

City of Morganton's Wastewater System Performance Report for 2023



EPA's Clean Water Act of 1999 requires the publishing of this report.
The purpose of this report is to present the performance of the wastewater system for the past year:

January 1st – December 31st, 2023

Catawba River Pollution Control Facility

1000 Vine Arden Rd
Morganton NC 28655

NPDES Permit: NC0026573
Permit Type: Grade IV

Operator in Responsible Charge: Eli Self
Receiving Stream: Catawba River

The facility is an activated sludge plant using a fine bubbler diffused aeration system powered by turbo blowers. It's treatment units consist of bar screens to remove trash and debris, flow monitoring, cyclone degritting for grit removal, primary clarification, aeration for microbiology to grow and remove wastewater BOD (biochemical oxygen demand), secondary clarification, disinfection and dechlorination before being discharged into the Catawba River. Sludge is removed with dewatering centrifuges and processed on site at the compost facility. Plant is staffed 24-7 with operators of state certified grade 1 or higher. Facility reports several parameters each month to North Carolina's Department of Environmental Quality (NCDEQ). Total flow in million gallons a day (MGD), biochemical oxygen demand (BOD) which is the amount of oxygen consumed by microorganisms to break down organic matter, total suspended solids (TSS), ammonia nitrogen (NH₃-N), fecal coliform, pH, dissolved oxygen (DO), total chlorine residual from disinfection/dechlorination, Copper and toxicity.

Wastewater Treatment Plant System Report

Permit Effluent Limits				Monthly Averages 2023											
Parameters	Monthly	Weekly	Daily	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Flow MGD	8.0 MGD			6	6	5	5	5	6	6	5	5	5	5	7
BOD	30 mg/l	45 mg/l		58	44	21	38	7	61	14	4	5	4	6	15
TSS	30 mg/l	45 mg/l		69	37	20	43	7	69	20	5	5	4	8	18
Ammonia (NH ₃ -n)	8.4 mg/l	25.3 mg/l		1	2	0	0	0	0	0	0	0	1	1	1
Fecal Coliform	200 /100ml	400 /100ml		58	5	3	5	7	5	18	4	5	3	3	3
pH			6 - 9	7	7	7	7	7	7	7	7	7	7	7	7
Dissolved Oxygen			>5.0 mg/l	9	9	9	7	8	8	8	8	8	8	8	9
Total Chlorine			28 ug/l	15	14	14	7	13	13	16	18	23	19	18	18
Total Copper	85.9 ug/l		96.1 ug/l	9	3	3	3	6	4	6	4	5	3	3	3
Toxicity	Pass or Fail Quarterly			Pass			Pass			Pass			Pass		

2023				2022		
Wastewater Treated		2.053 Billion Gallons		1.95 Billion Gallons		
Average Daily Flow		5.63 Million Gallons a Day (MGD)		5.35 MGD		
Monthly Flow		Total Gallons	Daily Average MGD		Total Gallons	Daily Average
Jan	*	187,910,000	6.34		158,492,000	5.11
Feb	*	176,443,000	6.30		156,393,000	5.59
Mar		168,812,000	5.45		167,125,000	5.39
Apr	*	163,470,000	5.45		150,755,000	5.03
May		164,285,000	5.30		150,161,000	4.84
June	*	166,548,000	5.55		140,010,000	4.67
July	*	177,934,000	5.74		155,649,000	5.02
Aug		168,256,000	5.43		164,452,000	5.30
Sep		149,753,000	4.99	*	169,914,000	5.66
Oct		159,891,000	5.16		159,989,000	5.16
Nov		158,256,000	5.28		187,794,000	6.26
Dec		203,880,000	6.58	*	190,958,000	6.16
* Non-Compliant Months				* Non-Compliant Months		

Non-Compliance Violations 2023		
Month	Violation	Cause
January	Week #2 TSS, Week #4 TSS & BOD, Monthly TSS & BOD	Hydraulic overloading from 3 separate rain events.
February	Week #3 TSS & BOD Monthly TSS & BOD	Hydraulic overloading from rain event, plant unstable from prior month & industrial violations impacting treatment performance.
April	Week #5 TSS & BOD Monthly TSS & BOD	Hydraulic overloading from 3 inch rain event.
June	Week #4 TSS & BOD Monthly TSS & BOD	Hydraulic overloading from 4.5 inch rain event.
July	Week #2 TSS	Treatment issue, mechanical issue and rain event during the week.

Wastewater Treatment Plant Compost Residuals

1000 Vine Arden Rd
Morganton NC 28655

Permit Number: WQ0002127

Permit Type: Class A Biosolids

Operator in Responsible Charge: Eli Self

Located at the wastewater treatment plant, residual solids are removed from the wastewater stream and processed onsite. Operation consists mixing dewatered sludge with woodchips and stacked into beds that is fed air into pile with blowers. This process generates heat which kills harmful bacteria and further dries the material. After heating stage of several weeks, material is screened with a trommel screen to produce a finished material for distribution. Finish material is sampled every three months for various metals, fecal coliform, pH, phosphorus and other parameters to meet permit requirements. Product then can be distributed to general public as a Class A Biosolids.

