



**UNION
COUNTY
WATER**

Wastewater Performance Summary

Fiscal Year 2021-2022



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Dear Customer,

We are proud to share this year's Annual Wastewater Performance Summary with you. This report outlines last year's wastewater treatment efforts. Included are details about your treatment facilities, collection system performance, and how it compares to standards set by regulatory agencies.

Wastewater is all the water that leaves the inside of your home or business through sinks, toilets, washing machines, etc. and enters Union County's wastewater (sewage) collection system. The wastewater then flows through pipes into the County's regional sewage system, where it is treated to meet federal and state water quality standards.

We have a responsibility to manage our water resources in a sustainable manner to ensure there is sufficient water and its quality is protected. While we are committed to conserving resources and protecting the environment through wastewater treatment, this can only occur if it is done in a safe manner. Protection of public health and safety is, and must remain, our first priority. We are proud of our achievements to date, but we aim to constantly improve the way we manage the wastewater generated by our residents.

If you have any questions regarding this report or your water, please contact us at 704.296.4210. If you want additional information, please visit our website at: unioncountync.gov

Sincerely,

Andy Neff

Andrew Neff, P.E.
Water & Wastewater Division Director
4600 Goldmine Road, Monroe, NC 28110



1.0 Introduction

Nature has an amazing ability to cope with small amounts of water waste and pollution, but it would be overwhelmed if we didn't treat the wastewater and sewage produced every day before releasing it back to the environment. Treatment plants reduce pollutants in wastewater to a level nature can handle. Wastewater is used water. It includes substances such as human waste, food scraps, oils, soaps, and chemicals. In homes, this may be water from sinks, showers, bathtubs, toilets, washing machines, and dishwashers. Businesses and industries also contribute their share of used water that must be cleaned.

If wastewater is not properly treated, the environment and human health can be negatively impacted. These impacts include harm to fish and wildlife populations, oxygen depletion, restrictions on recreational water use, and contamination of drinking water.

House Bill 1160, the Clean Water Act of 1999, was ratified by the North Carolina General Assembly on July 20, 1999 and signed into law by the Governor on July 21, 1999. This legislation placed significant reporting requirements on entities that own or operate wastewater systems. The purpose of this Performance Summary is to establish compliance with this rule.

Union County Water (UCW) is charged with the management, operation and maintenance of the County's sanitary sewer system. During fiscal year 2021-2022 the wastewater system was comprised of five active water reclamation facilities (WRF), 53 wastewater pumping stations, and more than 737 miles of pipe with over 45,000 connections. In addition to the five WRF's, which have a combined rated treatment capacity of 9.65 million gallons per day (MGD), the County, through contractual agreement, has 2.65 MGD and 3.0 MGD of purchased capacity at the City of Monroe WRF and Charlotte's McAlpine Creek WRF.

2.0 Definitions

For the purposes of this performance report the following definitions apply:

AEROBIC

A condition in which atmospheric or dissolved molecular oxygen is present in the aquatic environment.

BIOLOGICAL NUTRIENT REMOVAL

The process of removing nitrogen and phosphorus from wastewater using biological processes as opposed to chemical means.

BIOSOLIDS

A primarily organic solid product, produced by wastewater treatment processes that can be beneficially recycled. The word biosolids replaces the word sludge.

BOD – BIOCHEMICAL OXYGEN DEMAND

The rate at which organisms use the oxygen in water or wastewater while stabilizing decomposable organic matter under aerobic conditions. The BOD test is a procedure that measures the rate of oxygen use under controlled conditions of time and temperature. BOD is typically used to express the “strength” of wastewater.

CL2 – CHLORINE RESIDUAL

The amount of chlorine present in the final effluent after disinfection. Typically measured in micrograms per liter or milligrams per liter.

D.O. – DISSOLVED OXYGEN

Molecular (atmospheric) oxygen dissolved in a liquid.

EFFLUENT

Treated wastewater flowing from the treatment system.

EXTENDED AERATION

A type of wastewater treatment facility in which the wastewater is retained and treated for a minimum of 24 hours at design flow before discharge occurs.

INFLOW AND INFILTRATION (I&I)

Extraneous water that enters the sanitary sewer system through openings and/or defects in the collection system.

FECAL COLIFORM

The coliform (bacteria) found in the feces of warm-blooded animals. The presence of coliform-group bacteria is an indication of possible pathogenic bacterial contamination.

