



Blyth Sewage Treatment Plant 2024 Annual Report

Owned by the Township of North Huron and Operated by Veolia Water Canada

Blyth Sewage Treatment Plant 2024 Annual Report

Blyth STP Environmental Compliance Approval #9189-A6UPSM & (DRAFT CLI ECA 090-W601 Issue #1)

The Following is a summary and discussion of the 2024 Blyth Sewage treatment plant operation and summary of compliance limits as set forth in the ECA.

The Annual Average Rated Capacity of the Treatment Unit is 730 m3/d with Peak Capacity of 2730 m3/d.

Based on Final Effluent Flows, the 2024 annual average flows were 476m3/day which represents 65.2% of the annual 730 m3/day capacity. The Peak flow of 1520m3/d occurred in April 2024 and represents 56% of the Peak Capacity of the plant.

Bypass Events

There were 6 Secondary Bypass events for the Blyth Sewage Treatment Plant in 2024 with the 6th Bypass event remaining in effect, it will remain in place until a solution to the damaged filters is reached. All of the bypasses were measured secondary bypasses, with the sand filters being bypassed. The bypasses occurred due to heavy precipitation and mechanical failure. The total number of bypass hours for 2024 were: 5224.12 hours with a total measured volume of 81,022m3

Compliance limits

The plant consistently removed 98.2% Biological Oxygen demand, 93.0% total suspended solids, 95.9% phosphorous and 96.2% total kjeldahl nitrogen which is well within the range of removals for a tertiary sewage plant and consistent with previous yearly operations other than a slight drop in Total Suspended Solids removal, this is connected to the failing Filter system.

In June, July & December 2024 our Monthly Geometric Mean for E.Coli exceeded our Limit of 200cfu/100mL with a Monthly Geometric Mean result of 253cfu/100mL (June), 370 cfu/100mL (July) & 225 cfu/100mL (December)- these exceedances were reported to our MECP Inspector, Huron Perth Public Health and System Owner at month end.

In May, June, July & August 2024 Our Monthly Average for Total Suspended Solids exceeded our limit of 5mg/L with the following results. 16.4mg/L (May), 16.1mg/L (June), 10.9mg/L (July), 7.6mg/L (August)

In May 2024 our Monthly Average for Total Phosphorous exceeded our Limit of 0.3mg/L with a result of 0.33mg/ L

In September 2024 Our Monthly Average Carbonaceous Biochemical Oxygen Demand exceeded our limit of 5mg/L with a monthly average of 5.5mg/L

Operational problems

The Blyth Sewage treatment plant has been dechlorinating the final effluent using calcium thiosulfate since April 2022 under a temporary approval. In 2024 we had an average chlorine residual of 0.02 mg/L. The Township has Engineering working on The UV system and a replacement for the sand filters at the Blyth Sewage treatment plant which should be installed and completed in the future.

The Filters have deteriorated over the years and have failed, it has been reported and recommended the filter be upgraded or replaced since 2015. The Township is working with engineering to get replacement filters installed at the Blyth Plant. In a Non-Conformance Letter provided to the Township by the Ministry of the Environment Conservation and Parks the Township was instructed to have Temporary Portable Filters installed by April 15, 2025. After investigating temporary filtration the Township has decided to proceed with a temporary repair of the existing system instead of the Portable Filter Option.

While investigating the filter issues we also identified the clarifier arm that rotates around the bottom of the clarifier had become detached from its rotating mechanism and therefore was not operating as needed. We had a welding company come on site and repair the clarifier arms and weirs.

It has been noted to the Township that the airline running from the blowers to aeration has a leak and we recommended this be repaired with the UV/ Filter replacement project as well as addressing the aging Blowers.

Maintenance

Routine maintenance was performed throughout the year, according to the computerized maintenance program Jobsplus.

