2025

City of Dryden

Waste-Water Treatment Plant Annual Report

A summary of 2024 events.

B.Poole
City of Dryden
1/1/2025

Dryden Waste-Water Treatment Plant Annual Report 2024

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Final Effluent Monitoring Data:

Date	PH 6.0 - 9.5 Limit	Suspended Solids 25Mg/L Limit	CBOD5 25Mg/L Limit	Total Ammonia Nitrogen 3Mg/l Limit	E. Coli 150/100Ml. Limit *May 1-Oct. 31
	Lab Result	Lab Result	Lab Result	Lab Result	Lab Result
Jan. 2	7.4	2.7	1.6	0.21	7000
Jan. 16	7.18	3.5	1.7	0.13	2100
Feb. 5	7.15	7.0	2.8	0.43	6300
Feb. 20	6.96	2.7	1.9	0.24	3260
Mar. 4	6.8	5.7	1.0	0.33	2180
Mar. 18	7.15	7.0	4.3	0.94	11200
Apr.1&10	7.1	5.0	3.1	0.55	1500
Apr. 15	7.1	4.7	1.9	0.67	1860
May 6	7.53	14.0	10.3	14.0	68
May 13	N/A	N/A	N/A	N/A	212
May 21	7.44	5.3	3.8	8.11	28
May 28	N/A	N/A	N/A	N/A	235
June 4	7.51	13.0	8.2	7.02	13
June 10	N/A	N/A	N/A	N/A	2
June 17	7.1	5.7	5.2	8.26	28
June 24	N/A	N/A	N/A	N/A	14
July 2	7.43	1.3	1.0	10.2	36
July 8	N/A	N/A	N/A	N/A	7
July 15	7.15	2.3	0.9	6.91	4
July 22	N/A	N/A	N/A	N/A	7
July 29	N/A	N/A	N/A	N/A	5
Aug. 6	7.2	2.7	1.2	.32	8
Aug. 12	N/A	N/A	N/A	N/A	6
Aug. 19	7.1	1.7	1.0	0.31	2
Aug. 26	N/A	N/A	N/A	N/A	8
Sept. 3	7.3	4.5	1.0	0.29	5
Sept. 9	N/A	N/A	N/A	N/A	5
Sept. 16	7.63	2.3	1.0	0.26	40
Sept. 23	N/A	N/A	N/A	N/A	6
Sept. 30	N/A	N/A	N/A	N/A	1
Oct. 7	6.95	3.0	1.4	0.06	1
Oct. 15	N/A	N/A	N/A	N/A	5
Oct. 21	7.15	0.67	1.6	0.22	7
Oct. 28	N/A	N/A	N/A	N/A	4
Nov. 4	7.14	1.3	2.7	0.12	2
Nov. 18	7.21	2.7	1.7	0.17	6600
Dec. 2	7.54	3.7	0.9	0.21	2540
Dec. 16	7.38	3.7	2.1	0.20	8900

*Disinfection is required from May 1st until Oct. 31st only.

Acute Toxicity Bioassay Update	July 30, 2023	96 Hr.	Trout	LC50 Test	No Mortality / Stress Observed	Pass

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Effluent Monitoring Comparison:

Table 1 – Effluent Objectives		2024 Effluent
Effluent Parameter	Concentration objective	Maximum Concentration Results
CBOD5	15 mg/L	10.3 mg/L – May 6, 2024
Total Suspended Solids	15 mg/L	14.0 mg/L – May 6, 2024
Total Ammonia Nitrogen	3.0 mg/L (temp. at or above 14º C)	14.0 mg/L – May 6, 2024
E. Coli	150 CFU/100 ml. Monthly Geometric Mean Density May 1st to Oct. 31st only	98.69 CFU/100 Ml. – May 2024
Table 2 – Effluent Limits		**2024 Effluent**
Effluent Parameter	Average Concentration	Results
CBOD5 Annual Avg.	25 mg/L	2.6 mg/l
TSS Annual Avg.	25 mg/L	4.4 mg/L
Effluent Ph	6.0 to 9.5 inclusive at all times	High – 7.63 mg/L – Sept. 16,2024 Low – 6.8 mg/L - Mar. 4, 2024
E-Coli Monthly Geometric Mean Density	200 CFU/100ml (May 1st-Oct. 31st)	98.69 CFU/100ml

The Effluent monitoring data compared to the Effluent limits set out in table 2 are mostly being met consistently.

The Wastewater Plant took SBR #2 out of service to perform maintenance to the air diffuser system. While SBR #2 was out of service and we were operating at 50%, the results for CBOD5, TSS and TAN were above normal, but only the TAN was above our concentration objective.

The overall process and operation of the Wastewater Treatment Plant is adequate to keep the concentration levels of the parameters set out in Table #2 well below the limits.

When the Wastewater Plant is operating at full capacity, the effluent objectives of Table #1 are being met. The TAN results from May 6 to July 15th were above our concentration objective for TAN. This was due to the plant running at 50% capacity.

