

# Wingham Sewage Treatment Plant

## 2024 Annual Report

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

## Wingham Sewage Treatment Plant 2024 Annual Report

**Wingham STP ECA 1040-9HAN94 issued May 30, 2014 and #3557-7UNPUR (Aug 11, 2009-Air) & (CLI ECA 090-W601)**

The Following is a summary and discussion of the 2024 Wingham Sewage treatment plant operation and summary of compliance limits as set forth in the Wingham STP ECA 1040-9HAN94 Issued May 30 2014.

### **The Rated Capacity of the Treatment Unit is 3,400m<sup>3</sup> average daily flow**

Based on Raw Sewage Flows, the 2024 annual average daily flow was 1749m<sup>3</sup>/day which represents 51% of the 3400m<sup>3</sup>/day capacity. The maximum Peak flow of 5327m<sup>3</sup> occurred in April which represents 157% of the capacity.

### **Bypass Events**

There were no bypass or overflow events that occurred during 2024 from the Wingham sewage treatment plant

### **Compliance limits**

The plant consistently removed 96.8% Biological Oxygen demand, 92.4% total suspended solids, 89.4% phosphorous and 95.6% total kjeldahl nitrogen which is well within the range of removals for a secondary sewage plant and consistent with previous yearly operations.

### **Operational problems**

There were no major operational issues to note during the 2024 operating year, a few minor Electrical repairs were needed after power outages. It is being noted in the Capital suggestions to install Backup power and look into updates to the entire Motor control Center

## **Maintenance**

Routine maintenance was performed throughout the year, such as:

- oil changes in gear drives
- cleaning UV lights
- Generator Runs
- Cleaning bar screens

## **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 clarifiers 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 solids return to the aeration and wasting rates.

The raw sewage flowmeter measures the flow going to the treatment plant and is used to base dosages and treatment plant capacity. The final effluent flow meter measures flow to the UV lights and does not represent the hydraulic loading of the plant but rather is a sum of the flow through the plant and any lagoon discharge. Results of monitoring activities can be viewed on the monthly spreadsheets.

A New Sewage pump station was incorporated into the Sewage collection system in October. The new Sewage pump station is equipped with a raw sewage flow meter which is used to measure the flow going to the plant combined with the flow from the Josephine St pumping station. The Pumping station has 2 raw sewage pumps, standby generator and dialer trending can be checked remotely. Results of monitoring can be viewed on monthly spreadsheets.

## **Calibration and Maintenance**

There are three flowmeters, raw sewage (one at each pumping stations) in and the final effluent discharge volumes. The flowmeters are calibrated yearly this year the Josephine St. pumping station raw sewage was calibrated by Advanced meter Services as well as the final effluent. The Hutton Heights new pumping station will be calibrated in 2025. The certificates are stored at the PUC Office. The pH analyzer is calibrated monthly and recorded in the log books.

### **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 these values was developed and is in the Wingham sewage treatment facility operations manual for reference and historically have been adequate to maintain compliance.

### **Biosolids Generated**

A total of 6664 cubic meters were removed from cell 1 in 2024. Approximately 1781m<sup>3</sup> of sludge went into the lagoon in 2024. Out of the 1781m<sup>3</sup> added to the lagoon approximately 900m<sup>3</sup> of that was added from the Blyth Storage tank in April 2024. We would estimate approximately 890m<sup>3</sup> will go into the lagoon for 2025. Our estimate for 2025 is based on a 1 % increase in flows from the new pumping station, Estimating the solids volume in a lagoon situation is nearly impossible when there are no terms of reference for the % solids concentration. Many factors go into the volume such as how well the sludge compacts, water depth in the lagoon, temperature, wind action, solids quality, etc.

### **Complaints**

There were no complaints received as results of the operation of the sewage treatment facility.