MGD – MILLION GALLONS PER DAY

Volumetric measurement of flow converted to millions.

Example: 150,000 gallons per day (gpd) / 1,000,000 = 0.150 MGD.

NH3 – NITROGEN AS AMMONIA

A compound found naturally in wastewater. The compound is produced by the deamination of organic nitrogen containing compounds

NPDES PERMIT – NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Permits, required by the Federal Water Pollution Control Act Amendments of 1972, which regulate discharges to surface waters.

PH

The expression of the intensity of the basic or acidic condition of a liquid.

PUMP STATION

A holding tank with pumps that forces wastewater uphill when flow by gravity is not possible.

RECLAIMED WATER

Highly treated wastewater that has undergone advanced treatment processes to re- move solids, organics, and pathogens meeting the State’s Health and Safety Standards for Beneficial Reuse.

SOC

Special Order of Consent: An Order that establishes a schedule of corrective actions necessary to achieve compliance and alternative limitations that will be effective until corrective actions are completed or until the completion date specified in the Order, whichever comes first.

SSO

Acronym for “sanitary sewer overflow”

TSS – TOTAL SUSPENDED SOLIDS

Particles suspended in a liquid.

TURBIDITY

The measurement of the clearness or cloudiness of a liquid.

3.0 Synopsis of Water Reclamation Facilities (Fiscal Year 2021-2022)

During fiscal year 2021-2022 Union County Water (UCW) operated and maintained a total of five active water reclamation facilities and maintained one inactive facility. Although each permit requires facility visitation daily, excluding weekends and holidays, UCW's water reclamation facilities are checked seven days per week, 365 days per year. All treatment facilities are equipped with emergency back-up power generators. In addition to SCADA, each facility has both audible and visual trouble alarms. Water reclamation facility staff rotate on-call duty for after hour situations that may arise.

A brief overview of each facility and a performance summary table for each facility is provided herein.

TWELVE MILE CREEK WATER RECLAMATION FACILITY

Permit No. NC0085359.

Twelve Mile Creek WRF is an extended aeration facility that uses biological nutrient removal and tertiary filtration. Disinfection is accomplished via UV (ultraviolet light). Twelve Mile effluent is discharged into Twelve Mile Creek, which is part of the Catawba River Basin. The facility is permitted to discharge up to 7.5 MGD of treated wastewater. Twelve Mile Creek WRF is located at 8299 Kensington Drive and serves Waxhaw as well as portions of Indian Trail, Stallings and Weddington. Please refer to Table 3-1.

CROOKED CREEK WATER RECLAMATION FACILITY

Permit No. NC0069841.

Crooked Creek WRF is an extended aeration facility that uses tertiary filtration. Disinfection is accomplished via UV (ultraviolet light). Crooked Creek effluent is pumped over 17,000 feet to discharge into the North Fork Crooked Creek which lies in the Yadkin Pee Dee River Basin. This facility is permitted to discharge up to 1.9 MGD of treated wastewater. Crooked Creek is located at 4015 Sardis Church Road and serves the Indian Trail, Lake Park and Stallings areas. Please refer to Table 3-2.

HUNLEY CREEK WATER RECLAMATION FACILITY

Permit No. NC0072508.

This facility was taken out of service May 10, 2006, via a flow diversion project and remains inactive. Hunley Creek is located at 6913 Stevens Mill Road. Due to "Inactive Status" of the Hunley Creek WRF, there was no data to report to Table 3-3 for fiscal year 2021-2022.

OLDE SYCAMORE WATER RECLAMATION FACILITY

Permit No. WQ0011928.

Olde Sycamore is an extended aeration facility with tertiary filtration. Disinfection is accomplished via UV (ultraviolet light). This facility is permitted to discharge up to 0.150 MGD (150,000 per gallons per day) of treated wastewater. Olde Sycamore was "up-fitted" in early 2012 to improve operating efficiency (reduced electrical consumption) by implementing usage of fine-bubble diffused aeration versus the former "coarse-bubble" aeration. Olde Sycamore serves the Olde Sycamore Golf Community located off of Highway 218 and Rock Hill Church Road. Olde Sycamore effluent is discharged to a man-made impoundment from which it is then pumped onto the Olde Sycamore Golf Course as a source of irrigation. Please refer to Table 3-4.