The rated capacity of the Wastewater Plant is 5819 m3/day. The Wastewater plant operated the year at a daily average of 2922 m3/day. This is well below the rated capacity of the plant.

Problems & Corrective Actions:

- Our grit snail belt failed. Removed the grit snail from service until the new belt arrived. Ordered new belt and replaced in September.

- Flushing water pump motor was failing. Took out of service and replaced when the new motor arrived.
- Since we had a serious issue with SBR #1 last year, we decided to do a full inspection of SBR #2. The tank was drained and cleaned out. The whole piping system for the diffusers was inspected and no issues were found like in SBR #1. While it was out of service, the 1200+ air pots were changed out with new membranes.
- The lights in the pump house were moved as they got in the way of changing out the filters for the HVAC unit. At this time, the lights were replaced with new LED fixtures that offer brighter illumination and longer life.
- Installed a dissolved oxygen sensor in the effluent chamber. This gives us a continuous DO reading of the effluent.
- Three new heat pumps were installed to start replacing the old ones. This provides heating and cooling for the occupied rooms, and heating for the unit heaters throughout the plant.

Maintenance Summary:

- Wet-Well Cleaning – Uni-Jet did our pump house well cleaning this year as it has been 10 years of operating the plant without ever entering the tank. They entered the tanks and did a full clean. They also untangled one of our low-level lockout floats that had been inoperable for some time.
- UV Cleaning – Operators cleaned the UV units after they were removed for the season. UV units are cleaned using a soak in Citric acid with aeration. Additional Spare Lamps and Quartz Flow Cell
- HVAC Filter Change – Regular filter changes on all air handling units changed semi-annually.
- Lowe Mechanical completed boiler maintenance on main building boilers and pump well building boilers.
- Generator testing and load testing – City Fleet mechanics perform monthly generator testing and maintenance. Annual load testing is contracted out. Gal Power completed load testing on May 27/2024.
- Annual and Quarterly SCADA maintenance provided by Indus Automation.
- Digital Engineering completed a maintenance inspection on all blowers on January 17,2025 Additional regular maintenance on the blowers included filter changes.
- Regular greasing and oil checks on pumps.
- Lakeside Calibrations calibrating all instruments on Sept. 17, 2024.
- Clow Darling completed inspections and repairs on all back-flow preventers.
- Kone Cranes Inspection of Lifting Devices

Effluent Quality Assurance & Control Measures:

Operators conduct daily in-house laboratory tests for PH & Temperature on the influent and PH, Temperature and Dissolved Oxygen on the Effluent. Daily tests are also done to determine sludge settling and blanket thickness. Operators conduct weekly sampling for Mixed Liquor Volatile Suspended Solids and Sludge Volume Index. Monthly & Bi-Monthly samples are sent to an accredited lab to test for:

- PH
- Total Suspended solids
- Total Ammonia
- Un-ionized Ammonia
- Total Kjeldahl Nitrogen
- Total Phosphorus
- E-Coli
- Biochemical Oxygen Demand
- Carbonaceous BOD

*UV Disinfection is only performed from May 1st to October 31st. Sampling for E-coli is increased to weekly during this period.

Effluent is tested annually for un-ionized ammonia as per the Federal Wastewater Systems Effluent Regulations (WSER) using the LC-50 method. Quarterly effluent reporting as per the WSER is also completed.

Operators control the process by monitoring UV dosages, removing sludge from digesters for dewatering and disposal, adjusting waste volumes removed from the SBR's and physically observing any changes in mixed liquor color, odor, and foam.

Dryden continued to participate in Ontario's Wastewater Surveillance Initiative as part of Ontario's Covid-19 Preparedness Plan up until Aug. 20, 2024. At this time, the funding for this initiative was discontinued by the Provincial government. Dryden was one of two communities chosen to represent NW Ontario. Weekly samples were sent to test for the presence of genetic material in wastewater effluent. Results were shared with the MECP and the North-West Health Unit.

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Monitoring Equipment & Calibration:

Monitoring equipment consists of Flow Monitors to record influent flow to the plant and Effluent flow leaving the plant. Flow volume to the sludge press is also monitored. Dissolved Oxygen sensors are in the 2 SBR tanks and the effluent chamber to monitor dissolved oxygen levels in those areas. UV levels are monitored to ensure proper dosage. Monitoring equipment was calibrated by Lakeside Process Controls on Sept. 17,2024.

