

**PUBLIC UTILITIES COMMISSION
FOR THE MUNICIPALITY OF CHATHAM-KENT
WALLACEBURG WASTEWATER TREATMENT PLANT**

2020 PERFORMANCE REPORT

January 1 to December 31, 2020

Under Environmental Compliance Approval 1739-AXNJMV

Plant Type and Brief Description

The Wallaceburg Water Pollution Control Plant provides treatment of wastewater for approximately 11,000 residents of the Town of Wallaceburg. Wastewater is collected and pumped to the plant by 10 sanitary pump stations located throughout the community.

The Wallaceburg Water Pollution Control Plant is a Conventional Activated Sludge Plant with the plant final effluent passing through an Ultra Violet Light Disinfection System. The processed final effluent is then discharged to the Sydenham River. The plant was first built in the late 1960s with a major expansion and upgrading of the facility in 1991.

The rated capacity of the plant is 10,800m³/day average day flow calculated for the calendar year. Maximum hydraulic capacity for primary treatment and disinfection facilities is 35,000m³/day. The following processes are included in this treatment system:

- Raw sewage pumping
- Screening collection and removal
- Aerated grit tank
- Primary treatment of raw sewage with sludge collection
- Chemical phosphorus removal
- Biological treatment using Conventional Activated Sludge for secondary treatment
- Final Settling
- Disinfection of final effluent using Ultra Violet Light
- Sludge holding tanks

However, beginning December 2012, biosolids handling has been centralized, and the sludge is being transferred to Chatham WPCP for further processing.

REPORTING REQUIREMENTS

Under Amended Environmental Compliance Approval # 1739-AXNJMV

Summary and Interpretation of Monitoring and Comparison to the Effluent Limits: Condition 11 (3) (a)

Tables 1 and 2 outline monthly average results of parameters tested compared to the limits outlined in the Environmental Compliance Approval Table 2 Effluent Limits.

No criteria were exceeded during this reporting period for the effluent limits as outlined in the Environmental Compliance Approval Table 2 Effluent Limits

Success and Adequacy of the Works

During the reporting period, the annual average daily flow was 8,889 m³/day, which represents approximately 82% of the rated capacity of 10,800 m³/day. The maximum daily flow was 32,360 m³/day, which is 92% of the Peak Flow Rate of 35,000 m³/day.

Overall, the facility performed well during the reporting period.

Table 1: Summary of Influent and Imported Sewage monitoring data as well as rated capacity to the sewage works

Plant Rated Capacity: 10,800 m³/day average daily flow

Total sewage flow to the works during a calendar year divided by the number of days during which sewage was flowing to the works that year

Month	Total Monthly Raw Flow m ³	Total Monthly Imported Sewage Flow m ³	Avg Daily Raw Flow /Month m ³ /day	Avg Daily Raw Flow /Year m ³ /day	% of Plant Capacity	Raw BOD ₅ mg/L	Raw Total S.S. mg/L	Raw Total P mg/L	Raw Alkalinity mg/L	Raw TKN mg/L
Limits:	None	Included in Raw Flow	None	10,800	100					
Objectives:					80					
Jan	348,000	58.2	11,226			31	58	1.1	235	8.5
Feb	206,040	103.1	7,105			70	102	2.3	260	15.3
Mar	255,690	29.8	8,248			63	91	1.6	233	11.0
Apr	266,000	0	8,867			63	116	1.5	230	8.8
May	337,370	0	10,883			37	50	1.1	235	7.8
Jun	317,400	0	10,580			37	52	1.3	204	7.1
Jul	335,530	0	10,824			33	53	1.1	175	7.3
Aug	315,730	0	10,185			35	50	1.2	165	7.3
Sept	288,560	0	9,619			36	68	1.4	182	8.7
Oct	204,070	28.0	6,583			59	82	2.3	203	13.3
Nov	188,490	34.1	6,283			67	83	2.3	213	14.0
Dec	190,500	57.2	6,145			71	124	2.2	248	15.0
Year				8,889	82%					
	Yearly Total Flow m³	Maximums								
	3,253,380	103.1	11,226			71	124	2.3	260	15.3

