



Walkerton Water Pollution Control Plant

#120001489

2024 Summary Report

**Prepared by Veolia Water Canada
For the Municipality of Brockton**

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Plant Description


The Walkerton Water Pollution Control Plant is a conventional activated sludge process with a rated capacity of 7,560 m³ per day with a peak capacity of 18,160 m³ per day. The collection system consists of approximately 40 km of gravity sewers flowing to a sewage pumping facility. The sewage pumping facility is equipped with 3 pumps with variable speed drives. It has screening and grit removal with 3 primary clarifiers, 4 aeration cells and 4 secondary clarifiers. Phosphorus removal is enhanced by the addition of ferric chloride. Chlorine gas is used for disinfection during the period of April 1st to November 30th each year. The facility has two stage anaerobic digestion and additional sludge storage to ensure favorable conditions for land application. A bio-gas/natural gas generator provides stand-by power to the entire facility. In 2020 the Fischer Dairy Lift Station was connected to the Wastewater Collection System.

Plant Performance Summary

Walkerton Wastewater Annual Report 2024												Facility Classification: Total Design Capacity: Receiving Waters:		Class 3 Waste Water Treatment 7,560 m3/day Saugeen River			

June 10, 2024 - Effluent Toxicity Sample was collected. Samples were not lethal.

Metals Summary

	Walkerton Wastewater Annual Report 2024										Facility Classification:		Class 3 Waste Water Treatment	
											Total Design Capacity:		7560	m3/day
											Receiving Waters:		Saugeen River	
Final Effluent	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	PWQO	ODWQO
Nickel; Ni (mg/L)														
Min:	0.003	0.004	0.004	0.003	0.004	0.004	0.004	0.006	0.006	0.006	0.005	0.004	0.003	
Max:	0.005	0.005	0.007	0.005	0.006	0.004	0.005	0.008	0.007	0.006	0.007	0.005	0.008	
Avg:	0.004	0.005	0.006	0.004	0.005	0.004	0.005	0.007	0.006	0.006	0.006	0.004	0.005	0.025
Zinc; Zn (mg/L)														
Min:	0.013	0.021	0.019	0.015	0.016	0.019	0.018	0.015	0.014	0.025	0.030	0.021	0.013	
Max:	0.022	0.024	0.039	0.027	0.042	0.021	0.022	0.022	0.017	0.032	0.036	0.027	0.042	
Avg:	0.018	0.023	0.029	0.021	0.028	0.020	0.020	0.018	0.016	0.029	0.033	0.024	0.023	0.030 5.0
Copper (mg/L)														
Min:	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.003	0.003	0.002	0.004	0.003	0.002	
Max:	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.004	0.004	0.005	0.003	0.005	
Avg:	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.004	0.004	0.003	0.005	0.003	0.004	0.005 1.0
Chromium (mg/L)														
Min:	0.0005	0.0003	0.0006	0.0006	0.0004	0.0003	0.0003	0.0002	0.0002	0.0003	0.0003	0.0002	0.0002	
Max:	0.0011	0.0009	0.0008	0.0009	0.0005	0.0003	0.0003	0.0008	0.0009	0.0003	0.0007	0.0003	0.0011	
Avg:	0.0008	0.0006	0.0007	0.0008	0.0005	0.0003	0.0003	0.0004	0.0006	0.0003	0.0005	0.0003	0.0005	0.001 0.05
Notes:														
Limits are taken from the "Provincial Water Quality Objectives" July 1994 and "Ontario Drinking Water Objectives"														

- Nickel concentration in the final effluent averaged 20% of the level stated in the Provincial Water Quality Objectives (PWQO)
- Average Copper levels were under the PWQO objective of 0.005 mg/l. The annual average was 80.0% of the PWQO at an average of 0.004 mg/L. The average concentration of Copper was less than Ontario Drinking Water Objective of 1.0mg/l.
- Average Zinc levels were under the PWQO objective of 0.030 mg/l. The annual average was 76.67% of the PWQO at an average of 0.023 mg/L. The average concentration of Zinc was less than Ontario Drinking Water Objective of 5.0mg/l.
- Average Chromium levels were under the PWQO objective of 0.001 mg/l . The annual average was 50% of the PWQO at an average of 0.0005 mg/l. The average concentration of Chromium was less than Ontario Drinking Water Objective of 0.05mg/l.
- All Processed Hauled Sludge met the requirements for metals listed in the Nutrient Management Act.

Operating Problems Encountered

- Low loading levels to the plant allow for clarifiers and two of the aeration cells to be cycled in and out of operation. This allows for more energy efficiency and improved plant operation.
- The effluent quality from the plant continues to be excellent. Monitoring of Copper, Zinc and Chromium is ongoing.
- There are significant differences between “dry period” flows and “wet period” flows. This is not unusual for older collection systems.

Major Maintenance at the Wastewater Treatment Plant

In 2024 there were no Major Maintenance issues that had a significant impact on the quality of the Final Effluent. Additional maintenance other than routine maintenance included:

2024 Throughout - Raw Sewage pumps were unplugged due to insufficient screening. Upgrades to install a new automatic screen in the wet well are underway.

January 2 - Replaced D.C. motor on floating carriage drive unit.

January 11 - Hays installed ferric tank sensor.

July 17/18 - Floor Savers onsite for cement repair

July 30 - Benshaw Tech onsite to confirm Raw Sewage Pump #2 Drive needs to be replaced

August 14 - Repaired drip trap in basement of office.