TALLWOOD ESTATES WATER RECLAMATION FACILITY

Permit No. NC0069523.

Tallwood is an extended aeration facility with cloth-disc filtration. Disinfection is accomplished via UV (ultraviolet light). This facility is permitted to discharge up to 0.05 MGD (50,000 gallons per day) of treated wastewater. The original Tallwood plant was replaced in 2012 with a new facility. Tallwood WRF is located within the Tallwood subdivision on Brief Road. It also serves the Belk Boy Scout Camp. Tallwood effluent is discharged to Clear Creek, which lies in the Yadkin Pee Dee River Basin. Please refer to Table 3-5.

GRASSY BRANCH WATER RECLAMATION FACILITY

Permit No. NC0085812.

Grassy Branch is an extended aeration facility with tertiary filtration. Disinfection is accomplished via UV (ultraviolet light). This facility is permitted to discharge up to 0.05 MGD (50,000 gallons per day) of treated wastewater. Grassy Branch is located at 1629 Old Fish Road and currently serves the Unionville Elementary, Piedmont Middle and Piedmont High Schools as well as one individual residence, Loxdale Farms Subdivision, and Smith Field Subdivision. Grassy Branch effluent is discharged to Crooked Creek, which lies in the Yadkin Pee Dee River Basin. Please refer to Table 3-6.



Table 3-1

**Twelve Mile Creek Water Reclamation Facility
 NPDES Permit #: NC0085359
 Fiscal Year: 2021-2022 Effluent Limits and Performance**

Parameter	Limit	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22	Jun '22
FLOW	7.5 MGD	5.42	5.48	5.35	5.10	5.11	5.59	6.56	6.20	6.76	6.42	5.84	5.46
pH	6-9 SU	7.5-7.6	7.5-7.8	7.3-8.3	7.2-7.8	7.1	7.2-7.4	7.2-7.3	7.2- 7.3	7.0- 7.6	7.1-7.3	7.1-7.4	7.0-7.5
BOD5 Summer (Apr.1 - OCT.31)	5 mg/l	3.83	2.03	1.05	3.0	-	-	-	-	-	1.04	2.07	1.46
Winter (Nov.1 - Mar.31)	10 mg/l	-	-	-	-	1.9	3.84	3.26	3.41	2.67	-	-	-
Ammonia Nitrogen Summer	1 mg/l	0.28	0.20	0.33	0.24	-	-	-	-	-	0.13	0.13	0.21
Winter	2 mg/l	-	-	-	-	0.35	0.47	1.46	2.59	0.15	-	-	-
Total Suspended Residue	30 mg/l	3.29	1.01	0.27	2.87	1.76	3.38	2.05	1.70	4.08	1.75	3.63	2.33
Fecal Coliform	200/100 ml	1.38	1.62	1.27	1.18	1.10	1.33	1.54	1.11	1.51	1.05	1.26	1.56
Dissolved Oxygen	> 6 mg/l	8.05	8.11	8.03	8.06	7.93	7.96	8.12	8.31	8.81	9.26	8.39	8.44
Copper	13.2 ug/l	-	2.3	-	-	4.4	-	-	4.0	-	-	5.0	-
Zinc	175.0 ug/l	-	28	-	-	58	-	-	24	-	-	70	-
Total Phosphorous Maximum Month	41.7 #/ day	4.06	4.12	1.21	5.37	4.86	7.43	13.69	11.89	10.71	11.91	13.63	9.47
Total Phosphorus 12 Month Rolling Average	20.85#/ day	13.19	11.58	10.6	9.83	9.0	9.12	9.18	9.0	8.69	8.92	8.63	8.36

Permit Violations: February 2022 violation for exceeding the monthly average ammonia limit

Table 3-2

Crooked Creek Water Reclamation Facility
NPDES Permit #: NC0069841
Fiscal Year: 2021-2022 Effluent Limits and Performance

