



## ***City of Morganton's 2020 Wastewater System Performance Report***

### **About:**

The City of Morganton operates a wastewater treatment system consisting of a designed 10.5 million-gallon a day wastewater treatment plant, 16 sewer lift stations and over 200 miles of collection system. Morganton's collection system operates from the shore of Lake James to the Town of Glen Alpine, to portions of the Salem area and most of the City limits.

The City's Wastewater Treatment Plant operates under its NPDES permit #NC0026573 and is located at 1000 Vine Arden Road. Its NPDES permit allows the plant to discharge the treated wastewater into the Catawba River. The plant is an activated sludge facility using a fine bubbler diffused aeration system and its treatment units consist of bar screens to remove trash and debris, flow monitoring, cyclone de-gritting for grit removal, primary clarification, aeration for microbiology to grow and remove wastewater BOD (biochemical oxygen demand), secondary clarification, disinfection and de-chlorination before being discharged into the Catawba River. The solids process consists of raw sludge removal from primary clarifiers and activated sludge removal from secondary clarifiers. This sludge is dewatered with the use of a centrifuge aided with polymer to produce dry solids also known as residuals.

The City operates its compost residuals at the Wastewater Treatment Plant under the permit #WQ0002127. Operation is 5 days a week consisting of two front end loaders, woodchips, 16 blowers for residual piles and a power screen trommel for screening residuals. Residuals are lab tested every 3 months and are distributed to the general public as Class-A bio-solids.

The City operates its collection system through permit #WQCS00028. It is a complex network of piping materials ranging from 6 inches to 54 inches in diameter that consists of vitrified clay pipe, plastic pipe, ductile iron pipe and cement pipe. The system is managed by inspecting, clearing stoppages, making repairs, bush hogging, installing sewer taps and investigating issues that are reported. The City plans to continue to use contractors to help augment its preventative maintenance program. The results will be used to identify areas that need to be repaired and to plan appropriate action.

The City implements a Fats, Oils and Grease (FOG) program in an effort to eliminate FOG from entering the collection system. FOG collects and binds to piping which causes blockages, backups and spilling from the sewer system. Each restaurant, cafeteria, gas station, prison, hospital and school that discharges into the City's sewer system is given a survey of their establishment and is inspected twice a year.

*Often it's our customers who are the first to find problems. If you see something that appears to be wrong, please call water resources 24-hour number at 828-438-5276.*

## Annual Report Summary:

Below is a summary of the wastewater system for the year 2020, with reference to year 2019. Following the summary is a brief description of 2020's system report.