### **Reports**

Attached in the report is a data summary,  
Compliance summary,  
Sludge metals summary,  
Bypass and overflow summary

**Wingham Sewage Treatment Plant**

**2024**

| <b>Flows Incoming</b> | <b>Jan</b> | <b>Feb</b> | <b>March</b> | <b>April</b> | <b>May</b> | <b>June</b> | <b>July</b> | <b>Aug</b> | <b>Sept</b> | <b>Oct</b> | <b>Nov</b> | <b>Dec</b> | <b>Total(m3)</b> | <b>Avg(m3)</b> | <b>Max(m3)</b> | <b>% Cap</b> |
|-----------------------|------------|------------|--------------|--------------|------------|-------------|-------------|------------|-------------|------------|------------|------------|------------------|----------------|----------------|--------------|
| Flows                 | 79554      | 69405      | 71898        | 83156        | 58014      | 45777       | 42398       | 40994      | 33291       | 32358      | 31563      | 49969      | 638376.34        | 1749           | 83156          | 51.4         |
| Average               | 2566       | 2393       | 2319         | 2772         | 1913       | 1526        | 1368        | 1322       | 1110        | 1044       | 1018       | 1612       |                  |                |                |              |
| Max/d                 | 5301       | 3264       | 4362         | 5327         | 2548       | 1998        | 2472        | 1912       | 1318        | 1276       | 1339       | 4507       |                  |                | 5327           |              |

  

| <b>Raw Sewage</b> | <b>Avg</b> | <b>Max.</b> | <b>%Removal</b> |
|-------------------|------------|-------------|-----------------|
| BOD               | 65         | 103         | 96.8            |
| SS                | 45         | 68          | 92.4            |
| Alkalinity        |            |             |                 |
| TP                | 1.93       | 3.19        | 89.4            |
| TKN               | 18.87      | 30.45       | 95.6            |
| pH                | 7.51       | 7.99        |                 |

  

| <b>Final Effluent</b> | <b>Avg</b> | <b>Max.</b> | <b>%Removal</b> |
|-----------------------|------------|-------------|-----------------|
| E. Coli               | 24.41      | 84          |                 |
| CBOD                  | 2.10       | 2.67        |                 |
| SS                    | 3.41       | 10.80       |                 |
| Alkalinity            | 205        | 259         |                 |
| Ammonia               | 0.32       | 0.46        |                 |
| TKN                   | 0.82       | 1.75        |                 |
| TP                    | 0.20       | 0.50        |                 |
| NO2                   | 0.05       | 0.09        |                 |
| NO3                   | 15.69      | 26.30       |                 |
| pH                    | 7.42       | 7.59        |                 |
| H2S>                  | 0.02       | 0.02        |                 |

## Wingham STP Compliance Summary

2024

Yellow highlights are Objectives not limits

|                   | January | February | March | April | May  | June | July | August | September | October | November | December |
|-------------------|---------|----------|-------|-------|------|------|------|--------|-----------|---------|----------|----------|
| <b>Max/day m3</b> | 5301    | 3264     | 4362  | 5327  | 2548 | 1998 | 2472 | 1912   | 1318      | 1276    | 1339     | 4507     |

|                    |             |             |             |             |             |             |             |             |             |             |             |             |
|--------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Av Day Flow</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> | <b>3400</b> |
| Actual             | 2566        | 2393        | 2319        | 2772        | 1913        | 1526        | 1368        | 1322        | 1110        | 1042        | 1048        | 1608        |
| Comp. Y/N          | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         |

|                     |           |           |           |           |           |           |           |           |           |           |           |           |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| <b>CBOD&amp;TSS</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> | <b>15</b> |
| CBOD                | 2.7       | 2.5       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       | 2.0       |
| TSS                 | 2.7       | 2.5       | 2.5       | 3.5       | 2.5       | 3.0       | 3.0       | 2.0       | 2.5       | 3.5       | 2.5       | 10.8      |
| <b>Loading Kg</b>   | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> | <b>51</b> |
| CBOD Kg             | 6.84      | 5.98      | 4.64      | 5.54      | 3.83      | 3.05      | 2.74      | 2.64      | 2.22      | 2.08      | 2.10      | 3.22      |
| TSS Kg              | 6.84      | 5.98      | 5.80      | 9.70      | 4.78      | 4.58      | 4.10      | 2.64      | 2.77      | 3.65      | 2.62      | 17.37     |
| Comp. Y/N           | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       | Yes       |

