Blyth Sewage Treatment Plant

2025 Annual Report

PREPARED BY

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Blyth Sewage Treatment Plant 2025 Annual Report

Blyth STP ECA #9189-A6UPSM issued Feb 23, 2016 & (DRAFT CLI ECA 090-W601 Issue #1)

The Following is a summary and discussion of the 2025 Blyth Sewage treatment plant operation and summary of compliance limits as set forth in the ECA 9189-A6UPSM issued Feb 23, 2016.

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

Based on Raw Sewage Flows, the 2024 annual average flows were 432m3/day which represents 59.1% of the annual 730 m3/day capacity. The Peak flow of 2634m3/d occurred in March 2025 and represents 56% of the Peak Capacity of the plant.

Bypass Events

There were 3 Secondary Bypass events for the Blyth Sewage Treatment Plant in 2025 with the 1st Bypass event carrying over from June 2024 to April 2025. This was due to damaged filters. All of the bypasses were measured as 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 2025 were: 7478.08 hours with a total measured volume of 132,844m3.

Compliance limits

The plant consistently removed 98.3% Biological Oxygen demand, 96.2% total suspended solids, 96.2% phosphorous and 96.7% total kjeldahl nitrogen which is well within the range of removals for a tertiary sewage plant and consistent with previous yearly operations.

Operational problems

The Blyth Sewage treatment plant has been dechlorinating the final effluent using calcium thiosulfate since April 2022 under a temporary approval. In 2025 we had an average discharging chlorine residual of 0.018mg/L. The Township has Engineering working on The UV system and sand filters for the Blyth Sewage treatment plant which should be installed and completed in the future.

The Filters have deteriorated over the years and failed in 2024, 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 the meantime the old filters were temporarily repaired on April 15, 2025 as instructed in the Non- Conformance letter provided by the Ministry of Environment Parks and Conservation.

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 2025:

- Repair existing filters (temporary repair)
- Replaced Pneumatic Valves on Filters
- Backwash waste pump repaired
- 2 new return pumps installed and guide rails replaced
- New pH probe installed (and rerouted into the filter building from Cl2 contact channel)

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 phosphorus 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.

Calibration and Maintenance

The flowmeters are calibrated annually. Advanced Meter Systems calibrated the flow meter (V-Notch weir) in 2025. We aim to calibrate the pH analyzer monthly and record it in the log books and daily site spreadsheets. The pH analyzer also gets calibrated yearly by a third party company; cleartech calibrated it in 2025. The certificates are stored at the PUC Office.

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 859 cubic meters were utilized in 2025 and hauled/applied by Ontario Greenways Inc to agriculture lands.

We would predict roughly 936m3 will be utilized, hauled and applied in 2026, assuming there are no process upsets.

Complaints

There were no complaints to report during the 2025 operating year.

List Of Tables

Table 1 – *Data Summary 2025*

Flows	January	February	March	April	May	June	July	August	September	October	November	December	Total	Avg Flow	Max.	% Cap
Total Flows	11842	10210	26386	17357	11900	11194	9598	9465	9344	10810	11922	17528	157556	432	26386	59.1
Avg	382	365	851	579	384	373	310	305	311	349	397	565			851	0.0
Max	614	609	2634	1887	493	497	453	403	460	641	581	1789			2634	360.8
Raw Sewage														**Average**	**Max.**	**Removal %**
BOD5	139	249	60	109	240	165	259	174	187	161	442	106		190.59	442	98.3
TSS	95	151	53	89	107	97	150	131	68	129	223	92		115.17	223	96.2
TP	3.83	4.09	1.64	2.13	4.25	4	5.26	4.20	4.24	3.78	6.14	2.74		3.88	6.14	96.2
TKN	25.75	31.00	15.15	18.30	32.01	30	36.90	33.00	37.20	31.75	48.70	26.35		30.48	48.70	96.7
pH	7.47	7.49	7.50	7.79	7.50	7.47	7.49	7.31	7.30	7.34	7.57	7.59		7.48	7.79	
Final Effluent																
E. Coli	84	15	40	10	7	12.43	33.27	14.28	10.72	31.62	2.45	27.39		24	84	
CBOD5	5	5.00	6.50	3.50	2.00	2.00	2.00	2.00	3.00	3.00	3.50	2.00		3.26	7	
TSS	7.33	8.50	6.00	6.00	3.63	3.16	3.00	2.00	4.00	2.00	5.00	2.50		4.43	8.50	
TP	0.17	0.18	0.17	0.19	0.14	0.16	0.08	0.09	0.17	0.12	0.20	0.12		0.15	0.20	
TKN	1.00	0.95	1.10	0.90	2.12	0.95	0.70	0.50	0.65	1.30	0.80	1.20		1.01	2.12	
NH3&4	0.20	0.10	0.35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20		0.14	0.35	
NO2	0.08	0.17	1.16	0.08	0.03	0.03	0.03	0.17	0.03	0.03	0.03	0.10		0.16	1.16	
NO3	16.30	14.50	15.45	13.80	17.62	23.10	29.33	30.75	20.80	18.95	14.65	10.43		18.81	30.75	
pH	7.55	7.65	7.51	7.59	7.43	7.26	6.79	7.05	7.46	7.24	7.34	7.36		7.35	7.65	
Tot Cl Res.	0.56	1.57	2.09	0.72	0.69	0.39	0.59	0.44	0.42	0.34	0.32	0.31		0.70	2.09	