| 2020                                       |                                  |                                  |                   | 2019                    |               |               |
|--|----------------------------------|----------------------------------|-------------------|-------------------------|---------------|---------------|
| <b>Total Flow at WWTP</b>                  |                                  | 2.05 Billion Gallons             |                   | 2.35 Billion Gallons    |               |               |
| <b>Average Daily Flow</b>                  |                                  | 5.63 Million Gallons a Day (MGD) |                   | 6.45 MGD                |               |               |
| Monthly Flow                               |                                  | Total Gallons                    | Daily Average MGD |                         | Total Gallons | Daily Average |
| Jan  |                                  | 168,264,000                      | 5.43              | *                       | 278,410,000   | 8.98          |
| Feb  | *                                | 214,434,000                      | 7.66              | *                       | 282,991,500   | 10.11         |
| Mar  |                                  | 157,262,000                      | 5.07              | *                       | 217,488,000   | 7.02          |
| Apr  |                                  | 139,383,000                      | 4.65              | *                       | 230,061,000   | 7.67          |
| May  |                                  | 172,218,000                      | 5.56              |                         | 171,348,000   | 5.53          |
| June                                       |                                  | 149,413,000                      | 4.98              | *                       | 239,031,000   | 7.97          |
| July                                       |                                  | 124,580,000                      | 4.02              |                         | 147,795,000   | 4.77          |
| Aug  |                                  | 178,714,000                      | 5.76              |                         | 137,730,000   | 4.44          |
| Sep  |                                  | 177,970,000                      | 5.93              |                         | 145,694,000   | 4.86          |
| Oct  |                                  | 186,483,000                      | 6.02              |                         | 155,326,000   | 5.01          |
| Nov  | *                                | 205,651,000                      | 6.86              |                         | 164,781,000   | 5.49          |
| Dec  |                                  | 179,035,000                      | 5.78              |                         | 183,118,000   | 5.91          |
| * Non-Compliant Months                     |                                  |                                  |                   | * Non-Compliant Months  |               |               |
| <b>WWTP Compost</b>                        |                                  |                                  |                   | Dry Tons                |               |               |
| Residuals generated                        |                                  | 1154                             |                   | 1060                    |               |               |
| Residuals screened                         |                                  | 713                              |                   | 756                     |               |               |
| Residuals distributed                      |                                  | 664                              |                   | 894                     |               |               |
| <b>Collection System</b>                   |                                  |                                  |                   |                         |               |               |
| Man Holes                                  |                                  | 996                              |                   | 860                     |               |               |
| Flushed Pipe                               |                                  | 137,537 ft (26 Miles)            |                   | 118,085 ft (22.3 Miles) |               |               |
| Repairs                                    |                                  | 27                               |                   | 14                      |               |               |
| Camera Inspected                           |                                  | 14,321 ft (2.7 miles)            |                   | 16,887 ft (3.2 Miles)   |               |               |
| Sewer Taps                                 |                                  | 33                               |                   | 30                      |               |               |
| Stoppages                                  |                                  | 57                               |                   | 84                      |               |               |
| Bush Hogged                                |                                  | 45,230 ft (8.5 Miles)            |                   | 87,600 ft (16.6 Miles)  |               |               |
| Sevice Calls                               |                                  | 305                              |                   | 316                     |               |               |
| Investigations/Complaints                  |                                  | 118                              |                   | 58                      |               |               |
| <b>Collection System Sewer Overflows</b>   |                                  |                                  |                   |                         |               |               |
| Date                                       | Location                         | Gallons                          |                   |                         |               |               |
| 1/6/2020                                   | Moorehead/Westley Outfall        | 600                              |                   |                         |               |               |
| 1/25/2020                                  | River Gleen Sub Div - Doe Run    | 500                              |                   |                         |               |               |
| 2/6/2020                                   | Vine Arden Junction Box          | 50,000                           |                   |                         |               |               |
| 2/14/2020                                  | Laurawood Drive                  | 675                              |                   |                         |               |               |
| 3/30/2020                                  | Riverside Outfall Flemming Drive | 600                              |                   |                         |               |               |
| 6/12/2020                                  | 105 South River Glen             | 300                              |                   |                         |               |               |
| 11/12/2020                                 | Vine Arden Junction Box          | 180,000                          |                   |                         |               |               |
| <b>Fats, Oils and Grease Program (FOG)</b> |                                  |                                  |                   |                         |               |               |
| Restaurants inspected                      |                                  | 78                               |                   | 153                     |               |               |
| Restaurant Surveys                         |                                  | 15                               |                   | 188                     |               |               |

### WWTP Non-compliant Months:

During the year 2020, the Wastewater Treatment Plant was non-compliant for the months of February and November.

In the month of February, the area was impacted by heavy rain (4.18 inches) with inflow/infiltration entering the sewer system on Feb 6<sup>th</sup>. Due to the excessive flow, all storage was filled but unable to contain the 20 MGD total flow for the day. The plant violated its weekly Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD) limits. A notice of violation was issued from NCDEQ but no civil penalty was assessed.

In the month of November, the area was impacted by tropical storm Eta with a rain totaling 6.5 inches over a 48 hour period. All available storage was filled but the plant was unable to contain the 47 MGD over a 3 day period. The plant violated its weekly and monthly TSS & BOD limits. A notice of violation was issued from NCDEQ but no civil penalty was assessed.

### Collection System Sewer Overflows

During the year of 2020, there were a total of 7 sewer overflows. 2019 had a total of 6 overflow reports. Below is a brief summary of each incident from 2020.

- 1) Jan 6<sup>th</sup> – Overflow was caused by an estimated 50 year old 8 inch pipe failure. A 5 ft. section of clay pipe was replaced with PVC.
- 2) Jan 25<sup>th</sup> – Overflow was determined to be caused by roots. Line was jetted to clear roots and treated by Dukes Company at a later date.
- 3) Feb 6<sup>th</sup> – Heavy rainfall impacted area. Collection system was overwhelmed from excessive infiltration from rain. Once rain passed, flows subsided and overflow ceased.
- 4) Feb 14<sup>th</sup> – Heavy rainfall eroded bank and a tree fell onto exposed line causing a line failure. A 30 ft. section of 8 inch iron pipe was replaced by ductal iron pipe.
- 5) Mar 30<sup>th</sup> – Overflow was determined to be caused by roots. Line was jetted to clear roots and treated by Dukes Company at a later date.
- 6) June 12<sup>th</sup> – Overflow was caused by grease and debris in the line. Line was jetted and flushed. Lime was used around affected area.
- 7) Nov 12<sup>th</sup> – Heavy rainfall from tropical storm Eta impacted area. Collection system was overwhelmed from excessive infiltration from rain. Once rain passed, flows subsided and overflow ceased.

### Fats, Oils and Grease (FOG) Program

During the year 2020, COVID-19 impacted the state of NC and several businesses were closed for periods of time during the year. This caused a reduction in inspections and surveys.