

## 2023 Year End Report: Huntsville Mountview Wastewater Treatment Plant (WWTP)



Environmental Compliance Approval: # 1-0088-67-763806

Engineering and Public Works Department  
70 Pine Street, Bracebridge, Ontario P1L 1N3  
Phone: 705-645-6764  
Toll-Free: 1-800-281-3483  
Fax: 705-645-7599  
Email: [publicworks@muskoka.on.ca](mailto:publicworks@muskoka.on.ca)  
Website: [www.muskoka.on.ca](http://www.muskoka.on.ca)

## Introduction

The Huntsville Mountview Clean Water Plant (CWP), which services the Town of Huntsville, is owned, and operated by the District Municipality of Muskoka. The plant is located at 20 Mountview Drive, Huntsville. It services a population of approximately 9,000 people.

The Plant operates under the Ministry of Environment Conservation and Parks (MECP) Environmental Compliance Approval (ECA) (Sewage) #1-0088-67-763806, and as amended May 13, 2010, and MECP ECA (Air) # 1771-7FJJZ5, issued June 2008. Under the terms of the ECA, the plant is permitted to treat an average daily flow of 3,640 m<sup>3</sup>/day, and a peak flow of 13,638 m<sup>3</sup>/day. Additionally, effluent limit criteria are as follows:

*Table 1 Effluent Limit Criteria*

<b>Effluent Parameter</b>	<b>Concentration</b>
CBOD	15 mg/L
Total Suspended Solids	15 mg/L
Total Phosphorous	0.50 mg/L 227.9 kg/year (combined with the Huntsville Golden Pheasant WWTP)

The plant is comprised of two separate facilities, both of which are conventional activated sludge treatment processes, consisting of primary and secondary clarifiers with aeration basins. Disinfection is accomplished by chlorination. The facility is also equipped with anaerobic digesters for bio-solids stabilization. The initial plant was commissioned in 1958 and is capable of handling approximately one-third of the total treatment capacity of the facility. The remaining portion of the plant was commissioned in 1976.

Waste sludge from the plant process is digested anaerobically at the plant and periodically hauled off site for disposal.

## General Information

A review of the District of Muskoka's infrastructure needs is conducted annually by the Director of Water and Sewer Services, Area Manager and Chief Operator, and recommendations for maintenance, rehabilitation and renewal programs are considered.

Efforts to eliminate the discharge of untreated or partially treated wastewater to receiving waters are being accomplished by a long-term financial commitment to correct excessive infiltration into the wastewater collection system by means of sewer main rehabilitation / replacement, manhole rehabilitation and pumping station rehabilitation programs.

The treatment facility is capable of effective operation during emergencies, maintenance shutdowns, and power failures. This is achieved through such measures as preventive maintenance of duty / standby units, the duplication of major treatment components, the provision of standby power sources and extensive use of the SCADA systems. All pumping stations and treatment control systems use SCADA (Supervisor control and Data Acquisition), in combination with Data Highway Plus, and programmable logic controllers.

All operators are qualified to operate the systems efficiently and effectively to always achieve the highest level of treatment. A commitment to provide Operator training and certification is being sustained.

Regulatory sampling is carried out to meet the requirements outlined in the ECA, and additional in-house operational sampling beyond these regulatory requirements is being performed on a routine basis. These efforts have resulted in an effective treatment process which ensures that effluent discharges consistently meet effluent objectives and are environmentally safe.

All data in this report is a compilation of test results received from SGS Canada and their accredited laboratory, Lakefield Research. All in-plant sampling, analysis and recording of results conforms, in order of precedence, to the following 3 standards: Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works", Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" and the American Water Works Association/Water Environment Federation (AWWA/WEF) publication "Standard Methods for the Examination of Water and Wastewater".

### Executive Summary

In all respects, test results of the treated effluent for the parameters of CBOD<sub>5</sub>, suspended solids, ammonia, total phosphorous, and E. Coli are in compliance with the limits outlined in the ECA regarding monthly allowable concentrations and total effluent loading throughout the entire year.

Overall, the plant treatment processes performed satisfactorily and are deemed to be adequate. All sample test results of the final effluent were within levels outlined in the plant ECA (#1-0088-67763806).

### Quantity of Flow Summary

The plant has a daily average flow design capacity of 3,640 m<sup>3</sup>/day. The actual average daily flow for the 2023 was 3,421m<sup>3</sup>/day, however, the 3-year average is 2,992m<sup>3</sup>/day, which represents 82% of the plant capacity. None of the individual system components exceeded the design flow rating.

