

City of Morganton's

2019 Wastewater System Performance Report



The City of Morganton operates a wastewater treatment system consisting of a 10.5 million-gallon a day wastewater treatment plant, fifteen 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 of Morganton. The collection system 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 City's Wastewater Treatment Plant is an activated sludge facility using a fine bubble diffused aeration system. Its NPDES permit #NC0026573 allows the facility to discharge the treated wastewater into the Catawba River. Its treatment units consists of bar screens to remove trash and debris, flow monitoring, cyclone de-gritting for grit removal, primary clarification, aeration for micro-organisms to grow and remove wastewater BOD (biological oxygen demand), secondary clarification, disinfection and dechlorination before discharge to the Catawba River. The solids process consists of raw sludge removal and activated sludge removal. A dewatering sludge process consists of centrifuge, polymer addition and composting. The composting product is then made available to the public as Morganite.

During 2019, the Wastewater Treatment Plant treated over **2.35 billion** gallons of wastewater. The average daily flow was 6.44 million gallons. The wastewater treatment facility staff continues to strive to improve wastewater treatment quality.

Some major renovations were completed in 2019. A fine bubble diffused aeration system using turbo blowers (replacing the very costly pure oxygen system) was installed inside of 2 new activated sludge aeration basins, 4 new recycled activated sludge pumps and 2 waste activated sludge pumps in 2 stations, 1 secondary clarifier's mechanical equipment, 3 secondary clarifier scum removal equipment, a new building which houses the 3 new turbo blowers as well as the a new storage room for chemicals. This is all to help alleviate some of the challenges the aging facility has experienced, provide better cost efficiencies in the treatment process and to provide an overall better treatment for Morganton's wastewater needs as well as for its state permit demands.

The Wastewater Treatment facility was compliant 7 out of 12 months. In the months of January and February the facility had a monthly flow exceedance violation, a weekly and the monthly exceedance of TSS and BOD violation, a weekly violation of Fecal Coliform in January and a daily pH violation in February. The Facility was under major construction and had peak flow basins offline being repaired that couldn't be utilized to help sustain the infiltration from the heavy rainfall during the 2 months. In March, a river conductivity sample was not collected which caused the facility to have a weekly sample less than permit requirements. In April the facility had a weekly and monthly TSS and BOD exceedance violation due to part of the facility being offline for construction, this left the facility with less capacity when infiltration from heavy rains came during the month and the facility was unable to sustain the excess flow. In June, the facility had an unusually high BOD measurement from an outside lab which resulted in a weekly BOD exceedance violation. Results could not be retested and had to be reported as is. Construction of the facility was completed in August.

The facility had 2 Spills from 2019. Both were related to heavy rainfall and construction. First was on Feb 18th in the amount of 24,000 gallons of partially treated wastewater that entered Hunting Creek. This was due to high flow from rain event and tanks/basins being offline and under construction that were unable to be utilized to help alleviate flow. The 2nd was on June 8th in the amount of 13,000 gallons of partially treated wastewater that entered Hunting Creek. This cause was due to a failed seal plate that construction installed for a repurposed basin. When it was filled during a high flow from rain event, the seal failed and caused the spill. The basin's seal was afterward filled with concrete eliminating the possibility of the spill to occur in the future.

Residuals from the wastewater treatment process are managed through the City of Morganton's Composting Facility regulated by permit # WQ0002127. The facility operates 5 days a week with two full time employees. During the 2019 calendar year the facility processed 1,061 dry tons of residuals from the wastewater treatment plant, produced 756 dry tons of finished screened compost residuals, and 894 dry tons of the finished screen residuals was distributed to public. No violations or issues were experienced during the year.

The collection and distribution division monitors the water and sewer system. This small crew of dedicated personnel routinely goes into the lines to maintain and repair them. During 2019, this division maintained 860 manholes, flushed 118,085 feet (22.4 miles) of sewer line and used a robotic TV camera to inspect 16,887 feet (3.2 miles) of sewer. Collection system crews completed 30 new sewer taps during the 2019 calendar year, made 14 repairs to the system and relieved 84 stoppages. Sewer maintenance crews bush-hogged a total of 87,600 feet (16.6 miles) of sewer line right-of-way to give them access to the most remote sewer lines, responded to 316 service calls, and checked into 58 investigations and complaints. Morganton's collection system is regulated through permit #WQCS00028.

There were 6 reported overflows of the sewer system in 2019. Severe rain with high inflow and infiltration caused an overflow at Vine Arden Junction Box on June 8th, an estimated 50,000 gallons spilled into Hunting Creek. Severe rainfall with high inflow and infiltration caused another overflow at Vine Arden Junction box on June 18th, estimated 10,350 gallons spilled into Hunting Creek. A build-up of grease debris caused an overflow near Vine Arden & Kirksey on August 8th, estimated 450 gallons spilled into Catawba River. An buildup of root debris caused an overflow near Fernwood Dr and Causby Rd on October 28th, estimated 720 gallons spilled into Little Silver Creek. A pipe break was found near Coal Chute Outfall off W. Fleming Dr. on

November 6th, estimated 13,200 gallons spilled into Hunting Creek. A buildup of root debris caused an overflow near Craftsman dr/Walker rd. on December 28th, estimated 360 gallons spilled into Hunting Creek. In each of the overflow situations, City personnel worked diligently to make the necessary repairs to each issue and address the causes to help mitigate the overflows.

Annually, City crews use a remote camera to help clean and inspect portions of the sewer system. 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 camera that is used has its own light system and can rotate 180 degrees. The camera can tell if the lines are in good condition or whether there are cracks that are allowing the surrounding soil to fall into the sewer line. Cameras can also locate missing taps or indicate where leaks are occurring. This information tells us if we need to make an immediate repair or if the repair can be scheduled.

The City has reinforced its Fats, Oil and Grease (FOG) program in 2019 in the effort to help eliminate issues the collection system experiences. Nearly all restaurants, cafeterias, gas stations, prisons, hospitals and schools were inspected in 2019. The FOG program will continue to be enforced in its efforts to keep fats, oils and grease from entering the collection system. Residential customers should avoid draining any grease into sinks, instead, put grease in the trash. Flyers were issued to some communities in the city that were known to have grease issues. Particles accumulate in the customer's home as well as the collection system which causes maintenance and backups for the homeowner and the City.

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