Unplanned maintenance activities in 2024:

Repair clarifier arm and weirs

Installed a sensaphone remote monitoring system at the SPS

Replaced Pneumatic Valves on Filters

Purchased and installed new sample station

Raw sewage pump repair

Quality Control Monitoring

Monitoring includes an online dissolved oxygen sensor which indicates loading and raw sewage quality, aeration basin solids content and proper operations of the aerators. Secondary clarifier effluent is monitored for dissolved phosphorous to determine adequate ferric chloride dosage in aeration basins as well as general clarity and surface debris which indicates proper solids removal. Adequate return to the aeration and wasting rates.

The flowmeter measures the flow out of the treatment plant and is used to base dosages and treatment plant capacity. Results of monitoring activities can be viewed on the monthly spreadsheets.

With the breakdown of the Filters in June we were directed to do additional monitoring samples twice a week and send results to our MECP inspector, in December 2024 we were advised we could reduce our sample monitoring, results of all sampling is still being sent to our MECP inspector.

Calibration and Maintenance

The flowmeters are calibrated annually. Advanced Meter Systems calibrated the flow meters and the V-Notch weir, the certificates are stored at the PUC Office. We aim to Calibration the pH analyzer monthly and record it in the log books and daily site spreadsheets.

Efforts to meet effluent objectives

As described in the quality control monitoring section, analytic and visual parameters are used as indicators of process efficiency and should fall within the critical control points. A summary of values was developed and is in the Blyth sewage treatment facility operations manual for reference and historically have been adequate to maintain compliance.

Biosolids Generated

A total of 547cubic meters were utilized in 2024 and hauled/applied by Ontario Greenways Inc to agriculture lands. Approx. 900 cubic meters were hauled from the storage tank and transferred to the Wingham Lagoon in April 2024 because with the plant upsets and operational issues we were having the storage tank filled up quicker than anticipated.

We would predict roughly 900m³ will be utilized, hauled and applied in 2025, assuming there are no further process upsets.

Complaints

There were no complaints to report during the 2024 operating year.

Tables

Attached in the report are:

Data summary

Compliance summary

Sludge metals summary

Bypass and overflow events

Blyth Sewage Treatment Plant

2024 DATA SUMMARY

Flows	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Avg Flow	Max	% Cap
Total Flows	23381	17074	18965	19190	19889	11270	11872	12213	8917	8857	8611	13517	173756	476	23381	65.2
Avg	754	589	612	640	642	376	383	394	297	286	287	436			754	
Max	1364	830	1027	1520	1084	676	613	924	517	471	389	1233			1520	55.7

Raw Sewage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave		
														Max.	Removal Efficiency%
BOD5	193	171	232	127	198	184	215	161	252	276	226	153	198.83	276	98.2
TSS	99	92	141	72	108	117	128	73	150	152	93	72	107.94	152	93.0
TP	2.43	2.69	2.85	2.83	3.23	3	4.82	4.04	5.55	5.44	4.79	3.32	3.78	5.55	95.9
TKN	21.97	23.20	25.80	23.50	28.07	32	39.66	34.05	38.95	38.44	34.75	24.74	30.39	39.66	96.2
pH	7.71	7.74	7.74	7.70	7.65	7.32	7.69	7.48	7.56	7.35	7.39	7.45	7.56	7.74	

Final Effluent	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Max.
E. Coli	131	147	65	19	126	252.98	369.61	62.11	46.15	141.76	67.74	224.95	138	370
CBOD5	2	3.50	4.50	2.00	4.00	4.63	2.56	2.89	5.50	3.70	3.13	3.89	3.55	6
TSS	2.00	9.00	6.50	3.50	16.42	16.13	10.89	7.60	4.50	4.30	5.25	4.00	7.51	16.42
TP	0.13	0.13	0.11	0.08	0.33	0.26	0.23	0.14	0.12	0.09	0.13	0.11	0.15	0.33
TKN	0.77	2.50	0.95	0.80	0.65	1.56	1.21	1.13	1.25	1.29	0.79	0.87	1.15	2.50
NH3&4	0.20	0.75	0.20	0.15	0.10	0.78	0.18	0.11	0.48	0.14	0.19	0.11	0.28	0.78
NO2	0.15	0.42	0.11	0.17	0.15	0.98	0.04	0.06	0.29	0.19	0.06	0.03	0.22	0.98
NO3	12.02	11.14	17.20	17.30	22.80	23.25	26.74	26.03	24.88	22.91	25.63	17.46	20.61	26.74
pH	7.30	7.44	7.43	7.36	7.37	7.36	7.36	7.40	7.36	7.36	7.46	7.44	7.39	7.46
Cl2 res. (before D-chlor)	0.12	0.28	0.25	0.17	0.18	0.28	0.32	0.40	0.43	0.40	0.52	0.40	0.31	0.52