### Plant Operational Upsets or Process Failures

In the month of April 2023 (more itemized to the 5<sup>th</sup> & 6<sup>th</sup>), the collection system was subjected to an extreme weather event (heavy rain & snow melt). Which put an abundance amount of strain on the Wastewater Treatment Plant, creating Reference# 1-34HG1R regarding the by-pass event of 324.84m<sup>3</sup>. It was a short-lived event with Operations working around the clock to diminish any further by-pass.

In the fall of 2021, the floating roof system atop the secondary anaerobic digester lost buoyancy. The secondary digester was taken out of service and its contents shipped off-site for further treatment. It remains out of service awaiting site decommissioning in 2025. Operation of the primary digester will be limited to operating more as a holding vessel with increased frequency of hauling from the vessel to Golden Pheasant WWTP to reduce odors.

In the month of May 2023, community concerns (downtown core) were risen regarding the aesthetic (odor) emitting from the plant location. Operations perform an in-depth review of mechanical/process components to determine a corrective approach. It was revealed that key components of the process were fatigued, which initiated an immediate response in corrective

measures that were completed by the end of August.

### Summary of Maintenance

In the month of May 2023, community concerns (downtown core) were risen regarding the aesthetic (odor) emitting from the plant location. Operations perform an in-depth review of mechanical/process components to determine a corrective approach. It was revealed that key components of the process were fatigued, which initiated an immediate response in corrective measures that were completed by the end of August.

All equipment information at this plant is entered into a computer database. From this information, a scheduled preventive maintenance program has been established. The maintenance program includes (and not limited to):

- Monthly testing (under load) of the standby generators.
- Annual servicing of emergency standby generators.
- Annual calibration of flow metering devices.
- Annual cleaning of all sewage pumping stations if required.
- Marine inspection of effluent outfall and diffuser completed in 2022. (5-year cycle)

### Evaluation of the Need for Improvement Works

The treatment facility is operating at a plant capacity of 82% and is in compliance with specified effluent parameter criteria. In addition, there has been no significant treatment process upsets and plant bypasses. Planning work to convert the Mountview Clean Water Plant to a sewage pump station continued in 2023. Ainley Group has completed the design, and the construction/decommissioning has been awarded with a mobilization date of January 2024. This conversion project is expected to be completed in 2025.

### Evaluation Summary of Proposed Work Requiring Approval under OWRA

Mountview Clean Water Plant has long been planned for conversion to a pumping station which directs flow to the Golden Pheasant Clean Water Plant. This project will complete design and begin construction in 2024.

In October 2023 ECA# 9216-CSEJWM was issued permitting Mountview's conversion to a sewage pumping station and the associated requirements.

### Interpretation of Analytical Results

All sample results for Raw Sewage and Final Effluent are reported in this section. Other tables in this report include Chemical Usage, Biosolids Quality, and Biosolids Quantity.

### Raw Sewage

The information reported in the Raw Sewage sample results summary table consists of test results of analysis conducted on composite samples of the plant influent flow as required by the plant ECA. Samples are sent for analysis to Lakefield Research, as well as analysis conducted on site using Standard Methods or equivalent. Weekly analysis has been performed and

reported as specified under the terms outline in the ECA.

### Influent Analysis

*Table 2 Influent Analysis*

Influent Parameter	Minimum	4 Week Average Maximum	Annual Average	Average loading kg/day
BOD5 (mg/L)	48	713	184.45	631
Suspended Solids (mg/L)	72	791	241.46	826
Total Phosphorus (mg/L)	0.49	7.4	3.47	11.87
Total Ammonia Nitrogen (mg/L)	2.7	37.7	23.95	81.93
pH	6.37	7.56	6.94	N/A

### Effluent Analysis

The information reported in the Final Effluent sample results summary table 3 consists of test results of analysis conducted on final effluent composite samples. Bacteriological samples, however, consisted of grab samples. Weekly analysis has been performed and reported as specified under the terms outlined in the ECA.

### Effluent Objective Analysis

The effluent objectives were met during all sample periods.

### Final Effluent Analysis Summary

All final effluent samples tested for CBOD5, suspended solids, ammonia, E. Coli, and total phosphorous were below non-compliance limits outlined in the ECA.