Parameter	Limit	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22	Jun '22
FLOW	1,900 MGD	0.75	0.79	0.76	0.68	0.63	0.87	1.21	1.01	1.09	0.97	0.74	0.74
pH	6-9 SU	7.0-7.4	6.9-7.6	6.9- 7.4	6.9-7.4	7.1-7.7	7.0-7.4	7.2-7.4	7.2-7.4	6.8-7.6	6.7-7.3	7.0-7.3	6.7-7.5
Cl ₂	17 ug/l	0	0	0	0	0	0	0	0	0	0	0	0
BOD5 Summer (Apr.1 - OCT.31)	5 mg/l	1.14	1.98	1.18	0.47	-	-	-	-	-	2.82	1.45	1.1.96
Winter (Nov.1 - Mar.31)	10 mg/l	-	-	-	-	0.65	3.84	3.41	1.88	2.23	-	-	-
Ammonia Nitrogen Summer	2 mg/l	0.19	0.21	0.27	0.21	-	-	-	-	-	0.28	0.24	0.24
Winter	4 mg/l	-	-	-	-	.016	0.13	0.19	0.20	0.24	-	-	-
Total Suspended Residue	30 mg/l	0.51	0.74	0.22	0	2.08	0.73	4.17	0.20	1.33	2.74	0	1.83
Fecal Coliform	200/100 ml	1.23	1.83	1.55	1.00	1.15	2.22	1.00	2.37	1.58	3.89	1.39	2.91
Dissolved Oxygen	> 6 mg/l	7.70	7.70	7.90	8.50	8.59	9.33	9.48	9.31	9.33	9.22	8.40	8.17

Permit Violations: There were no violations for this period.

Table 3-3

Hunley Creek Water Reclamation Facility
NPDES Permit #: NC0072508
Fiscal Year: 2021-2022 Effluent Limits and Performance

Parameter	Limit	
FLOW	0.231 MGD	<p>Hunley Creek WRF is currently not in service.</p> <p>This facility was listed as inactive as of May 2006; therefore, there is no data reported for this fiscal year.</p>
pH	6-9 SU	
Cl ₂	20 ug/l	
BOD5 Summer (Apr.1 - OCT.31)	5 mg/l	
Winter (Nov.1 - Mar.31)	10 mg/l	
Ammonia Nitrogen Summer	2 mg/l	
Winter	4 mg/l	
Total Suspended Residue	30 mg/l	
Fecal Coliform	200/100 ml	
Dissolved Oxygen	> 5 mg/l	

Permit Violations: There were no violations during this period.

Table 3-4

Olde Sycamore Water Reclamation Facility NPDES Permit #: WQ0011928 Fiscal Year: 2021-2022 Effluent Limits and Performance

Parameter	Limit	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22	Jun '22
FLOW	0.150 MGD	0.028	0.029	0.029	0.030	0.030	0.037	0.042	0.042	0.043	0.043	0.042	0.047
pH	6-9 SU	6.8-7.3	6.9-7.3	6.8-7.3	6.9-7.5	6.9-7.3	6.8-7.6	7.0-7.5	7.1-7.5	6.7-7.3	6.8-7.1	6.8-7.4	6.8-7.6
BOD5	10 mg/l	<2	<2	<2	<2	<2	<2	2.2	2.0	2.0	<2	<2	<2
Ammonia Nitrogen	4 mg/l	0.33	0.22	<0.10	0.17	<0.10	<0.10	0.23	0.06	0.56	0.11	<0.10	0.28
Total Suspended Residue	5 mg/l	<2.6	<2.7	<2.7	<2.7	<2.7	3.1	<2.7	<2.7	<2.7	<2.7	<2.7	<2.7
Fecal Coliform	14/100 ml	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Turbidity	> 10 NTU	0.2	0.3	0.3	0.3	0.3	1.9	1.1	1.4	0.6	0.8	0.8	0.3

Permit Violations: There were no violations for this period.

Table 3-5

Tallwood Estates Water Reclamation Facility NPDES Permit #: NC0069523 Fiscal Year: 2021-2022 Effluent Limits and Performance

