

## 2021 Year End Report: Huntsville Mountview Wastewater Treatment Plant (WWTP)



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

Engineering and Public Works Department

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## Introduction

The Huntsville Mountview Wastewater Treatment Plant, 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 meters cubed per day, and a peak flow of 13,638 meters cubed per day. Additionally, effluent limit criteria are as follows:

Table 1 Effluent Limit Criteria

Effluent Parameter	Concentration
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 shut downs, 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 in order to achieve the highest level of treatment at all times. 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 final effluent sample results for the MBR facilities met their effluent limits.

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 CBOD5, 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 2021 was 2,778m<sup>3</sup>/day, however, the 3 year average is 2,902m<sup>3</sup>/day, which represents 80% of the plant capacity. None of the individual system components exceeded the design flow rating.

### Plant Operational Upsets or Process Failures

In 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. A study remained underway through the end of 2021 to determine possible use for this digester in its current condition or whether repair of the roof was financially reasonable considering the plant is to be decommissioned in coming years. It is likely this digester will remain offline until plant decommissioning.

### Summary of Maintenance

There were no significant plant upgrades on major infrastructure in 2021.

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 2017. (5-year cycle)

## Evaluation of the Need for Improvement Works

The treatment facility is operating at a plant capacity of 80% 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 2021. Ainley Group were awarded the contract to design of the replacement pump station and sewage forcemain to the Golden Pheasant Clean Water Plant. This conversion project is expected to be put out to tender in 2022 with completion expected in 2024.

## Evaluation Summary of Proposed Work Requiring Approval under OWRA

Mountview Wastewater Treatment Plant has long been planned for conversion to a pumping station which directs flow to the Golden Pheasant Wastewater Treatment Plant. This project will complete design and begin construction in 2022. These changes to the works will require approval under OWRA and pre-consultation is expected in 2022 to address this requirement.

## 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*

<b>Influent Parameter</b>	<b>Minimum</b>	<b>4 Week Average Maximum</b>	<b>Annual Average</b>	<b>Average loading kg/day</b>
BOD5 (mg/L)	53	431	191	68.7
Suspended Solids (mg/L)	49	714	255	91.8
Total Phosphorus (mg/L)	1.26	6.30	3.67	1.32
Total Ammonia Nitrogen (mg/L)	12.0	34.8	24.2	8.7

### 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)	2.0	8.0	3.0	7.82
Suspended Solids (mg/L)	4.0	10.5	6.5	17.3
Ammonia (mg/L)	7.0	25.2	12.8	33.8
E. Coli (#/100 mL)	0.2	45.0	6.3	N/A
Total Phosphorus (mg/L)	0.1	0.36	0.18	0.46
pH	6.20	7.13	6.91	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, 2022, no changes to the sampling plan are being considered at this time.

### 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 2021, and will continue to do so in 2022. It is anticipated that there will be a significant increase in the frequency of bio solids hauled in 2022 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

There were two odour complaints received in Fall 2021 from residents who live near King William Street and Church Street in Huntsville. Operations staff immediately investigated in both cases. Odour was determined to be coming from a maintenance hole on King William Street at John Street where a number of commercial businesses discharge sewage waste by forcemain to this structure. Odour control measures (dish, plugs) were installed in the maintenance hole and the discharging forcemains were flushed with potable water. This resolved the localized odour issue immediately.

## Huntsville Golden Pheasant Wastewater Collection Summary

### New Sewer Services:

A total of 69 customers connected to existing sewer laterals in 2021, 13 of which were installed in 2021.

- One 200 mm PVC sewer service was installed by the owner's contractor. This service is located at 210 Hwy 60.
- One 200 mm PVC sewer service was installed by the owner's contractor. This service is located at 159 Howland Drive.
- One 200 mm PVC sewer service was installed by the owner's contractor. This service is located at 161 Townline Road.
- Ten 125 mm PVC sewer services were installed by the owner's contractor. These services are located at 47, 49, 51, 53, 55 Young Street South, 87 and 89 Hanes Road, 5 Rogers Road, 72 Centre Street South and 185 Hunter's Bay Drive.

### New Sewer Mains:

A total of 483 meters of 300 mm gravity sewer was installed/replaced in 2021 on Main Street East and River Street as part of the "Diggin Downtown" capital works project.

### Low Pressure Sewer Breaks:

There were no low pressure sewer breaks in 2021.

### Sewer Force Main Breaks:

There were no sewer forcemain breaks in 2021.