Summary and Interpretation of Final Effluent Monitoring Data and Rated Capacity Condition 11 (3) (b) of the ECA

Tables 2 & 3 under this section outline a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, loading and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;

Table 2: Summary of Monitoring Data and Comparison to Final Effluent Limits & Objective Concern

Month	Total Monthly Effluent Flow m ³	Avg Daily Effluent Flow /Month m ³ /day	Avg Daily Flow/Year m ³ /day	CBOD ₅ mg/L	Total S.S. mg/L	Total Ammonia mg/L	Total P mg/L	pH	E.Coli cfu/100mL GeoMean
Limits: Dec 15 – Apr 15	None	None		25	25	3.0	1.0	6.0 - 9.5	200
Limits: Apr 16 – Dec 14	None	None		25	25	1.5	1.0	6.0 - 9.5	200
Objectives: Dec 15 – Apr 15	None	None		15	15	2.0	0.5	6.5 - 8.5	150
Objectives: Apr 16 – Dec 14	None	None		15	15	1.0	0.5	6.5 - 8.5	150
Jan	370,900	11,965		2.8	5.8	0.71	0.25	7.43	11.89
Feb	240,550	8,295		2.0	3.8	0.22	0.33	7.76	7.40
Mar	294,580	9,503		3.8	5.8	0.18	0.29	7.63	10.0
Apr	299,880	9,996		2.8	5.4	0.12	0.38	7.61	10.0
May	375,300	12,106		3.3	5.0	0.06	0.43	7.54	11.89
Jun	348,070	11,602		3.8	9.2	0.15	0.45	7.56	14.14
Jul	371,810	11,994		4.3	5.8	0.17	0.28	7.43	23.78
Aug	354,070	11,422		2.0	4.0	0.05	0.30	7.54	15.65
Sep	319,360	10,645		2.4	6.2	0.07	0.23	7.89	14.31
Oct	229,740	7,411		8.0	7.3	0.06	0.33	7.41	13.16
Nov	223,230	7,441		2.3	5.8	0.06	0.47	7.30	10.0
Dec	227,410	7,336		2.8	5.6	0.11	0.27	7.44	13.2
Year			9,986						
	Yearly Total Flow m ³	Yearly Maximums							
	3,654,900	12.106		8.0	9.2	0.71	0.47	7.89	23.78

Table 3: Summary of Monitoring Data and Comparison to Effluent Loading Limits

Month	Avg Daily Influent Flow /Month m ³ /day	CBOD ₅ Kg/Day	Total S.S. Kg/Day	Total P Kg/Day	Total Ammonia Kg/day
Limits: Dec 15 – Apr 15	None	270	270	10.8	32.4
Limits: Apr 16 – Dec 14	None	270	270	10.8	16.2
Jan	11,226	30.87	64.55	2.75	7.91
Feb	7,105	14.21	26.64	2.36	1.57
Mar	8,248	30.93	47.43	2.39	1.51
Apr	8,867	24.83	47.88	3.33	1.10
May	10,883	35.37	54.41	4.71	0.65
Jun	10,580	40.20	97.34	4.78	1.58
Jul	10,824	46.00	62.24	3.03	1.88
Aug	10,185	20.37	40.74	3.03	0.55
Sep	9,619	23.08	59.64	2.19	0.63
Oct	6,583	52.66	47.73	2.16	0.39
Nov	6,283	14.14	36.13	2.95	0.37
Dec	6,145	17.21	34.41	1.67	0.67
Maximums					
		52.66	97.34	4.78	7.91

Success and Adequacy of the Works

No criteria were exceeded during this reporting period for the effluent limits as outlined in Schedule B – Concentration Limits and Loading Limits of the ECA.