Compost Residuals	2023	2022
	Dry Tons	Dry Tons
Residuals generated	1801	1603
Residuals screened	1084	966
Residuals distributed	580	876

Parameter (mg/kg)	Ceiling Conc. Limit (mg/kg) ^a	Sample or Composite Date							
		1/3/23	1/11/23	4/3/23	4/19/23	7/5/23	7/12/23	10/4/23	10/11/23
Percent Solids (%)	NA	64		42.2		69.1		85	
Arsenic	75	<0.743		0.16		<0.693		1.12	
Cadmium	85	0.584		0.262		0.52		0.525	
Copper	4,300	253		92.6		157		190	
Chromium	NA								
Lead	840	11.2		2.45		4.34		8.56	
Mercury	57	0.379		0.223		0.221		0.143	
Molybdenum	75	6.4		3.48		4.52		7	
Nickel	420	11		4.98		12.3		10.5	
Selenium	100	<0.743		<0.707		1.64		0.701	
Zinc	7,500	1056		1360		692		748	
Total Phosphorus	NA	700		1848		1042		506	
TKN	NA	21564		3099		10130		6008	
Ammonia-Nitrogen	NA	1751		213		96		5765	
Nitrate and Nitrite	NA	20		205		22		104	
Aluminum	NA	17800		1064		12700		12600	
Calcium	NA	11100		11915		7700		8630	
pH	NA	7.4		7.5		6.9		7.6	
Potassium	NA	2410		788		2200		1960	
Sodium	NA	2350		445		368		368	
Magnesium	NA	2600		2617		2100		2080	
Fecal Coliform (mpn/g)	< 1000	<3.3	<3	10.8	5.4	<2.89	19.5	<2.4	<2.9
Fecal Coliform (mpn/g)	< 1000	<3	<3	11.8	5.5	<2.96	<2.8	<2.9	<2.9
Fecal Coliform (mpn/g)	< 1000	<2.53		<2		<2.87		<2.5	

Non-Compliance Violations 2023

Month	Violation	Cause
None		

Wastewater Collection System**305 E. Union St. Suite A100** Permit Number: WQCS00028

Operator in Responsible Charge: Ronnie Suttles

Morganton NC 28655

Permit Type: Collection System III

The wastewater collection system consists of over 200 miles of piping and maintains 16 lift stations. The collection system serves most of central Burke County including the shores of Lake James, Glenn Alpine, Salem, Drexel and most of the city limits. Piping materials consists of vitrified clay, plastic, ductile iron and cement. Piping ranges from 3 inches to 54 inches in diameter.

Collection System Report		
	2023	2022
New Sewer Taps	29	47
Repairs	42	36
Stoppages	81	97
Man Hole Maint.	786	569
Sewer Line Flushed	81,481 ft (15.4 Miles)	93,048 ft (17.6 Miles)
Camera Inspected	7,122 ft (1.34 Miles)	7,633 ft (1.45 Miles)
Right of Way Cleaning	45,000 ft (8.52 Miles)	39,800 ft (7.53 Miles)
Sevice Calls	292	174
Investigations/Complaints	152	70

Collection System Sewer Overflows 2023			
Date	Location	Gallons	Cause
3/14/2023	240 Sandford Drive	800	Busted pipe from guardrail contractor
4/17/2023	199 Southview St	100	Pipe blockage from grease & roots
7/5/2023	3725 N Lail Ave	750	Thunderstorm 3.5" rain over 2-3 hours
8/5/2023	210 Davis Drive	500	Pipe failure, section replaced
12/2/2023	409 Fletcher St	720	Pipe blockage from roots

Pretreatment Program

PO Box 3448

Operator: Tim Arney

Morganton NC 28680

The Pretreatment Program is responsible for overseeing the discharge of wastewater into the collection system from industrial sources. The program issues permits to significant industrial users (SIU) of parameters that impact the wastewater treatment plant. This oversight includes routine site visits, monitoring and sampling discharged flow from SIUs and inspecting industry pretreatment processes.

Pretreatment Program Report		
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	2023	2022
Number of SIU	3	3
SIU Significant Non-Compliance - Permit Violations	1	1
Number of SIU Listed in Public Notice	1	1
Number of SIU Issued Compliance Schedule	0	0
Number of Notice of Violations (NOV) Issued	72	28
Number of Civil Penalties Assessed	0	0
Civil Penalties Amounts	0	0
Number of SIU Issued Civil Penalties	0	0

Fats, Oils and Grease Program

PO Box 3448

Operator: Tim Arney

Morganton NC 28680

The Fats, Oils and Grease (FOG) program monitors each food establishment that discharges into the collection system for proper grease disposal. Operation survey is required for each new establishment. Routine inspections are conducted to each establishment and any inspections that fail to meet the FOG program requirements are issued a citation for remediation.

Fats, Oils and Grease Program (FOG)		
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	2023	2022
Food Establishments Inspected	120	129
Citations Issued	18	22
Establishment Surveys	8	7

END OF REPORT

*Often our customers and residents are the first to find issues.
Please call Water Resources' 24-hour number at 828-438-5276 to report any issues.*