### Sewer Force Main Replacement

No sewer forcemains were replaced in 2021.

### Main Line Sewer Blockage

There were no sewer main blockages in 2021.

### Sewer Lateral Blockage

There were no sewer lateral blockages in 2021.

### Service Low Pressure Sewer Blockages:

There were no low pressure sewer blockages in 2021.

### Frozen Sewer Force Mains:

No sewer forcemains froze in 2021.

### Frozen Sewer Service Laterals:

No sewer service laterals froze in 2021.

### Frozen Low Pressure Sewer Services:

No low pressure sewer services froze in 2021.

### Sewer Flushing/Video:

Field staff Approximately 1,432 meters of sewer main was flushed and 422 meters video inspected in 2021.

Sewer Locates:

Field staff addressed 951 written locate requests in 2021.

Table 4 Effluent Flow Summary - 2021

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	67,542	2,179	2,527	1,861	N/A	67,542
February	54,584	1,761	2,504	1,761	N/A	54,584
March	101,528	3,275	5,700	1,952	N/A	101,528
April	93,598	3,019	4,033	2,665	N/A	93,598
May	83,633	2,698	3,225	2,322	N/A	83,633
June	67,333	2,172	3,580	1,878	N/A	67,333
July	100,457	3,241	5,180	2,485	N/A	100,457
August	76,430	2,465	3,023	2,111	N/A	76,430
September	83,244	2,685	5,748	2,021	N/A	83,244
October	104,114	3,359	3,921	2,959	N/A	104,114
November	85,274	2,842	3,083	2,647	N/A	85,274
December	96,230	3,104	4,071	2,622	N/A	96,230

Total Flow: 1,013,967  
 Average Day: 2,778  
 Maximum Day: 5,748  
 Minimum Day: 1,761



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

Sample Date	Sample Identification Number	BOD5 mg/L	Alkalinity (Total as CaCO3) mg/L	pH	Phosphate	Total Phosphorus mg/L	Suspended Solids mg/L
Feb. 04/21	CA12749-FEB21	97			1.29	2.43	49
May 27/21	CA15736-MAY21	148			2.33	4.52	162
Aug 12/21	CA12504-AUG21	121			1.70	2.80	120
Nov 11/21	CA12496-NOV21	281			2.29	3.29	276
<b>Yearly Average</b>		161.8			1.90	3.26	151.8
<b>Maximum</b>		281			2.33	4.52	276
<b>Minimum</b>		97			1.29	2.43	49

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

Sample Date	Sample Identification Number	Conductivity mg/L	Total Kjeldahl Nitrogen mg/L	Nitrate Nitrogen mg/L	Nitrite Nitrogen mg/L	Total Ammonia Nitrogen mg/L	Chloride mg/L
Feb. 04/21	CA12749-FEB21		26.0	<0.06	<0.03	21.4	
May 27/21	CA15736-MAY21		38.7	<0.06	<0.03	33.7	
Aug 12/21	CA12504-AUG21		27.2	<0.06	<0.03	22.3	
Nov 11/21	CA12496-NOV21		27.3	<0.06	0.06	27.3	
<b>Yearly Average</b>			29.8	<0.06	0.04	26.2	
<b>Maximum</b>			38.7	<0.06	0.06	33.7	
<b>Minimum</b>			26.0	<0.06	0.03	21.4	

Table 7 Chemical Usage Summary: Clarion A405P

Month	Average Dosage mg/L	Total kg (dry)
January	60.75	4,359.2
February	71.38	3,934.7
March	53.75	5,208.2
April	46.15	4,644.3
May	58.30	4,942.1
June	66.32	4,644.3
July	69.34	5,056.1
August	56.31	4,904.1
September	59.99	5,391.9
October	56.94	5,271.6
November	56.61	5,075.1
December	55.38	4,897.8
Average	59.27	4860.8
Total		58,329

Total Yearly Kilograms: 58,329

Table 8 Chemical Usage Summary: Chlorine Gas

Month	Average Dosage mg/L	Total kg
January	1.43	103.65
February	1.56	86.33
March	1.53	164.22
April	1.12	116.30
May	1.34	113.12
June	2.11	146.91
July	2.72	199.78
August	1.61	139.37
September	1.73	150.49
October	2.00	184.03
November	1.40	125.46
December	1.36	123.02
Average	1.66	1,652.7
Total		