*Table 3 Final Effluent Analysis Summary*

Parameter	Minimum	4 Week Average Maximum	Annual Average	Average Loading kg/day
COBD5 (mg/L)	2	91	3.89	13.30
Suspended Solids (mg/L)	3	19.0	6.85	23.43
Ammonia (mg/L)	2.5	24.7	15.94	54.53
E. Coli (#/100 mL)	0	1280	203.69	N/A
Total Phosphorus (mg/L)	0.04	4.29	0.35	1.12
pH	6.65	8.34	7.64	N/A

Average daily flow comparisons by day of week ensure ECA requirements for scheduled sampling are taken at a time, and in a location characteristic of the quality and quantity of the sewage stream over the time period being monitored. Average daily flow rates by day of the



week compare the flow to the average daily flow for the entire year. This data is used to determine if a particular day of the week is best to ensure samples are taken to meet the requirements of scheduled monitoring sections of the ECA's. Sampling plans are reviewed and updated yearly based on the previous yearly flow data.

### Final Effluent Sampling Summary

All samples were collected following the frequency and methods required by the facility approval. For the coming year, 2024, no changes to the sampling plan are being considered currently.

### Biosolids Generation

The quality and volume of biosolids hauled from the facility for disposal is outlined in the table provided. Dewatered biosolids from the plant was hauled to an approved landfill site. Private contractors were used by the District of Muskoka to transfer all material for disposal in 2023 and will continue to do so in 2024. It is not anticipated that there will be a significant increase in the total volume of biosolids produced in 2024.

### Biosolids Co-Treatment

The quality and volume of biosolids from the facility for disposal is outlined in the table 17 provided. Dewatered biosolids from the plant was hauled to an approved landfill site. Private contractors were used by the District of Muskoka to transfer all material for disposal in 2023 and will continue to do so in 2024. It is anticipated that there will be a significant increase in the frequency of biosolids hauled in 2024 due to failure of the roofing system of the secondary anaerobic digester. It is anticipated that increased frequency of haulage for additional treatment at Golden Pheasant will be far more cost efficient than replacement of the digester roof systems this close to plant decommissioning.

### Summary of Complaints received throughout the reporting period.

In the month of May 2023, community concerns (downtown core) were risen regarding the aesthetic (odor) emitting from the plant location. Operations perform an in-depth review of mechanical/process components to determine a corrective approach. It was revealed that key components of the process were fatigued, which initiated an immediate response in corrective measures that were completed by the end of August.

## Huntsville Mountview Wastewater Collection Summary

### New Sewer Services:

A total of 356.6 meters of gravity sewer was installed in 2023.

### New Maintenance Holes:

There were 7 maintenance holes installed in 2023.

### Sewer Main Replacements:

There were no sewer main replacements in 2023.

### Low Pressure Sewer Breaks:

There were no low-pressure sewer breaks in 2023.

### Sewer Force Main Breaks:

There was 1 sewer forcemain break in 2023.

### Sewer Force Main Replacement

There were no sewer force mains replaced in 2023.

### Main Line Sewer Blockage

There was 1 sewer main blockage in 2023.

### Sewer Lateral Blockage

There were no sewer lateral blockages in 2023.

### Service Low Pressure Sewer Blockages:

There were no low-pressure sewer blockages in 2023.

### Frozen Sewer Force Mains:

There were no frozen sewer force mains in 2023.

### Frozen Sewer Service Laterals:

There were no sewer service laterals froze in 2023.

### Frozen Low Pressure Sewer Services:

There were no low-pressure sewer services froze in 2023.

### Sewer Flushing/Video:

There was 1500.7m of sanitary sewer flushed. Approximately 2900.3m that was flushed, and video inspected in 2023.

### Sewer Locates:

Field staff addressed 955 written locate requests in 2023.

### Air Release Valves:

All 41 air-vacuum release valves were inspected in 2023.

Table 4 Effluent Flow Summary - 2020

Month	Plant Total Monthly (m <sup>3</sup> )	Average Day Flow (m <sup>3</sup> /d)	Maximum Day Flow (m <sup>3</sup> /d)	Minimum Day Flow (m <sup>3</sup> /d)	Lagoons Monthly Flow (m <sup>3</sup> )	Facility Total Monthly Flow (m <sup>3</sup> )
January	104767	3380	6839	2455	n/a	104767
February	82337	2941	3736	2117	n/a	82337
March	94157	3037	3994	2302	n/a	94157
April	158271	5103	11795	3442	n/a	158271
May	119035	3840	7055	2893	n/a	119035
June	86865	2802	3597	2463	n/a	86865
July	91539	2953	3810	1761	n/a	91539
August	93396	3013	3572	2234	n/a	93396
September	91609	2955	4211	1569	n/a	91609
October	104526	3372	3899	1895	n/a	104526
November	109532	3651	4693	3333	n/a	109532
December	112540	3630	4261	2086	n/a	112540