Blyth STP Compliance Summary 2024

Flows	January	February	March	April	May	June	July	August	September	October	November	December
Peak Flow	2730	2730	2730	2730	2730	2730	2730	2730	2730	2730	2730	2730
Actual	1364	830	1027	1520	1084	676	613	924	517	471	389	1233
Comp. Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Av Day Flow	730	730	730	730	730	730	730	730	730	730	730	730
Actual	754	589	612	640	642	376	383	394	297	286	287	436
Comp. Y/N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

CBOD&TSS	15	15	15	15	5	5	5	5	5	5	15	15
CBOD	2.3	3.5	4.5	2.0	4.0	4.6	2.6	2.9	5.5	3.7	3.1	3.9
TSS	2.0	9.0	6.5	3.5	16.4	16.1	10.9	7.6	4.5	4.3	5.3	4.0
Loading Kg	11	11	11	11	3.7	3.7	3.7	3.7	3.7	3.7	11	11
CBOD Kg	1.76	2.06	2.75	1.28	2.57	1.74	0.98	1.14	1.63	1.06	0.90	1.70
TSS Kg	1.51	5.30	3.98	2.24	10.53	6.06	4.17	2.99	1.34	1.23	1.51	1.74
Comp. Y/N	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y

Tot P	1	1	1	1	0.3	0.3	0.3	0.3	0.3	0.3	1	1
Actual	0.13	0.13	0.11	0.08	0.33	0.26	0.23	0.14	0.12	0.09	0.13	0.11
TP Load Kg	0.7	0.7	0.7	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.7	0.7
Act. TP Kg	0.10	0.07	0.06	0.05	0.21	0.10	0.09	0.06	0.03	0.03	0.04	0.05
Comp. Y/N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y

NH 3&4	17	21	14	6	3	1	1	1	1	3	3	11
Actual	0.20	0.75	0.20	0.15	0.10	0.78	0.18	0.11	0.48	0.14	0.19	0.11
Comp. Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

NH 3	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Actual	0.0007	0.0037	0.0008	0.0008	0.0006	0.0021	0.0021	0.0011	0.0047	0.0011	0.0017	0.0006
Comp. Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Tot Cl Res (limit) BEFORE d-chlor	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Month Max.	0.36	0.28	0.25	0.40	0.31	1.04	0.56	0.61	0.86	0.62	0.64	0.64
Monthly Average	0.12	0.12	0.16	0.17	0.18	0.28	0.32	0.40	0.43	0.40	0.40	0.40
Comp. Y/N	Y	Y	Y	Y	Y	N	N	N	N	N	N	N

Tot Cl Res (limit) discharge-after d-chlor	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	Annual Average Limit 0.02
Month Max.	0.03	0.03	0.03	0.03	0.03	0.08	0.04	0.05	0.03	0.03	0.03	0.04	
Monthly Average	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.03	0.02	0.02	0.02	0.02	0.02
Comp. Y/N	Y	N	N	N	N	N	N	N	Y	N	N	N	Y

pH	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9	6.5-9
Min	7.17	7.25	7.19	7.19	7.17	7.12	7.10	7.06	7.00	7.15	7.21	7.26
Max	7.56	7.61	7.65	7.65	7.92	7.58	7.67	7.58	7.55	7.56	7.71	7.63
Average	7.30	7.43	7.43	7.36	7.37	7.36	7.36	7.40	7.36	7.36	7.46	7.44
Comp. Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