|                   |            |            |            |            |            |            |            |            |            |            |            |            |
|-------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>Tot P</b>      | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> | <b>0.5</b> |
| Actual            | 0.27       | 0.26       | 0.27       | 0.50       | 0.30       | 0.15       | 0.10       | 0.10       | 0.10       | 0.10       | 0.10       | 0.20       |
| <b>TP Load Kg</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> | <b>1.7</b> |
| Act. TP Kg        | 0.70       | 0.61       | 0.63       | 1.39       | 0.57       | 0.23       | 0.14       | 0.13       | 0.11       | 0.10       | 0.10       | 0.32       |
| Comp. Y/N         | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        |

|            |          |          |          |          |          |          |          |          |          |          |          |          |
|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>H2S</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Actual(<=) | 0.02     |          |          | 0.02     |          |          | 0.02     |          |          | 0.02     |          |          |
| Comp. Y/N  | Yes      |          |          | Yes      |          |          | Yes      |          |          | Yes      |          |          |

|           |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |
|-----------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>pH</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> | <b>6.5 - 9.0</b> |
| Min       | 7.40             | 7.52             | 7.46             | 7.39             | 7.43             | 7.00             | 7.21             | 7.25             | 7.18             | 7.10             | 7.18             | 7.26             |

|           |      |      |      |      |      |      |      |      |      |      |      |      |
|-----------|------|------|------|------|------|------|------|------|------|------|------|------|
| Max       | 7.58 | 7.66 | 7.67 | 7.59 | 7.95 | 7.94 | 7.49 | 7.44 | 7.31 | 7.31 | 7.41 | 7.55 |
| Average   | 7.49 | 7.59 | 7.55 | 7.52 | 7.57 | 7.43 | 7.36 | 7.37 | 7.23 | 7.23 | 7.32 | 7.40 |
| Comp. Y/N | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |

|                |            |            |            |            |            |            |            |            |            |            |            |            |
|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| <b>E. Coli</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> | <b>200</b> |
| Actual GMD     | 27         | 10         | 84         | 45         | 8          | 13         | 5          | 41         | 18         | 13         | 4          | 25         |
| Comp. Y/N      | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        |

|                   |          |          |          |            |            |            |            |            |            |            |          |          |
|-------------------|----------|----------|----------|------------|------------|------------|------------|------------|------------|------------|----------|----------|
| <b>NH 3&amp;4</b> | <b>3</b> | <b>3</b> | <b>3</b> | <b>0.8</b> | <b>0.8</b> | <b>0.8</b> | <b>0.8</b> | <b>0.8</b> | <b>0.8</b> | <b>0.8</b> | <b>3</b> | <b>3</b> |
| Actual            | 0.13     | 0.20     | 0.20     | 0.32       | 0.46       | 0.42       | 0.35       | 0.41       | 0.35       | 0.45       | 0.40     | 0.21     |
| NH 3&4 Load/d     | 0.34     | 0.48     | 0.46     | 0.89       | 0.88       | 0.63       | 0.47       | 0.54       | 0.38       | 0.46       | 0.41     | 0.33     |
| Limit kg/d        | 10.7     | 10.7     | 10.7     | 2.7        | 2.7        | 2.7        | 2.7        | 2.7        | 2.7        | 2.7        | 10.7     | 10.7     |
| Comp. Y/N         | Yes      | Yes      | Yes      | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes        | Yes      | Yes      |

|             |             |             |             |             |             |             |             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>NH 3</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> | <b>0.02</b> |
| Actual      | 0.001       | 0.002       | 0.001       | 0.005       | 0.003       | 0.002       | 0.001       | 0.001       | 0.001       | 0.001       | 0.001       | 0.002       |
| Comp. Y/N   | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         | Yes         |

