG

#### 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** during the reporting period.

#### 4.11.3 Spills

A spill is an unplanned discharge to the environment from any location that is not specifically designed for this purpose. **There were three spill events** during the reporting period. A summary is provided in [Table 13](#).

**Table 13. Summary of spill events**

Date	SAC reference number	Description	Action taken in response
February 9	1-2HSSVZ	Heavy flows caused a high level in an aeration inlet channel and overtopping of the stoplogs. About 400 m <sup>3</sup> escaped into a bypass channel to join the final effluent.	The weir gate in the bypass channel was closed to stop the overtopping event. The final effluent was super-chlorinated prior to release.
May 18	1-3GUWJV	The phosphorus removal chemical pipe was damaged by a contractor during construction work, resulting in approximately 10 litres of the chemical being spilled into the excavation pit.	The phosphorus removal chemical valve was closed to stop the spill. The damaged pipe was fixed. Contaminated soil was removed and disposed properly.
July 27	1-3OER1K	When a contractor was working as part of construction on a new inlet conduit, flow from the	The leak was sealed and the excavation was cleaned up. The contractor revised their

Date	SAC reference number	Description	Action taken in response
		conduit began to leak into the excavation (approx. 200 litres).	work plan to avoid any further risk to the conduit structure.

#### 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 were no *Notice of Modification to Sewage Works* documented during 2023.

Repair and maintenance activities are exempt from the documentation requirements and may be performed as needed to maintain the WWTP 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 WWTP to meet demands related to industrial and commercial growth in Peel that may alter incoming wastewater volume or loading, and to integrate new technologies. Future construction plans proposed by Peel are submitted to the Ministry for engineering review. Approved installations and modifications are listed in the *Proposed Works* section of the Approval. [Table 14](#) summarizes status of proposed works under the Approvals.

**Table 14. Status of proposed works**

ECA	Proposed work	Status update	Expected completion
5461-AWWQUL	Plant 3 primary treatment system	Construction of two new clarifiers completed	N/A
9375-C4RKKZ	New Plant 1	Structural concrete works for new Plant 1 are over 60% complete. Work on the mechanical and electrical scopes are beginning in parallel with the remaining structural work.	Fall 2026

	Plant 2, two new sludge and scum removal mechanisms	Work on the new sludge and scum removal mechanism in the first primary clarifier is ongoing with in-tank structural modifications now completed. Mechanical work for the mechanism itself is now beginning and is expected to be completed in Summer 2024.	Fall 2025
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#### 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.

#### 4.15 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.

##### 4.15.1 Primary treatment capacity modifications

There were no additional modifications in 2023.

##### 4.15.2 Collection system operation, maintenance and upgrades

Peel’s strategy for offsetting wastewater flows from the east side of Mississauga and Brampton includes several major collection system initiatives, with an overall 10-year capital budget of approximately \$420 million. Twinning of the East Brampton and West sanitary trunk sewer is now complete and operational and will provide additional capacity and allow for condition assessment and rehabilitation of the existing trunk sewer to extend its useful life. Peel recently completed a condition assessment of the existing East Brampton sanitary trunk sewer and is working with our consultant on the development of the 30% design

to support planned rehabilitation work. Several significant wastewater condition assessment and rehabilitation initiatives were initiated or continued in 2023, including condition assessments of portions of the West trunk sewer, portions of the Brampton centre sub-trunk, airport trunk, Upper Mimico sub-trunk, Mullet Creek sub-trunk sewer, 407 diversion trunk sewer, and Meadowvale trunk sewer to name a few. The maintenance hole rehabilitation program continued with the completion of additional construction contracts.

The goal of these projects is to assess and rehabilitate sanitary infrastructure to meet target levels of service, which in turn improves system resiliency and longevity, and reduces site-specific infiltration, such as leaking pipe joints. The East trunk sewer and energy dissipation chamber rehabilitation class environmental assessment and detailed design were completed in 2022, and the project is currently midway through construction. This project was also awarded combined federal and provincial funding.

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 Wastewater Collection System annual report [online](#).

### **4.15.3 Industrial wastes**

Peel also protects the wastewater collection system (and thus WWTPs) from industry impacts. Peel Region's [Wastewater Bylaw \(53-2010\)](#) sets concentration limits for discharges to the sanitary sewer, which subsequently protects the WWTPs 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 Region staff at a minimum once every 2 years, resulting in over 5,000 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, WWTPs are notified so staff can implement protective actions.

## 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.

An inspection of G.E. Booth WWTP took place in early 2023. The inspection was focused on the period of January 1, 2021, to December 31, 2022, and included facility inspection and documentation review. Risk assessment methodology is different for a wastewater system from that for a drinking water system and does not involve an inspection rating. Three non-compliance findings were made. Two of the non-compliance findings were related to exceedance of the Approval effluent total phosphorus concentration and loading limits in January and February of 2022. These exceedances were previously discussed in the 2022 Annual Report. The third non-compliance finding related to an 8-hour data gap where continuous chlorination was not able to be demonstrated on December 30, 2021.

## 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 (BOD<sub>5</sub>):** 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 BOD<sub>5</sub> value means greater amount of organic matter present in the sample, which can cause deplete DO in receiving waters.

**Carbonaceous biochemical oxygen demand (CBOD<sub>5</sub>):** 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 operates three wastewater treatment plants (WWTP): G.E. Booth WWTP and Clarkson WWTP, both discharging into Lake Ontario, and the Inglewood WWTP, 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 Region.

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 Region 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 Region'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 [Sewer Use Bylaw](#) (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 it is 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 Region [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. Peel operates and maintains three wastewater treatment facilities, G.E. Booth, Clarkson, and Inglewood, 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](https://peelregion.ca/wastewater)

E-mail: [Publicworkscustserv@peelregion.ca](mailto:Publicworkscustserv@peelregion.ca)

### **Water and Sanitary Sewer and Septic Protection Plans:**

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



### **Ministry of the Environment, Conservation and Parks**

Public Information Centre

Phone: 416-325-4000

Toll-Free: 1-800-565-4923

Website: [ontario.ca/environment](https://ontario.ca/environment)



### **Environment and Climate Change Canada**

Inquiry Centre

Phone: 819-997-2800

Toll-Free: 1-800-668-6767

Website: [ec.gc.ca](https://ec.gc.ca)