Table 2 – *Compliance Summary 2025*

Yellow highlights are Objectives not limits

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	614	609	2634	1887	493	497	453	403	460	641	581	1789
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	382	365	851	579	384	373	310	305	311	349	397	565
Comp. Y/N	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
CBOD&TSS	15	15	15	15	5	5	5	5	5	5	15	15
CBOD	4.7	5.0	6.5	3.5	2.00	2.00	2.00	2.00	3.00	3.00	3.50	2.00
TSS	7.3	8.5	6.0	6.0	3.6	3.2	3.0	2.0	4.0	2.0	5.0	2.5
Loading Kg	11	11	11	11	3.7	3.7	3.7	3.7	3.7	3.7	11	11
CBOD Kg	1.78	1.82	5.53	2.02	0.77	0.75	0.62	0.61	0.93	1.05	1.39	1.13
TSS Kg	2.80	3.10	5.11	3.47	1.40	1.18	0.93	0.61	1.25	0.70	1.99	1.41
Comp. Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Tot P	1	1	1	1	0.3	0.3	0.3	0.3	0.3	0.3	1	1
Actual	0.17	0.18	0.17	0.19	0.14	0.16	0.08	0.09	0.17	0.12	0.20	0.12
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	0.07	0.06	0.14	0.11	0.05	0.06	0.03	0.03	0.05	0.04	0.08	0.07
Comp. Y/N	Y	Y	Y	Y	Y	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	0.10	0.35	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20
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	0.0009	0.0009	0.0022	0.0011	0.0010	0.0003	0.0002	0.0001	0.0006	0.0003	0.0004	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.	2.20	1.57	2.09	1.28	1.09	0.48	1.42	0.61	0.63	0.58	0.53	0.53	
Monthly Average	0.56	1.04	0.92	0.72	0.69	0.39	0.59	0.44	0.42	0.34	0.31	0.31	
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	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.02	
Monthly Average	0.021	0.015	0.013	0.015	0.019	0.018	0.021	0.017	0.020	0.03	0.02	0.01	0.018
Comp. Y/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	7.60	7.76	7.62	7.64	7.32	6.92	6.13	6.29	6.95	6.84	7.12	7.48	
Max	7.99	8.08	7.85	7.84	7.84	7.78	7.62	7.04	7.47	7.63	7.46	7.64	
Average	7.55	7.51	7.51	7.59	7.43	7.26	6.79	7.05	7.46	7.24	7.34	7.36	
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	84	15	40	10	7	12	33	14	11	32	2	27	
Comp. Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	

Table 3 *– Sludge Metals Calculations*

Quarterly Metals Calculations Report 2025													
Parameter													
Date	</>	Jan 14-25	</>	Apr 8-25	</>	Jun 24-25	</>	Jul 2-25	</>	Aug 19-25	</>	Oct 7-25	Average
Total Solids		24800		41300		31300		29700		28600		4520	1,806.67
TKN		1290		1890		2240		1970		1940		268	444.00
NH 3&4		221		339		772		938		849		91.7	3.00
NO2	<	3	<	3	<	3	<	3	<	3	<	3	3.00
NO3	<	3	<	3	<	3	<	3	<	3	<	3	3.00
NO2+NO3	<	3	<	3	<	3	<	3	<	3	<	3	0.27
Arsenic		0.216		0.3		0.3		0.2		0.3	<	0.1	0.02
Cadmium		0.013		0.015		0.018		0.015		0.021	<	0.005	0.21
Cobalt		0.204		0.21		0.22		0.19		0.24		0.02	3.04
Chromium		2.92		3		3.2		2.7		3.4		0.34	8.45
Copper		7.54		8.5		9.3		7.9		10		1.1	0.00
Mercury		0.004		0.003		0.005		0.003		0.004		0.001	133.67
Potassium		127		136		138		125		148		113	0.31
Molybdenum		0.308		0.3		0.32		0.29		0.41		0.09	0.93
Nickel		0.893		0.93		0.98		0.85		1.1		0.11	760.33
Phosphorous		594		782		905		731		925		80	0.66
Lead		0.578		0.7		0.7		0.6		0.7	<	0.1	0.10
Selenium	<	0.1	<	0.1	<	0.1		0.1		0.1	<	0.1	13.60
Zinc		11.8		14		15		13		16		1	99,006.33
Ecoli DW		124032		148450		24537		2121		1447		57965	332,500.00
Ecoli /100 ml		307600		613100		76800		6300		41400		26200	178,566.67
pH													
Tank in " to Top													0
Volume in m3		941	941	941	941	941	941	941	941.2				
Volume at 4%		584	0	972	0	736	0	699	0				0
Solids Kg		23342	0	38872	0	29460	0	27954	0				0

Table 4 *– Bypass and Overflow Events*

Table 1 BYPASS AND OVERFLOW EVENTS Blyth STP

FACILITY NAME: Blyth STP 2025

Sample Results

Date (dd/mm/yy)	Location	Type (See Legend for description)	Start Time	Duration (hours)	Volume (1,000m3)	M/E	Disinfection (Y/N)	Treatment (Y/N)	Reason Code*	CBOD5 (mg/L)	TSS (mg/L)	TP (mg/L)	TKN (mg/L)	A+A (mg/L)	E.Coli (cfu/100 ml)	Ref #
June 5-24- Apr 11, 25	Blyth STP	SB	1522	7361	126.99	M	Y	Y	4	Sample data in separate chart						1-7DW58V
Dec 19-Dec 21	Blyth STP	SB	0710	50.58	1.868	M	Y	Y	1	36	0.2	0.8	0.1	0.03	135	1-PXTUGI
Dec 28-Dec 31	Blyth STP	SB	1944	66.5	3.986	M	Y	Y	1	5	4	0.3	1.9	0.6	173	1-PYPF2H
Total				7478.08	132.844											

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
E = Estimated

Y = Yes
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.

Comments: June 5, 2024 Bypass (1-7DW58V) Ended April 11 2025 the final hours and volume are recorded in April 2025 on Table 2;
MUMPS reports for January February and March 2025 are all bypass sample results.

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