Total Yearly Kilograms: 1,652.7

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

Sample Date	Sample Identification Number	CBOD5 mg/L	Alkalinity (Total as CaCO3) mg/L	pH	Phosphate	Total Phosphorus mg/L	Suspended Solids mg/L
Feb. 04/21	CA12749-FEB/21	4		7.58	0.03	0.20	5
May 27/21	CA15736-MAY21	<2		7.36	<0.03	0.19	7
Aug 12/21	CA12504-AUG21	<2		7.24	0.09	0.23	8
Nov 11/21	CA12496-DEC21	<2		7.47	0.05	0.16	9
<b>Yearly Average</b>		2.5		7.41	0.05	0.20	7.3
<b>Maximum</b>		4		7.58	0.09	0.23	9
<b>Minimum</b>		<2		7.24	<0.03	0.16	5

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

Sample Date	Sample Identification Number	Conductivity mg/L	Total Kjeldahl Nitrogen mg/L	Nitrate Nitrogen mg/L	Nitrite Nitrogen mg/L	Total Ammonia Nitrogen mg/L	Chloride mg/L
Feb. 04/21	CA12749-FEB/21		20.8	6.7	0.43	18.9	
May 27/21	CA15736-MAY21		8.5	14.7	0.21	9.0	
Aug 12/21	CA12504-AUG21		12.8	7.1	0.34	10.7	
Nov 11/21	CA12496-DEC21		17.6	10	0.19	22.7	
<b>Yearly Average</b>			14.9	9.6	0.29	15.3	
<b>Maximum</b>			20.8	14.7	0.43	22.7	
<b>Minimum</b>			8.5	6.7	0.19	9.0	

Table 11 Effluent Loading and Concentration Summary 2021: CBOD5

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
<b>January</b>	2.75	5.99	6.95
<b>February</b>	8.00	14.09	20.03
<b>March</b>	3.00	9.83	17.10
<b>April</b>	3.00	9.06	12.10
<b>May</b>	2.50	6.74	8.06
<b>June</b>	3.20	6.95	11.46
<b>July</b>	2.25	7.29	11.66
<b>August</b>	2.00	4.93	6.05
<b>September</b>	2.00	5.37	11.50
<b>October</b>	2.25	7.56	8.82
<b>November</b>	3.00	8.53	9.25
<b>December</b>	2.40	7.45	9.77
<b>Average Monthly</b>	3.03	7.82	11.06
<b>Effluent Objective</b>	N/A	N/A	N/A
<b>Non-Compliance</b>	15.0	46.07	46.07

Table 12 Effluent Loading and Concentration Summary 2021: Suspended Solids

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
<b>January</b>	5.00	10.89	12.63
<b>February</b>	10.50	18.49	26.29
<b>March</b>	6.80	22.27	38.76
<b>April</b>	6.50	19.63	26.21
<b>May</b>	5.75	15.51	18.54
<b>June</b>	7.60	16.51	27.21
<b>July</b>	6.25	20.25	32.38
<b>August</b>	7.75	19.11	23.43
<b>September</b>	6.00	16.11	34.49
<b>October</b>	4.00	13.43	15.69
<b>November</b>	6.25	17.77	19.27
<b>December</b>	5.60	17.38	22.80
<b>Average Monthly</b>	6.50	17.28	24.81
<b>Effluent Objective</b>	N/A	N/A	N/A
<b>Non-Compliance</b>	15	46.07	46.07



Table 13 Effluent Loading and Concentration Summary 2021: Total Ammonia Nitrogen Summer

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
<b>May</b>	11.75	31.70	37.89
<b>June</b>	11.02	23.94	39.45
<b>July</b>	7.03	22.78	36.42
<b>August</b>	11.40	28.11	34.46
<b>September</b>	11.48	30.83	65.99
<b>Average Monthly</b>	10.54	27.47	42.84
<b>Effluent Objective</b>	N/A	N/A	N/A
<b>Non-Compliance</b>	N/A	N/A	N/A

Table 14 Effluent Loading and Concentration Summary 2021: Total Ammonia Nitrogen Winter

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
<b>January</b>	11.95	26.04	30.20
<b>February</b>	25.23	44.42	63.17
<b>March</b>	19.32	63.27	110.12
<b>April</b>	18.88	57.00	76.14
<b>October</b>	5.43	18.24	21.29
<b>November</b>	9.85	28.00	30.36
<b>December</b>	10.08	31.29	41.03
<b>Average Monthly</b>	14.4	38.3	53.2
<b>Effluent Objective</b>	N/A	N/A	N/A
<b>Non-Compliance</b>	N/A	N/A	N/A