Parameter	Limit	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22	Jun '22
FLOW	0.050 MGD	0.017	0.015	0.015	0.015	0.016	0.081	0.030	0.025	0.035	0.033	0.018	0.016
pH	6-9 SU	7.3-7.6	7.5-7.6	7.1-7.7	7.2-7.7	7.4-7.7	7.3-7.5	7.3-7.6	7.4-7.7	7.2-7.5	7.1-7.6	7.3-7.5	7.3-7.7
BOD5 Summer (Apr.1 - OCT.31)	5 mg/l	0	0.51	0	0	-	-	-	-	-	2.71	0.43	0.55
Winter (Nov.1 - Mar.31)	10 mg/l	-	-	-	-	0	0.77	0.55	0	1.39	-	-	-
Ammonia Nitrogen Summer	2 mg/l	0.08	0.30	0.15	0.05	-	-	-	-	-	0.11	0.30	0.19
Winter	4 mg/l	-	-	-	-	0.05	0.06	0.28	0.08	0.24	-	-	-
Total Suspended Residue	30 mg/l	0	0	0	0	0	0	0	0	0	0	0	0
Fecal Coliform	200/100 ml	1	1	1	1	3.2	1	1	1	1	3.1	1.69	1.18
Dissolved Oxygen	> 6 mg/l	7.33	7.76	7.91	7.91	8.88	9.44	10.11	10.54	9.81	9.59	8.78	8.20

Permit Violations: There were no violations for this period.



Table 3-6

**Grassy Branch Water Reclamation Facility
 NPDES Permit #: NC0085812
 Fiscal Year: 2021-2022 Effluent Limits and Performance**

Parameter	Limit	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22	Jun '22
FLOW	0.050 MGD	0.018	0.032	0.031	0.033	0.032	0.035	0.063	0.060	0.063	0.054	0.032	0.019
pH	6-9 SU	7.2-7.4	7.1-7.5	7.0-7.4	6.9-7.3	6.9-7.3	6.9-7.6	7.0-7.5	6.9-7.5	6.4-7.6	6.8-7.6	6.7-7.3	7.2-7.4
Cl ₂	17 ug/l	0	0	0	0	0	0	0	0	0	0	0	0
BOD5 Summer (Apr.1 - OCT.31)	5 mg/l	0.73	1.3	0.52	1.9	-	-	-	-	-	2.6	4.11	0.62
Winter (Nov.1 - Mar.31)	10 mg/l	-	-	-	-	3.18	2.29	4.70	4.84	4.33	-	-	-
Ammonia Nitrogen Summer	2 mg/l	0.13	0.35	0.47	0.36	-	-	-	-	-	0.78	0.60	0.22
Winter	4 mg/l	-	-	-	-	0.91	0.11	0.56	0.47	0.62	-	-	-
Total Suspended Residue	30 mg/l	2.69	1.49	3.64	0	5.07	8.16	5.62	5.45	4.65	5.56	7.52	0
Fecal Coliform	200/100 ml	1	1.82	5.59	14.0	2.22	2.90	1	1.32	1	1	1.60	1.64
Dissolved Oxygen	> 6 mg/l	8.18	8.13	8.46	8.63	9.78	10.23	11.62	11.73	9.96	9.55	9.45	8.16

Permit Violations: In January, February, March and April the monthly flow limit was exceeded. In May, the weekly BOD average limit was exceeded.

4.0 Biosolids Management (Fiscal Year 2021-2022)

Portions of the biosolids are managed and disposed of in accordance with Permit No. ND0089044 issued by the South Carolina Department of Health and Environmental Control. The solids are aerobically digested and then applied as fertilizer to permitted sites. The solids are considered stabilized and thus suitable for land application when the volatile solids content is reduced by 38%. If this 38% volatile solids reduction cannot be achieved, then alkaline stabilization, injection or incorporation is employed to ensure permit compliance. Union County Water, through its biosolids contractor, land applied approximately 2.52 million gallons of biosolids. Union County also mechanically dewatered 9225.19 tons of biosolids, using 7477.97 tons for composting and 1747.22 tons were disposed of at the Anson Regional landfill.



What Are Biosolids?

Biosolids are the nutrient-rich, organic by-product of the wastewater treatment process. When treated and managed appropriately, they can be beneficially used for a number of purposes, such as a fertilizer to improve and maintain productive soils and stimulate plant growth. Biosolids are one of the most studied materials that have ever been regulated by the U.S. Environmental Protection Agency (USEPA).

5.0 Synopsis of Wastewater Collection System (Fiscal Year 2021-2022)

Permit No. WQCS00054. UCW currently operates and maintains over 737 linear miles of sewer mains, including force mains, and 53 wastewater pumping stations that provide service to more than 45,000 accounts. All pump stations are equipped with both audible and visual alarms as well as telemetry which alert staff when alarm conditions are present. Inspections of all pump stations meet or exceed state requirements. Emergency auxiliary power is provided to all stations via portable or permanent mounted generators. Union County personnel are on-call and available 24 hours a day, seven days a week, 365 days a year.