Total Flow: 1248573  
Average Day: 3421  
Maximum Day: 11795  
Minimum Day: 156



Table 5 Influent Quarterly Analysis Summary – Weekly 24-Hour Composite Sample Part 1

Sample Date	Sample Identification Number	BOD5 mg/L	Phosphate	Total Phosphorus mg/L	Suspended Solids mg/L
Jan 25 2023	CA13522	63	1.13	1.66	107
May 3 2023	CA13173	109	1.45	2.1	113
Aug 16 2023	CA12687	105	1.67	2.4	100
Oct 25 2023	CA15829	464	1.55	7.4	791
<b>Yearly Average</b>		185.25	1.45	3.39	277.75
<b>Maximum</b>		464	1.67	7.4	791
<b>Minimum</b>		63	1.13	1.66	100

Table 6 Influent Quarterly Analysis Summary – Weekly 24-Hour Composite Sample Part 2

<b>Sample Date</b>	<b>Sample Identification Number</b>	<b>Total Kjeldahl Nitrogen mg/L</b>	<b>Nitrate Nitrogen mg/L</b>	<b>Nitrite Nitrogen mg/L</b>	<b>Total Ammonia Nitrogen mg/L</b>
Jan 25 2023	CA13522	12.3	0.35	0.19	11.1
May 3 2023	CA13173	21.5	0.06	0.03	17.1
Aug 16 2023	CA12687	26.4	0.06	0.03	23.6
Oct 25 2023	CA15829	62.1	0.06	0.03	26.1
<b>Yearly Average</b>		30.56	0.14	0.07	19.48
<b>Maximum</b>		62.1	0.35	0.19	26.1
<b>Minimum</b>		12.3	0.06	0.03	11.1

Table 7 Chemical Usage Summary: Clarion A405P

Month	Average Dosage mg/L	Total kg
January	76.2	11484
February	143.3	11088
March	167.9	14388
April	137.2	11352
May	126.8	10428
June	150.7	12408
July	190.4	15708
August	175.1	14520
September	159.7	13200
October	183.3	15180
November	169.7	13992
December	151.4	12936

Total Yearly Kilograms: 156684 kg

Table 8 Chemical Usage Summary: Chlorine Gas

Month	Average Dosage mg/L	Total kg (dry)
January	2.1	151.0
February	0.7	55.9
March	0.6	59.1
April	0.6	94.6
May	0.5	59.0
June	1.1	94.6
July	1.2	108.0
August	1.1	102.8
September	0.8	67.8
October	1.0	102.4
November	1.0	105.3
December	1.1	122.8

Total Yearly Kilograms: 1123.3 kg

Table 9 Effluent Quarterly Analysis Summary – Weekly 24-Hour Composite Sample Part 1

Sample Date	Sample Identification Number	CBOD5 mg/L	pH	Phosphate	Total Phosphorus mg/L	Suspended Solids mg/L
Jan 25 2023	CA13522	26	7.53	0.03	0.19	8
May 3 2023	CA13173	5	7.93	0.04	0.17	4
Aug 16 2023	CA12687	4	7.48	0.03	0.08	3
Oct 25 2023	CA15829	4	7.43	0.03	0.09	6
<b>Yearly Average</b>		10	7.59	0.03	0.13	5.25
<b>Maximum</b>		26	7.93	0.04	0.19	8
<b>Minimum</b>		4	7.43	0.03	0.08	3

Table 10 Effluent Quarterly Analysis Summary – Weekly 24-Hour Composite Sample Part 2

Sample Date	Sample Identification Number	Total Kjeldahl Nitrogen mg/L	Nitrate Nitrogen mg/L	Nitrite Nitrogen mg/L	Total Ammonia Nitrogen mg/L
Jan 25 2023	CA13522	17.9	3.21	0.18	16.9
May 3 2023	CA13173	9.3	1.1	0.22	9.2
Aug 16 2023	CA12687	19.9	0.45	0.25	19.9
Oct 25 2023	CA15829	15.2	2.42	0.72	16.0
<b>Yearly Average</b>		15.58	1.80	0.34	15.5
<b>Maximum</b>		17.9	3.21	0.72	19.9
<b>Minimum</b>		9.3	1.1	0.18	9.2



Table 11 Effluent Loading and Concentration Summary: CBOD5

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
January	5.75	19.43	39.33
February	5.50	16.17	20.55
March	5.00	15.19	19.97
April	9.33	47.65	110.09
May	3.40	13.06	23.99
June	2.50	7.01	8.99
July	2.25	6.64	8.57
August	2.60	7.83	9.29
September	3.80	11.23	16.00
October	2.25	7.59	8.77
November	2.80	10.22	13.14
December	3.00	10.89	12.78