Table 15 Effluent Loading and Concentration Summary 2021: Fecal Coliform

<b>Month</b>	<b>#/100mL</b>	<b>Maximum Daily (#/100mL)</b>
<b>January</b>	0.75	3.00
<b>February</b>	45.00	61.00
<b>March</b>	3.20	6.00
<b>April</b>	12.00	20.00
<b>May</b>	4.75	10.00
<b>June</b>	0.20	1.00
<b>July</b>	2.00	3.00
<b>August</b>	1.00	2.00
<b>September</b>	1.80	3.00
<b>October</b>	3.00	7.00
<b>November</b>	0.50	1.00
<b>December</b>	1.40	6.00
<b>Average Monthly</b>	6.3	10.3
<b>Effluent Objective</b>	N/A	N/A
<b>Non-Compliance</b>	N/A	N/A

Table 16 Effluent Loading and Concentration Summary 2021: Total Phosphorus

<b>Month</b>	<b>Average mg/L</b>	<b>Average kg/day</b>	<b>Maximum Daily kg/day</b>
<b>January</b>	0.13	0.28	0.33
<b>February</b>	0.36	0.63	0.90
<b>March</b>	0.19	0.62	1.08
<b>April</b>	0.17	0.51	0.69
<b>May</b>	0.15	0.40	0.48
<b>June</b>	0.22	0.48	0.79
<b>July</b>	0.16	0.52	0.83
<b>August</b>	0.23	0.57	0.70
<b>September</b>	0.17	0.46	0.98
<b>October</b>	0.11	0.37	0.43
<b>November</b>	0.12	0.34	0.37
<b>December</b>	0.10	0.31	0.41
<b>Average Monthly</b>	0.18	0.46	0.66 kg/day 241 kg/year
<b>Effluent Objective</b>			
<b>Non-Compliance</b>	0.50	892 kg/year	892 kg/year

Table 17 Liquid Sludge Production Summary 2021

Month	Hauler	Liquid Volume m <sup>3</sup>	Cake Weight kg	Destination
January	K&K	491.63		Golden Pheasant CWP
February	K&K	444.65		Golden Pheasant CWP
March	K&K	569.32		Golden Pheasant CWP
April	K&K	643.9		Golden Pheasant CWP
May	K&K	593.82		Golden Pheasant CWP
June	K&K	554.54		Golden Pheasant CWP
July	K&K	553.79		Golden Pheasant CWP
August	K&K	519.25		Golden Pheasant CWP
September	K&K	527.36		Golden Pheasant CWP
October	K&K	709.89		Golden Pheasant CWP
November	K&K	597.18		Golden Pheasant CWP
November	ROHES	650.00		ROHES Lag 4
December	K&K	690.27		Golden Pheasant CWP

**Yearly Total Volume: 7,545.6**  
**Yearly Average Volume: 580.4**  
**Maximum Volume: 709.9**  
**Minimum Volume: 444.7**

Table 18 Sludge Quality Analysis 2021

<b>Parameter Sampled (mg/L)</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>
<b>Date</b>	Feb 04, 2021	May 27, 2021	Aug 12, 2021	Nov 11, 2021
<b>Sample ID</b>	Digested Sludge	Digested Sludge	Digested Sludge	Digested Sludge
Nitrate	<0.3	<0.3	<0.3	<0.3
Mercury	0.005	0.003	0.005	0.008
Chromium	0.18	0.20	0.28	0.28
Cobalt	0.03	0.03	0.05	0.04
Copper	3.9	3.9	5.8	5.6
Lead	0.2	0.2	0.2	0.2
Molybdenum	0.06	0.06	0.07	0.09
Nickel	0.12	0.10	0.16	0.17
Selenium	<0.1	<0.1	<0.1	<0.1
Arsenic	<0.1	<0.1	<0.1	<0.1
Zinc	6	6	8	9
Cadmium	0.009	0.013	0.014	0.014
Ammonia+ Ammonium	489	387	478	523
Total Kjeldahl Nitrogen	1100	798	1200	1110
Total Phosphorus	280	280	375	370
Total Solids	11100	12100	14000	18200
Volatile Acids	<40	70	42	3740
Nitrite	<0.2	<0.2	<0.2	10

## 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 Spicer  
Director, Water and Wastewater Services

Mike Currie  
Manager of Water and Wastewater Operations