Union County Water is required by state permit to clean a minimum of 10% of the collection system annually to prevent and/or reduce backups and overflows. Staff has consistently surpassed that requirement, cleaning more than the required 10%. UCW cleaned approximately 10.7% (71 miles of 662.2 total gravity miles) of the collection system last year. Staff also conducts inspections of the collection system with the utilization of underground closed-circuit television (CCTV) inspection equipment. These cleaning and inspection efforts allow staff to determine areas in the system that require repairs or increased maintenance to provide the proper service to our customers.

The FOG (Fats, Oils, and Grease) Program is aimed at reducing grease related backups and overflows by educating the public of the hazards associated with the disposal of grease and grease related by-products into the wastewater system. Union County Water has also developed a comprehensive list of food service establishments (FSE) and commercial establishments. This effort has resulted in creating a successful grease trap inspection and enforcement program to ensure that restaurants and other food preparation facilities properly maintain grease traps and interceptors.

This fiscal year, 444 total FSE inspections were performed among 390 FSE's, including 34 Union County public school facilities.

	Feet	Miles	Gravity System Total (In Miles)
Sewer Lines Cleaned	372,764	71	662
Smoke Testing	37,307	7.7	662
Easement Maintenance	78,875	15	662



Utility easements and right-of-ways are maintained by UCW staff to ensure access for staff and equipment to conduct routine maintenance as well as respond to emergencies, such as sanitary sewer overflows. The easements require round-the-clock access and should not be impeded by structures such as pools (above or below ground), buildings, gardens, trees, shrubs, plantings, fences, etc. UCW staff inspects and conducts necessary maintenance, including mowing, to these easements and right-of-ways once a year.

An Easement Awareness, Education and Enforcement Program has been established to improve accessibility to UCW's sanitary sewer easements. This is accomplished by educating customers on the allowable uses of the easement and describing prohibitions, as well as procedures regarding enforcement when it is required for access.

High priority lines such as aerial creek crossings, lines subject to erosion and/or problematic areas are visually inspected at a minimum semi-annually. High priority lines are inspected more frequently after periods of heavy rain and flooding.

UCW maintains emergency response equipment in a ready state at all times. This emergency equipment varies in nature from spare electrical parts and plumbing supplies, to vacuum trucks, pumps, and excavators. Workers' safety is of utmost importance. Safety equipment such as night lighting, gas monitors, trenching and shoring equipment, and reflective cones/signs are always readily available.

UCW continuously works to improve its infrastructure and service provided to our customers. This involves consistent inspections and system examinations to ensure that our system is operating properly. Additionally, Union County has Capital Improvement Projects (CIP) to identify and correct deficiencies within the wastewater system. The following pages include an overview of some of these projects:

	Inspected	System Total
Manhole Inspected	1102	17,788
Pump Station Inspections	3806	N/A
CCTV Connections	1494	N/A
Point Repairs	329	N/A

12 Mile Creek WRF Expansion

Union County Water is currently in the design phase of upgrading Twelve Mile Creek WRF. The project involves various improvements, including increasing the treatment capacity from 7.5 MGD to 9.0 MGD.

These improvements will help meet future short-term anticipated wastewater flows. The project will also prepare the facility for a future expansion to 12 MGD. These expansion projects will meet the projected long-term wastewater treatment needs for the southwestern portion of the County.

THE EXPANSION PROJECT INCLUDES:

- Upgrade and expansion of the influent pump station
- New odor control facility for the influent pump station
- New chemical feed facility
- New aeration blower
- New final clarifier
- Upgrade the solids handling odor control system
- Various electrical improvements
- Ancillary yard piping

Crooked Creek WRF Headworks Improvements

Union County Water is currently in the construction phase of two improvement projects at the Crooked Creek WRF. These projects will improve the reliability and efficiency of the plant operations.

THE IMPROVEMENT PROJECTS INCLUDE:

- Upgrade of the electrical and control systems
- Upgrade emergency backup power
- Upgrade the aeration system
- Ancillary yard piping

Grassy Branch WRF Expansion

Union County Water has entered into a Special Order of Consent (SOC) with the North Carolina Division of Water Resources (NCDWR) for high flow exceedances due to limitations on the facility size. The SOC outlines the activities needed to expand the facility from 0.05MGD to 0.12MGD including relaxed parameters for regulatory compliance to complete the expansion by June 30, 2027.