Table 12 Effluent Loading and Concentration Summary: Suspended Solids

Month	Average mg/L	Average kg/day	Maximum Daily kg/day
January	8.50	28.73	58.13
February	8.75	25.73	32.69
March	7.75	23.54	30.96
April	24.33	124.23	287.02
May	5.60	21.50	39.51
June	5.75	16.11	20.68
July	7.40	21.85	28.20
August	4.20	12.65	15.01
September	5.75	16.99	24.21
October	5.25	17.70	20.47
November	6.20	22.64	29.09
December	6.00	21.78	25.56

Table 13 Effluent Loading and Concentration Summary: Total Ammonia Nitrogen - Summer

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
May	15.80	60.67	111.48
June	19.95	55.9	71.76
July	18.85	55.66	71.83
August	18.88	56.88	67.45
September	16.25	48.02	68.43

Table 14 Effluent Loading and Concentration Summary: Total Ammonia Nitrogen - Winter

Month	Average mg/L	Average kg/day	Maximum Daily kg/day
January	12.73	43.02	87.06
February	20.40	59.99	76.22
March	20.00	60.75	79.89
April	8.05	41.10	94.95
October	16.83	56.73	65.61
November	14.34	52.63	67.29
December	11.90	43.20	50.70

Table 15 Effluent Loading and Concentration Summary: Fecal Coliform

Month	Geomean (#/100mL)	Maximum Daily (#/100mL)
January	24.89	1280
February	189.02	1140
March	137.90	1180
April	257.00	760
May	110.52	186
June	157.53	700
July	124.49	1080
August	27.51	75
September	5.91	34
October	2.05	9
November	6.32	21
December	8.79	166

Table 16 Effluent Loading and Concentration Summary: Total Phosphorus

Month	Average mg/L	Average kg/day	Maximum Daily kg/day
January	0.28	0.93	1.88
February	0.32	0.94	1.20
March	0.35	1.06	1.40
April	0.34	1.74	4.01
May	0.18	0.69	1.27
June	0.24	0.66	0.85
July	0.21	0.62	0.80
August	0.10	0.30	0.36
September	0.08	0.23	0.33
October	0.08	0.27	0.31
November	0.12	0.45	0.58
December	0.16	0.57	0.67



Table 17 Liquid Sludge Production Summary 2020

Month	Hauler	Liquid Volume m <sup>3</sup>	Cake Weight kg	Destination
January	K&K	634.56	N/A	Golden Pheasant CWP
February	K&K	456.14	N/A	Golden Pheasant CWP
March	ROHES	489.9	N/A	Golden Pheasant CWP
April	ROHES	458.02	N/A	Golden Pheasant CWP
May	ROHES	449.64	N/A	ROHES
June	ROHES	573.28	N/A	ROHES
July	ROHES	568.4	N/A	ROHES
August	ROHES	957.60	N/A	ROHES
September	ROHES	764.00	N/A	ROHES
October	ROHES	837.20	N/A	ROHES
November	ROHES	910.00	N/A	ROHES
December	ROHES	910.00	N/A	ROHES

**Yearly Total m<sup>3</sup> Volume: 8008.74 m<sup>3</sup>**

Table 18 Sludge Quality Analysis

Parameter Sampled (mg/L)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Date	Jan 30 2023	May 3 2023	Aug 16 2023	Oct 25 2023
Nitrate	0.3	0.3	3	3
Mercury	0.001	0.002	0.016	0.009
Chromium	0.06	0.02	0.4	0.22
Cobalt	0.01	0.1	0.05	0.03
Copper	2.9	0.3	7.7	5.6
Lead	0.2	0.1	0.3	0.2
Molybdenum	0.05	0.05	0.15	0.09
Nickel	0.05	0.04	0.28	0.22
Selenium	0.1	0.1	0.1	0.1
Arsenic	0.1	0.1	0.1	0.1
Zinc	5	1	16	8
Cadmium	0.005	0.005	0.021	0.014
Ammonia+ Ammonium	241	300	100	120
Total Kjeldahl Nitrogen	397	413	1820	1370
Total Phosphorus	83	37	649	451
Total Solids	7750	3320	32400	25800
Volatile Solids	2040	3220	2660	<40
Nitrite	2.7			3

## Certification of Reports

I certify that the information in this document and all attachments are correct, accurate, and complete to the best of my knowledge.

Michael Currie,  
Director, Water and Wastewater Services

Darren Ronson,  
Manager of Water and Wastewater Operations