E. Coli	200	200	200	200	200	200	200	200	200	200	200	200
Actual GMD	131	147	65	19	126	253	370	62	46	142	68	225
Comp. Y/N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N

Quarterly Metals Calculations Report 2024					
Parameter					
Date	Jan 2-24	Mar 19-24	Apr 9-24	Oct 8-24	Average
Total Solids	12300	24700	24800	15100	20600
TKN	776	1280	1650	748	1235.333333
NH 3&4	151	208	225	199	195
NO2	< 3	3	< 3	< 3	3.00
NO3	< 3	< 3	< 3	< 3	3
NO2+NO3	< 3	3	< 3	< 3	3.0
Arsenic	< 0.1	0.2	0.2	0.1	0.2
Cadmium	0.007	0.013	0.013	0.006	0.011
Cobalt	0.06	0.12	0.11	0.11	0.10
Chromium	0.95	1.8	1.7	1.7	1.48
Copper	3.6	6.6	6.6	3.8	5.6
Mercury	0.002	0.003	0.003	0.002	0.003
Potassium	100	120	110	130	110
Molybdenum	0.13	0.2	0.19	0.17	0.17
Nickel	0.32	0.67	0.62	0.5	0.54
Phosphorous	360	620	520	310	500
Lead	0.2	0.4	0.4	0.3	0.3
Selenium	< 0.1	< 0.1	0.1	< 0.1	0.1
Zinc	6	11	10	6	9
Ecoli DW	235772	246964	266129	139073	249621.6667
Ecoli /100 ml	290000	610000	660000	210000	520000

Table 1 BYPASS AND OVERFLOW EVENTS Blyth STP

FACILITY NAME: Blyth STP 2024

Sample Results

Date (dd/mm/yy)	Location	Type (See Legend for description)	Start Time	Duration (hours)	Volume (1,000m ³)	M/E	Disinfection (Y/N)	Treatment (Y/N)	Reason Code*	CBOD ₅ (mg/L)	TSS (mg/L)	TP (mg/L)	TKN (mg/L)	A+A (mg/L)	E.Coli (cfu/100 ml)	Ref #
Jan 9-24	Blyth	Secondary	2105	62.34	2.188	M	Y	Y	1	5	6	0.25	1.4	0.2	410	1-4KPH7S
Jan 26-24	Blyth	Secondary	07:09	51	2.624	M/E	Y	Y	1	6	10	0.08	3.3	1.1	1280	1-4M885R
Feb 10-24	Blyth	Secondary	1841	13	0.343	M/E	Y	Y	4	5	3	0.07	1.4	0.7	1000	1-4NCJHG
Apr 12-24	Blyth	Secondary	1110	68.16	2.745	M	y	y	1	5	15	0.22	2	1.8	260	1-5OQ8V6
Apr 30-24	Blyth	Secondary	0949	4.84	0.199	M	y	y	1	6	21	0.34	0.5	0.2	460	1-6CMGHF
June 5-24-Ongoing	Blyth	SB	1522	5024.78	72.923	M	Y	Y	4	5.0	14	0.26	1.7	0.87	199	1-7DW58V
Total				5224.12	81.022											

Legend

PB = Primary Bypass
 SB = Secondary Bypass
 STPO = Sewage Treatment Plant Overflow
 CSO = Combined Sewer Overflow
 SSO = Sanitary Sewer Overflow
 STWO = Satellite Treatment Works Overflow

M = Measured Y = Yes
 E = Estimated N = No

*Reason Codes:

1 = Heavy Precipitation	2 = Spring Runoff	3 = Infiltration	4 = Mechanical/Equipment Failure	5 = Pipe Failures(break/leak/plugged)	6 = Process Upsets	7 = Power Outages	8 = Unknown	9 = Other, please comment below.
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Comments: June 5th Bypass is ongoing until further notice

MUMPS reports reflect Bypass samples for July/ August/ September/Oct/Nov/Dec 2024

Report Completed by: Veolia Water

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