| Quarterly Metals Calculations Report 2024 |          |          |           |          |         |  |
|---|----------|----------|-----------|----------|---------|--|
| Parameter   Date                          | Jan 2-24 | Apr 9-24 | July 2-24 | Oct 8-24 | Average |  |
| Total Solids                              | 6700     | 12100    | 5530      | 5080     | 8110    |  |
| TKN                                       | 368      | 612      | 204       | 224      | 395     |  |
| NH 3&4                                    | 6.9      | 15.3     | 1.2       | 3        | 7.8     |  |
| NO2                                       | < 3      | < 3      | < 3       | < 3      | 3.0     |  |
| NO3                                       | < 3      | < 3      | 9         | 16       | 5.0     |  |
| NO2+NO3                                   | < 3      | < 3      | 9         | 16       | 5.0     |  |
| Arsenic                                   | < 0.1    | 0.1      | < 0.1     | < 0.1    | 0.1     |  |
| Cadmium                                   | < 0.005  | 0.006    | < 0.005   | < 0.005  | 0.005   |  |
| Cobalt                                    | 0.01     | 0.03     | 0.02      | 0.01     | 0.02    |  |
| Chromium                                  | 0.35     | 0.51     | 0.34      | 0.32     | 0.4     |  |
| Copper                                    | 3.1      | 4.6      | 3         | 2.2      | 3.6     |  |
| Mercury                                   | 0.003    | 0.014    | 0.008     | 0.002    | 0.008   |  |
| Potassium                                 | 24       | 42       | 22        | 18       | 29      |  |
| Molybdenum                                | < 0.05   | 0.08     | < 0.05    | 0.05     | 0.06    |  |
| Nickel                                    | 0.13     | 0.23     | 0.15      | 0.11     | 0.17    |  |
| Phosphorous                               | 140      | 220      | 130       | 83       | 163     |  |
| Lead                                      | 0.1      | 0.2      | 0.1       | < 0.1    | 0.1     |  |
| Selenium                                  | < 0.1    | < 0.1    | < 0.1     | < 0.1    | 0.1     |  |
| Zinc                                      | 2        | 5        | 3         | 2        | 3       |  |
| Ecoli DW                                  | 656716   | 1818182  | 1916817   | 1496063  | 1463905 |  |
| Ecoli /100 ml                             | 440000   | 2200000  | 1060000   | 760000   | 1233333 |  |



**Table 1 BYPASS AND OVERFLOW EVENTS**

| Table 1 BYPASS AND OVERFLOW EVENTS |          |                   |            |                  |                 |     |                    |                 |              |                |           |           |                 |
|------------------------------------|----------|-------------------|------------|------------------|-----------------|-----|--------------------|-----------------|--------------|----------------|-----------|-----------|-----------------|
| FACILITY NAME:                     |          | Wingham Sewage    |            |                  |                 |     |                    |                 |              | YEAR: 2024     |           |           |                 |
|                                    |          |                   |            |                  |                 |     |                    |                 |              | Sample Results |           |           |                 |
| Date (dd/mm/yy)                    | Location | Type (see legend) | Start Time | Duration (hours) | Volume (1000m3) | M/E | Disinfection (Y/N) | Treatment (Y/N) | Reason Code* | BOD5 (mg/L)    | SS (mg/L) | TP (mg/L) | E.Coli (/100ml) |
|                                    |          |                   |            |                  |                 |     |                    |                 |              |                |           |           |                 |
|                                    |          |                   |            |                  |                 |     |                    |                 |              |                |           |           |                 |
|                                    |          |                   |            |                  |                 |     |                    |                 |              |                |           |           |                 |
|                                    |          |                   |            |                  |                 |     |                    |                 |              |                |           |           |                 |
|                                    |          |                   |            |                  |                 |     |                    |                 |              |                |           |           |                 |

Legend

PB = Primary Bypass                      M = Measured                      Y = Yes                      1 = Heavy Precipitation                      6 = Process Upsets

SB = Secondary Bypass                      E = Estimated                      N = No                      2 = Spring Runoff                      7 = Power Outages

STPO = Sewage Treatment Plant Overflow                      3 = Infiltration                      8 = Unknown

CSO = Combined Sewer Overflow                      4 = Mechanical/Equipment Failure                      9 = Other, please comment below.

SSO = Sanitary Sewer Overflow                      5 = Pipe Failures(break/leak/plugged)

STWO = Satellite Treatment Works Overflow

Comments:

There were no Bypass or Overflow events in 2023

*Report Completed by: Veolia Water  
Scott Gowan, Project Manager*

**Veolia Water Canada, Inc.**

130 Wallace St, PO Box 220, Walkerton On, N0G 2V0

Tel 519-881-1474

[scott.gowan@veolia.com](mailto:scott.gowan@veolia.com)

<https://www.veoliawatertechnologies.com/en>