**Monitoring Schedule and Summary of any Deviations from the Monitoring Schedule
Condition 11 (3) (c)**

Monitoring Samples from January 1st, 2020 to December 31st, 2020 will be sampled weekly, generally on Wednesdays.

Monitoring Samples from January 1st, 2021 to December 31st, 2021 will be sampled weekly, generally on Mondays.

The regular weekly sampling day may be impacted by Statutory Holidays and Union Holidays.

**Summary of all Operating Issues encountered and Corrective Actions taken
Condition 11 (3) (d)**

There were no significant operating issues encountered during this reporting period.

**Summary of all Normal and Emergency Repairs and Maintenance Activities carried out on any Major Structure, Equipment, Apparatus or Mechanism forming part of the Works
Condition 11 (3) (e)**

All regular and routine maintenance in the plant was carried out during this reporting period. Primary and final clarifiers were drained and cleaned, and mechanical maintenance was performed on the chains and drive motors. Aeration tanks were drained and cleaned, and the diffusers inspected and cleaned. The Ultra Violet disinfection system was cleaned and maintained at regular intervals throughout the year.

A computerized maintenance system is in place at this facility in order to track regularly scheduled maintenance tasks. In addition to the routine maintenance, the following additional maintenance activities and equipment replacement was completed for the reporting period:

- Replaced 12 Wiers in Final Tanks \$ 85,000
- Replaced Pump (Baseline Rd) 30,000
- New Pump (Wellington St Pump Station) 30,000
- Replaced Scum Pump 25,000
- Replaced Pump (Napier St) 20,000
- Installation of New 10 Hp Pump (Queen Pump Sation) 15,000
- Main Lift Pump Rebuild 15,000
- Verbatim Dialer Replacement 11,000
- Replaced Chains, Slip on Drive, Brackets on #2 Final Tank 10,000
- Gear Reducer Drive Rebuild on Final Tank #2 2,000
- Replaced Clutch on Drive for Final Tank #4 1,000
- Drive Rebuild on Final Tank #2 1,000
- Replaced UV Flow Sensor 500

**Summary of any Effluent Quality Assurance or Control Measures undertaken
Condition 11 (3) (f)**

Wallaceburg Water Pollution Plant followed a sampling schedule developed in accordance with the Certificate of Approval and applicable regulations for this reporting period.

Composite chemistry samples of the raw flow were collected using an auto sampler. Chemistry samples were submitted weekly to an accredited laboratory for analysis of BOD₅, Total Suspended Solids, Total Phosphorus, Alkalinity, Total Kjeldahl Nitrogen, Total Ammonia, pH, Nitrite and Nitrate.

Composite chemistry samples of the effluent were collected using an auto sampler. Chemistry samples were submitted weekly to an accredited laboratory for analysis of CBOD, Total Suspended Solids, Total Phosphorus, Alkalinity, Total Kjeldahl Nitrogen, Total Ammonia, pH, Alkalinity, Nitrite and Nitrate.

Bacteriological samples of the effluent were collected weekly according to the Sampling Program. Bacteriological samples were submitted weekly to an accredited laboratory for analysis.

In house samples were analyzed by a licensed operator for pH, DO, and temperature.

**Summary of the Calibration and Maintenance carried out on all Influent, Imported Sewage and Final Effluent Monitoring Equipment
Condition 11 (3) (g)**

All required probes and sensors are cleaned, maintained and/or calibrated on a monthly basis or as required by manufacturers' specifications.

Monitoring equipment calibration/verification report(s) included for the following:

- Influent flow meters
- Effluent flow meter
- Spectrophotometer
- DO meter
- pH meter

**Summary of any Effluent Quality Assurance or Control Measures Undertaken to Achieve Design Objectives
Condition 11 (3) (h)**

Table 2 outlines monthly average results of parameters tested compared to the objectives outlined in the Environmental Compliance Approval Schedule B Final Effluent Design Objectives.