THE EXPANSION PROJECT INCLUDES:

- Upgrade of the influent pump station
- Add an additional treatment train
- Replace/upgrade existing sand filters with cloth disk filters
- Replace/upgrade the UV system

Ongoing Collection System II Abatement Projects and Sanitary Sewer Evaluation Studies

Studies are being done throughout the collection system to identify problems, conduct flow monitoring, and assess the need for rehabilitation.

Master Plan Study - Currently we have a comprehensive masterplan that is being conducted. As part of that plan, we have installed 27 flow meters throughout the entire system to model flows. The data from those meters will direct SSES efforts for FY22-23 and beyond.

Poplin Road Basin - Construction is underway of a 4 MGD flow EQ tank located on Indian Trail-Fairview Road. This EQ will allow staff to divert flows during peak hours and rain events to avoid SSO's.

Crooked Creek WRF Basin - The Helmsville Pump Station Basin underwent extensive SSES during FY21-22. The SSES included 72 manholes and the inspection of 18,700 feet of mainline, including lateral launch technology on all 30 connections to the system.

Grassy Brach WRF Basin - The Grassy Branch Basin underwent extensive SSES during FY21-22. The SSES included CCTV mainline inspections with lateral launch technology on all 129 connections to the system.

Six Mile Basin - During FY21-22 an in-depth flow monitor study was completed. The study comprised of 10 flow meters that monitored flow during dry and wet weather near Joe Kerr Road. One hundred twenty-eight manholes were inspected and 26,100 feet of smoke testing was conducted in the Highgate area as a result of previous flow metering efforts conducted during FY20-21.

12 Mile Basin - A rehab project was conducted on a significant portion of the West Fork 12 Mile Interceptor. This project was identified based on FY20-21 CCTV results and flow monitor findings of excessive amounts of rainwater entering into this basin during FY19-20. This project reduced significant I&I, measured in excess of one-million gallons during two significant storm events.

Sanitary Sewer Overflow Report

Start Date	MH or Main Asset ID	Address	Water Body	Gal to Surface Waters	Gal on Ground	Total Gallons	Primary Cause	Secondary Cause
2021-07-02	2063	7900 Stonehaven Drive	West Fork 12 Mile	500	0	500	Severe Weather	I&I
2021-07-08	Funderburk Road Pump Station	610 Funderburk Road		0	650	650	Lift Station Failure	
2021-08-31	2426	1909 Hwy. 205(Eastside #3)		0	180	180	Lift Station Failure	
2021-11-10	Helmville Force Main	2844 Gray Fox Road	South Fork Crooked Creek	75	0	75	Pipe Failure	
2021-11-16	Eastside Station #2 Lift Station	4720 Monroe-Ansonville Road		0	100	100	Lift Station Failure	
2021-12-15	10968	3913 Providence Road		0	225	225	Grease	
2021-12-16	10215 and 8935	6324 Tanyard Road	Price Mill Creek	80	1000	1080	Debris	
2021-12-18	10992	3020 Arsdale Road		0	500	500	Grease	
2022-01-03	20116	605 North Indian Trail Road		0	750	750	I&I	
2022-02-04	Forest Park Force Main Discharge MH	390 Chestnut Parkway	West Fork 12 Mile	200	440	640	MH Failure	
2022-04-05	9527	2104 Lytton Lane	South Fork Crooked Creek	2000	250	2250	ARV Failure	
2022-04-05	5231	4004 Sardis Church Road		2600	0	2600	I&I	
2022-04-21	Eastside Station #2 Lift Station	4720 Monroe-Ansonville Road		0	120	120	Lift Station Failure	
2022-04-28	5282	3102 Sun Valley Place	South Fork Crooked Creek	325	0	325	Contractor Hit Line	
2021-05-02	30520	3804 Creek View Drive		0	1160	1160	Debris	
Total Spills: 15 Total Annual Volume: 11,155 Gallons Miles of Pipe in System: 737 Reportable SSOs Per 100 Miles: 2.0								

For questions concerning this Wastewater Performance Summary or additional information please contact UCW:

704.296.4210

Or write to:

Union County Water

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