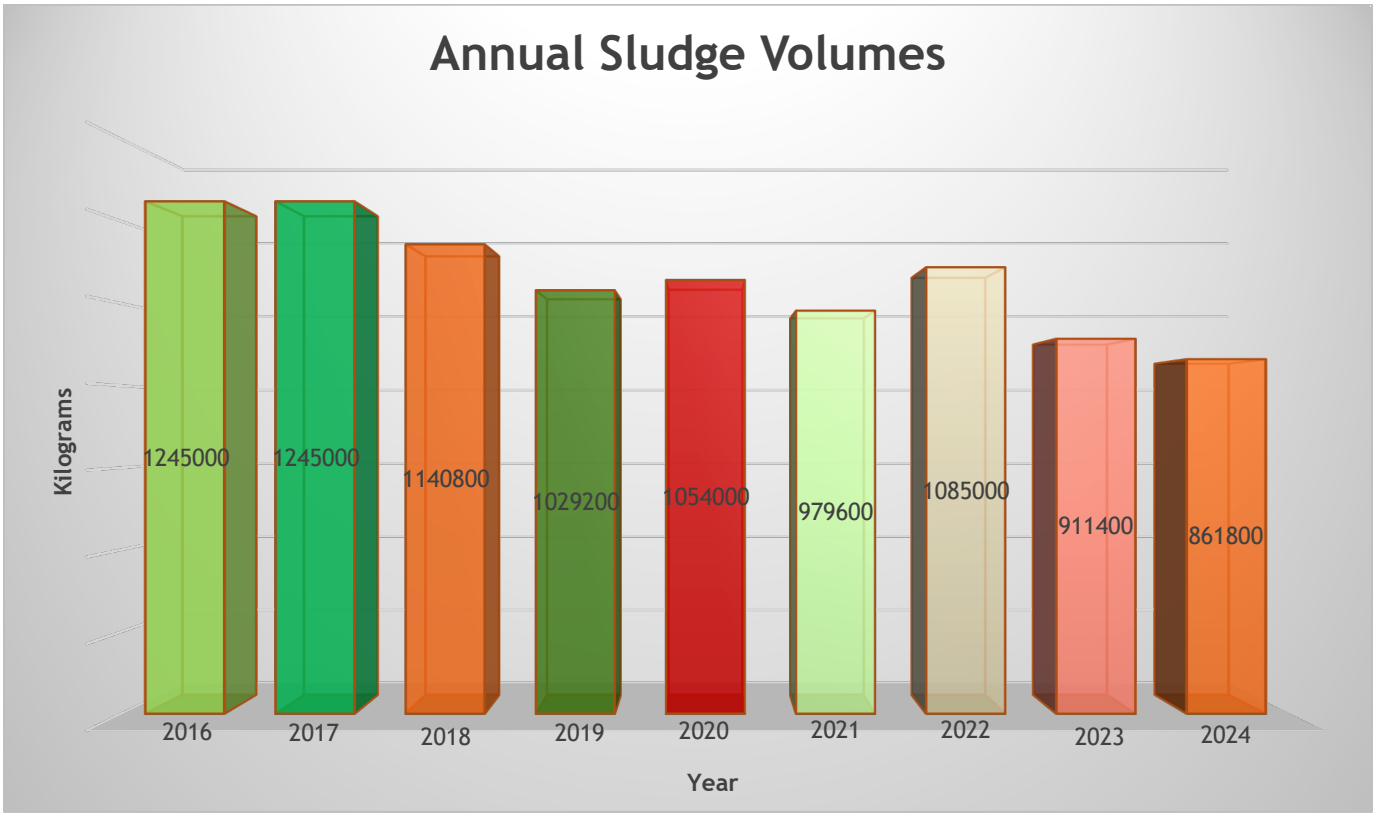
Condition 6 – Effluent Objectives:

- Actual lab test results for CBOD5, Total Suspended Solids and E-Coli are usually well below the Effluent Objectives of Condition 6.
- There were no raw sewage bypasses in 2024.
- During the time that the plant was only running at 50% capacity, the Sewage Treatment Plant had trouble trying to maintain the total Ammonia Nitrogen objective for Condition 6.
- The 2024 CBOD5 results were all under the objective limit.

Sludge Volume Tabulation & Anticipated Volumes:

- Sludge continues to be hauled to Gordon Rd. land fill. All sludges were deposited in the form of a dry cake. There was 861,800 Kgs of sludge deposited to the Gordon Rd. Landfill in 2024. Sludge volumes are anticipated to remain similar in 2025.

2024 Sludge Volumes				
Month	**Loads From SHT #1**	**Loads From SHT #2**	**SHT Avg. % Solids**	**Avg. Kg's/Load**
January	9	8	1.37	6,200
February	8	7	1.3	6,200
March	7	6	1.36	6,200
April	9	8	1.49	6,200
May	3	3	1.76	6,200
June	2	2	1.48	6,200
July	5	5	1.84	6,200
August	7	7	1.65	6,200
September	7	6	1.6	6,200
October	3	4	1.5	6,200
November	7	6	1.46	6,200
December	6	4	1.39	6,200
Totals	**73**	**66**	**1.52**	**861,800 Kg**
***SHT = Sludge Holding Tank**				



Complaint Summary & Corrective Actions:

No complaints were received in 2024.

Bypass, Spill or Abnormal Discharge Summary:

There were no Sewage By-Pass events in 2024.

Other Information Required:

No other information.