September 5 - Replaced sump pump in basement of digester building.

September 11 - Gas Logics onsite to do a boiler service.

October 18 - Hawkins onsite to vacuum rags and grit from grit tank.

November 21 - Price Schonstrom onsite rebuilding Return Activated Sludge Pump #2

November 27 - BM-Ross doing sound checks on blowers

December 19 - Repaired diffusers in aeration tank #2

Collection System Maintenance Activities

April 10, 2024 - Advance Meter Services was on site to complete the Flow meter Verification

October 16, 2024 - Fosters flushed the town sewers.

December 18, 2024 - Hawkins were onsite at Fischer Dairy SPS to clean wet well.

QA/QC Measures

All required regulatory and ECA required analyses were performed by SGS Lab Services. In addition routine in house laboratory sampling was undertaken to ensure compliance. This included, but was not limited to, 30 minute suspended solids, mixed liquor suspended solids, final effluent dissolved and total phosphorus, pH, NH₃&4, temperature and total chlorine (when chlorinating).

Effluent Monitoring Equipment

The following is a list of the monitoring equipment at the WPCP for the final effluent:

- Trojan UV System equipped with SCADA Monitoring
- Hach DR2800 – Total Phosphorus, Dissolved Phosphorus, Ammonia, and Total Solids
- Hach Sension 1 – pH
- Hach DO Analyzer- Dissolved Oxygen
- Hach Pocket colorimeter – Total Cl₂ residual
- Digital Scale - MLSS

Calibration and Service of Equipment

March 26, 2024 - Backflow prevention device inspections by Troy's Plumbing

April 10, 2024 - Advance Meter Services was on site to complete the Raw Sewage Flow meter Verification

April 10, 2024 - Advance Meter Services was on site to complete the Final Effluent Parshall Flume Verification

June 7, 2024 - Calibration of gas detectors by Hetek

July 4, 2024 - The Annual inspection of the lifting equipment was completed.

December 4, 2024 - Calibration of gas detectors by Hetek

Effluent Objectives

Operations staff completed the following testing to ensure Effluent Objectives were met :

1. Ammonia tests are performed to monitor overall plant performance.
2. Dissolved Phosphorus tests were used to indicate the required Ferric Chloride dosage.
3. Total Chlorine was measured to ensure that E Coli. levels were kept below the objective of an Annual Geometric Mean Density of 150 cfu/100ml.
4. pH measurements were taken to ensure levels were between 6.0 and 9.0 and water quality.
5. Dissolved oxygen was measured to ensure that adequate aeration is being carried out.
6. Mixed liquor suspended solids tests are used to determine adequate microbiological populations and to set the sludge wasting rates.

Biosolids Volume

The total volume of biosolids hauled in 2024 was approximately 2255 m³. This volume increased from 2023, due to partially cleaning out the Secondary Digester.

The 2024 Biosolids were hauled to NASM Plan#'s: 60069, and 60058. The haulage took place on September 4th and 5th. In 2025 it is expected that a similar amount of biosolids will be hauled.

Customer Complaints

No complaints were known to have been received.

By-Passes/Abnormal Discharge Events

There were no by-passes in 2024.

Information for the District Manager

No additional information was known to have been requested from the District Manager.

Recommendations


1. An alternative to the coarse bar screen, such as an automated screen, should be considered to reduce excess solids into the entry of the wet well of the sewage pumping station. This would also decrease the wear on the sewage pumps and the frequency of plugging. (These upgrades are currently underway)
2. Upgrading of the sewage collection system should continue to take place. A decrease in infiltration would decrease costs and risks of operational by-passes during extreme wet periods.
3. Long term plans to replace secondary clarifier floating traveling bridges with chain and flight sludge collection should be considered due to the reliability issues of the floating carriage system.
4. Investigate concrete failure and steps to repair or prevent further corrosion.
5. Install a continuous gas monitor in the dry/wet well including an audio/visual alarm inside and outside of the building.

Walkerton Sewage Treatment Plant

2024 Annual Report

Appendix 1

Sludge Holding Tank Summary

		Walkerton Wastewater Annual Report								2024	Facility Classification:		Class 3 Waste Water Treatment	
											Total Design Capacity:		7,560 m3/day	
											Receiving Waters:		Saugeen River	
		Sludge Holding Tank												
	Phosphorus Average	Total Suspended Solids	Ammonia Average	Arsenic Average	Cadium Average	Cobalt Average	Chromium Average	Copper Average	Mercury Average	Molybendum Average	Nickel Average	Lead Average	Selenium Average	Zinc Average
Month	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Jan '24														
Feb '24														
Mar '24														
Apr '24	710	22,800	653.0	0.20	0.02	0.21	2.10	18.0	0.02	0.25	1.60	0.6	0.60	19.00
May '24	760	21,200	602.0	0.04	0.02	0.20	1.90	17.0	0.02	0.23	1.40	0.5	0.50	18.00
Jun '24														
Jul '24														
Aug '24	1,040	29,650	588.0	0.70	0.03	0.29	3.00	26.0	0.03	0.44	2.20	0.7	0.90	28.50
Sep '24														
Oct '24														
Nov '24														
Dec '24														
Average	836.67	24,550.00	614.33	0.31	0.02	0.23	2.33	20.33	0.02	0.31	1.73	0.60	0.67	21.83
Ratio				1961	26329	2633	263	30	29606	2003	354	1024	922	28
Min Limit				100	500	50	6	10	1500	180	40	15	500	4