The following criteria was exceeded during this reporting period for the effluent objectives outlined in Condition 6 Effluent Objectives of the Environmental Compliance Approval:

No criteria was exceeded during this reporting period.

Continuing optimization of chemical feed was practiced throughout the year with the goal of achieving effluent objectives.

- i) Design Objectives have been met > 50% of the time
There are no increasing trends in deterioration of Final Effluent Quality
- ii) The Annual Average Daily Influent Flow was 82% of the Rated Capacity during the reporting period.

Due to record high levels of the Sydenham River and a saturated water table along the banks of the river in the first 8-9 months in 2020, Chatham Kent PUC experienced much higher than normal flows through the collection system and to the Wallaceburg Water Pollution Control Plant especially through the pump stations within close proximity to the river.

The increased flows did not result in a deterioration of Final Effluent quality. The Sydenham River levels began to drop in the late summer, early fall of 2020 resulting in reduced flow to the plant.

Improvements performed:

- 260 m of sanitary line was replaced along Queen St, Herbert St and Napier St.
- An old section of pipe along Herbert St. that was contributing to infiltration was abandoned and grouted.
- Operational efficiencies were implemented at the Queen St., Wallace St. and Libby St. Pumping Stations.
- We continue to make improvements to the collection system.
- We continue to monitor the peak flows.

**Sludge Management
Condition 11 (3) (i)**

During the reporting period, no dry sludge was transferred from the site. Liquid sludge from the digester was transferred to the Chatham WPCP by Logan Agri-Flush.

Tabulation of the Volume of Sludge Generated

	SLUDGE VOLUME in m³	TRANSFER TO LOCATION
Total transferred during the reporting period January 1, 2020 to December 31, 2020	12,905.29	Chatham WPCP

Outline of Anticipated Volumes and Handling Methods in Next Reporting Period

It is anticipated that approximately 15,000 m³ liquid sludge will be generated during the next reporting period and that all liquid sludge produced will be transferred to Chatham WPCP.

**Community Complaints:
Condition 11 (3) (j)**

There were no Customer Complaints received during the reporting period.

**Summary of all Bypasses, Overflows, Spills within the meaning of Part X of EPA and abnormal discharge events, and other abnormal discharge events
Condition 11 (3) (k)**

Bypass report(s) included for the following date(s):

- January 11
- September 7

**Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 10, including a Report on the Status of Implementation of all Modifications
Condition 11 (3) (l)**

- Napier/Dundas Sewage Pumping Station Generator Replacement

Summary of Efforts made to Achieve Conformance with Procedure F-5-1 including Projects Undertaken and Completed in the Sanitary Sewer System that result in overall Bypass/Overflow Elimination Condition 11 (3) (m)

Proposed Projects including Expenditures:

The following are budget approved projects that are scheduled for the next reporting period.

Libby St Generator Replacement	\$ 150,000
New Weirs for Primary Tanks	80,000
New Pump (Wilson Pump Station)	25,000
Sub Station Maintenance	10,000
Flygt and Chain Replacement	8,000
New Pump (Baseline Pump Station)	7,500

Estimated Budget Forecast for Following Year:

The estimated budget forecasted for 2021 Bypass/Overflow Elimination projects in the sanitary sewer system is \$ 182,000 (\$ 25,000 for a replacement pump at the Wilson Street Pump Station, \$7500 for a replacement pump at the Baseline Pump Station and \$150,000 for a Generator Replacement at the Libby St Pump Station).

Changes / Updates to the Schedule for the Completion of Construction and Commissioning Operation of Major Process(es) / Equipment Groups in the Proposed Works Condition 11 (3) (n)

There are no changes/updates to the schedule for any of the proposed works.

APPENDIX A

Yearly Operational Data Summary for the Reporting Period

APPENDIX B

Calibration Reports for the Reporting Period

APPENDIX C

Limited Operational Flexibility

APPENDIX D

Yearly Bypass Summary Reports for the Reporting Period

APPENDIX E

Yearly Overflow Summary Reports for the Reporting Period